Annex 2. Appraisal of Key Options

Performance Key:

Major Positive	Minor Positive	Neutral	Major Negative	Minor Negative	Uncertain	Implementation issue	Neutral+Implementation issue	Minor Positive/Minor Negative
++	+	O	--	-	?	I	OI	+/-

- **Please refer to Table 1 in Annex 1 for full wording of the Objectives.**
- **Please note that the appraisal workshop was split into sub-groups to appraise different issues; consequently the way in which the appraisal matrices were filled in varies.**

1. Issue: How should the Oxfordshire sand and gravel apportionment of 1.82 million tonnes per annum to 2O16 be provided

Sustainability Objective		Make provision for the full plan period through area and/or site identification		Make site and/or area provision to 2O16 or backed up by criteria policies	
		+/-	Explanation	+/-	Explanation
1	Decent home	**OI**	More certainty if areas allocated; stronger safeguarding – but probably very marginal	**O**	Some uncertainty if rely on criteria policies
2	Flooding	**OI**	Implementation issue	**OI**	Implementation issue
3	Health	**O**	No relationship	**O**	
4	Accessibility	**O**	Only a very tenuous link to employment	**O**	
5	Efficient land use	**O**	Greenfield development	**O**	Greenfield development
6	Air	**O**	No obvious relationship	**O**	

7	Climate change	+	Steer locations close to demand, less traffic movements. Identify areas where landfill is not an option	O	
8	Biodiversity	+	Avoid biodiversity areas and locate where opportunities	-	Less control over where located
9	Open space	O	No real relationship	O	
1O	Countryside, historic environment	+	Avoid protected areas; locate where opportunities	-	Less control over where located
11	Culture, leisure	+	Avoid protected areas; locate where opportunities	-	
12	Transport	+	Locate close to markets, less movement	-	
13	Soil quality	+	Can steer away from best and most versatile land	-	Less control over where located
14	Mineral supply	+	More certainty of supply if allocated areas because easier to get planning permission	-	Less certainty of supply
15	Resource cons.	O	No relationship	O	
16	Waste reduction	O	No direct relationship	O	
17	Waste treatment	O	No direct relationship	O	
18	Water	I	No direct relationship	I	
19	Energy	I	Site management issue	I	
2O	Employment	O	Very small employment but in rural areas	O	Very small employment but in rural areas
21	Economy	O		O	
Summary: Recommend that there would be more certainty and greater control if site allocations were specified in the MWDF, although it was highlighted that the areas selected must be acceptable to the industry. Just having criteria based on policies could lead to development in less sustainable locations as they will not be subject to SA/SEA.					

2. Issue: How should the Oxfordshire sand and gravel apportionment of 1.82 million tonnes per annum be subdivided between soft sand and sharp sand and gravel?

Stakeholder group felt that the last option could not be appraised

Sustainability Objective		Continue the existing Minerals and Waste Local Plan split of 1O% soft sand: 9O% sharp sand and gravel;		Use current average production split of 17% soft sand: 83% sharp sand and gravel		Use some other split.	
		+/-	Explanation	+/-	Explanation	+/-	Explanation
1	Decent home	O	No significant effect	O	No significant effect		
2	Flooding	I	Largely an implementation issue	I	Slightly less flood risk if more soft sand working as outside floodplain		
3	Health	O	No relationship	O			
4	Accessibility	O	No relationship	O			
5	Efficient land use	O		O	But soft sand is more land efficient		
6	Air	O		O			
7	Climate change	O		O			
8	Biodiversity	I	Depends on site location	I	Not enough information to distinguish generally between areas		
9	Open space	O		O			
1O	Countryside, historic env.	I	Depends on site location	I			
11	Culture, leisure	I	In past more opportunities in valley gravels	I			
12	Transport	O		+	Potentially less distance if market met from soft sand		
13	Soil quality	O		+	Lower land take and possibly generally lower grade in sand		

					deposits		
14	Mineral supply	-	Contrary to current demand	+	Meet market demands and societies needs for minerals		
15	Resource cons.	-	Sand would have to come from further field	+	More local supply		
16	Waste reduction	O		+			
17	Waste treatment	O		O			
18	Water	I		I	But sharp sand and gravel uses water - quality issue - less with increased soft sand.		
19	Energy	O		I			
2O	Employment	+	More people work in sharp sand and gravel	O			
21	Economy	O		O	More competition if match market		
Summary: Recommend that Oxfordshire's apportionment should be subdivided between soft sand and sharp sand and gravel with a higher percentage of soft sand provision than in the existing Minerals and Waste Local Plan. The reasons for this are mainly to do with increased market demand for soft sand and the need for the MWDF to make provision to meet this, thereby avoiding ad-hoc development.							

3. Issue: Where should new sand and gravel workings be located?

Sustainability Objective		Continue to concentrate new workings in existing strategic areas of working (currently 65% of sharp sand and gravel production is from the two strategic areas in West Oxfordshire, i.e. the Eynsham-Cassington-Yarnton and the Lower Windrush Valley areas);		Premote new strategic working area(s) in the southern part of the county, to spread production more evenly in relation to the main demand areas in Oxfordshire;		Premote a more dispersed pattern of smaller scale working areas.	
		+/-	Explanation	+/-	Explanation	+/-	Explanation
1	Decent home	-	Depends where housing is being built, - reduces chance of local minerals for local development. Main influence in meeting needs will be the economy.	O	Will allow a more balanced supply of sand and gravel between West and South Oxon; however the main influence will be the economy.	+	Economies of scale may increase costs although this could be offset by reduced transport costs. Would allow local minerals for local development.
2	Flooding	O	More impact on water environment in West Oxon - could be mitigated by positive management. Positive for water storage. No increase in flood risk although won't reduce flood risk.	+	No increase in flood risk, would reduce current significant impact on West Oxon.	+	Less significant impact on water environment only localised disturbance. No increase in flood risk
3	Health (health impacts of quarrying unknown, group assumed effects on people)	O	May affect less people than more dispersed quarrying as will be localised into one area, although impact on those people may be more significant.	O	Quarrying impacts may affect more people across the county, but may reduce impact on those already affected.	O	Quarrying will affect more people across the county

4	Accessibility	**O**	No impact	**O**	No impact	**O**	No impact
5	Efficient land use	**O**	No impact	**O**	No impact	**O**	No impact
6	Air (assumed main impact on air to be transport and associated fumes)	**-**	Longer journeys needed to distribute minerals to areas of demand. Although possibly less journeys overall (larger tonnage per km).	**+**	More dispersed pattern than option 1, therefore nearer local needs. Hence less distance to transport minerals, although possibly more frequent journeys but less than option 3.	**-**	Nearer local needs therefore less distance to transport minerals, although probably more frequent journeys
7	Climate change	**+**	Less energy, e.g. only one conveyor, more efficient. Increased transport.	**-**	Local diversity	**-**	More energy use. More buildings/conveyors etc
8	Biodiversity	**+**	Dependant on locations, more impact on Windrush. Dependant on restoration.	**+**	Away from rivers	**-**	More impact on more sites. Less large impact.
9	Open space	**+**	Larger schemes giving better quality? Dependant on after use.	**-**	More accessible/dispersed.	**-**	Smaller areas, less opportunity for recreation
1O	Countryside, historic environment	**O**	Neutral	**O**	Neutral	**O**	Neutral
11	Culture, leisure	**O**	Similar to 4	**O**		**O**	
12	Transport	**-**	More congestion	**-**	More traffic	**+**	Less congestion
13	Soil quality	**I**	Dependant on site location	**0**		0	
14	Mineral supply	**I**	Permitted reserves	**0**		0	
15	Resource cons.	**O**	Neutral	**O**	Neutral	**O**	Neutral
16	Waste reduction	**O**	Neutral	**O**	Neutral	**O**	Neutral
17	Waste treatment	**+**	Limited the amount of waste	**-**	Produce more waste, which needs disposing	**+**	Will help reduce the amount of waste
18	Water	**O**	Location factor, neutral	**O**	Neutral	**O**	Neutral

19	Energy	+	More viable and efficient	-	Increase the energy consumption	+	Energy efficiency
2O	Employment	+	Stable on employment on large sites	+		+	More people
21	Economy	+	Increase employment	+	Increase employment	+	Increase employment
Summary: Recommend a slightly broader spread of sand and gravel working than at present. This would help reduce the transport impacts associated with production and location of market areas. This strategy would also reduce the cumulative impact of developments. However, it is highlighted that this would be dependent on the existence of workable deposits and the economics of developing such sites.							

4. **Issue: How should the Oxfordshire crushed rock apportionment of 1.O million tonnes per year to 2O16 be provided?**

The Appraisal Group decided this is the same as Issue 3 and therefore had the same comments

Sustainability Objective		Locate new permissions limestone workings in the Witney – Burford area;		Locate new permissions limestone workings in the Oxford – Bicester area;		Make increased provision for working of ironstone from the north of the county and reduced provision for limestone working.	
		+/-	Explanation	+/-	Explanation	+/-	Explanation
1	Decent home	-	Depends where housing is being built, - reduces chance of local minerals for local development. Main influence in meeting needs will be the economy.	O	Will allow a more balanced supply of sand and gravel between West and South Oxon; however the main influence will be the economy.	+	Economies of scale may increase costs although this could be offset by reduced transport costs. Would allow local minerals for local development.
2	Flooding	O	More impact on water environment in West Oxon - could be mitigated by positive management. Positive for water storage. No increase in flood risk although won't reduce flood risk.	+	No increase in flood risk, would reduce current significant impact on West Oxon.	+	Less significant impact on water environment only localised disturbance. No increase in flood risk
3	Health (health impacts of quarrying unknown, group assumed effects	O	May affect less people than more dispersed quarrying as will be localised into one area, although impact on those people may be more significant.	O	Quarrying impacts may affect more people across the county, but may reduce impact on those already affected.	O	Quarrying will affect more people across the county

	on people)						
4	Accessibility	O	No impact	O	No impact	O	No impact
5	Efficient land use	O	No impact	O	No impact	O	No impact
6	Air (assumed main impact on air to be transport and associated fumes)	-	Longer journeys needed to distribute minerals to areas of demand. Although possibly less journeys overall (larger tonnage per km).	+	More dispersed pattern than option 1, therefore nearer local needs. Hence less distance to transport minerals, although possibly more frequent journeys but less than option 3.	-	Nearer local needs therefore less distance to transport minerals, although probably more frequent journeys
7	Climate change	+	Less energy, e.g. only one conveyor, more efficient. Increased transport.	-	Local diversity	-	More energy use. More buildings/conveyors etc
8	Biodiversity	+	Dependant on locations, more impact on Windrush. Dependant on restoration.	+	Away from rivers	-	More impact on more sites. Less large impact.
9	Open space	+	Larger schemes giving better quality? Dependant on after use.	-	More accessible/dispersed.	-	Smaller areas, less opportunity for recreation
1 O	Countryside, historic environment	O	Neutral	O	Neutral	O	Neutral
11	Culture, leisure	O	Similar to 4	O		O	
12	Transport	-	More congestion	-	More traffic	+	Less congestion
13	Soil quality	I	Dependant on site location	O		O	
14	Mineral supply	I	Permitted reserves	O		O	
15	Resource cons.	O	Neutral	O	Neutral	O	Neutral
16	Waste reduction	O	Neutral	O	Neutral	O	Neutral

17	Waste treatment	+	Limited the amount of waste	-	Produce more waste, which needs disposing	+	Will help reduce the amount of waste
18	Water	O	Location factor, neutral	O	Neutral	O	Neutral
19	Energy	+	More viable and efficient	-	Increase the energy consumption	+	Energy efficiency
2 O	Employment	+	Stable on employment on large sites	+		+	More people
21	Economy	+	Increase employment	+	Increase employment	+	Increase employment
Summary: The appraisal suggests that a slightly broader spread of workings for meeting the crushed rock apportionment would be preferred. However, this will again be dependent on availability of sites and economics.							

5. Issue: Should there be new quarries or extensions to current quarries?

Sustainability Objective		Prefer extensions to existing quarries for additional sand and gravel/limestone & ironstone provision;		Prefer new quarries for additional sand and gravel/limestone & ironstone provision.	
		+/-	Explanation	+/-	Explanation
1	Decent home	+	Everything is in place infrastructure.	-	Reduction of mileage
2	Flooding	O	Better in terms of flood risk, work already taking into account.	O	
3	Health	-	Possible cumulative effect of quarries on local people.	O	Depends on the site location
4	Accessibility	-	Possible to increase the level of existing traffic flow	+	More fundamental changes, more opportunity
5	Efficient land use	+	Maximising value, less land area, more sustainable	+	More land will be used, new building and infrastructure.
6	Air	O	Dependant on location	O	Dependant on location
7	Climate change	-	Construction of new site, more energy	+	More efficient buildings
8	Biodiversity	+	Assessments done, knowledge, less surrounding damage	0	
9	Open space	-	Bigger area = more potential for losing open space	-	New site = potential for losing open space
10	Countryside, historic environment	O	No impact on priority habitats	0	
11	Culture, leisure	O	neutral	O	neutral
12	Transport		Covered in Issue 1	+	Potential to move away traffic from congested roads
13	Soil quality	O	Neutral	O	Neutral

14	Mineral supply	**0**	Issue of demand. Capacity to produce not reserves.	**0**	
15	Resource cons.	**0**	Neutral, don't need to reset infrastructure	**0**	Neutral
16	Waste reduction	**0**		**0**	
17	Waste treatment	**-**	Potentially increase the level of waste	**-**	Potentially increase the level of waste
18	Water	**O**	Neutral	**O**	Neutral
19	Energy	**-**	Increase energy consumption	**-**	Increase energy consumption
20	Employment	**+**	Stable current employment	**+**	More employment more quarries
21	Economy	**+**	Stable employment	**+**	Employment increase
Summary: Recommend that each site should be assessed on its own merits. It is highlighted that extensions would not need new infrastructure but would add to cumulative impact locally. The economics of the size of extension or of new sites would also be a factor.					

6. **Issue: What scope is there for increasing supply of recycled and secondary aggregates to replace primary aggregates and how can the plan promote increased supply**

Sustainability Objective		Make provision for aggregates recycling facilities sufficient to meet regional and/or local targets for supply and use of recycled aggregates		Make over provision for aggregates recycling facilities to ensure supply can be maximised	
		+/-	Explanation	+/-	Explanation
1	Decent home	O	To achieve sustainably built house	O	Advantage if had targets for use of recycled aggregates in houses - would make this a positive option and could make materials cheaper
2	Flooding	O	Not related	O	Not related
3	Health	+	Fewer crushers means less dust	+	
4	Accessibility	O		O	
5	Efficient land use	O		+	Can locate recycling facilities on brown field sites
6	Air	O	Fewer crushers means less dust	O	
7	Climate change	O		+	Less energy used in production and reduced transport distances for recycled aggregate than primary aggregate extraction.
8	Biodiversity	I		I	
9	Open space	O		O	
10	Countryside, historic environment	O		+	Less municipal waste and less countryside affected.
11	Culture, leisure	+	More primary aggregates give more opportunities.	-	

12	Transport	**O**		**+**	Increased recycling and reduced transport distance
13	Soil quality	**O**		**+**	Less municipal waste means less best and most versatile agricultural land taken
14	Mineral supply	**O**		**+**	Doesn't affect overall supply
15	Resource cons.	**O**		**+**	
16	Waste reduction	**O**		**+**	
17	Waste treatment	**O**		**+**	Over supply leading to increased waste treatment
18	Water	**I**		**I**	
19	Energy	**O**		**+**	Less energy used in production and reduced transport distances for recycled aggregate…
20	Employment	**O**		**+**	More employment from recycling
21	Economy	**O**		**+**	More economic activity
Summary: There are no negatives in providing either sufficient capacity or over-provision of capacity for recycling of aggregates. However, over-provision seemed to be more positive in developing a sustainable strategy bearing in mind the lack of accurate data.					

7. Issue: How should provision be made for the new waste management facilities that will be needed?

Sustainability Objective		Identify broad locations for waste management facilities;		Identify site specific allocations for waste management facilities		Set locational criteria against which planning applications would be considered	
		+/-	Explanation	+/-	Explanation	+/-	Explanation
1	Decent home	O	No significant effect	O	No significant effect	O	No significant effect
2	Flooding	O	This would be a negative if flood areas were not sieved out. Depends on type of location and, implementation. This would be relevant whether or not in flood area	O	This would be a negative if flood areas were not sieved out. Depends on type of location, and implementation and type. This would be relevant whether or not in flood area	-	More difficult to screen out flood risk areas – can be argued on each case
3	Health	O	No significant affect	O	No significant affect	O	No significant affect
4	Accessibility	O	No significant affect	+	Accessibility can be maximised	O	No significant affect
5	Efficient land use	O	No significant affect	+	Brownfield and regeneration sites can be identified	O	No significant affect
6	Air	I	Depends on type, scale and location of facilities	+	The site specific approach allows you to more deliberately avoid areas of poor air quality	I	Criteria would need to include avoidance of poor air quality areas; closeness to areas that generate waste
7	Climate change	Approach to locating facilities would not affect impact on climate change; similar impacts for all alternatives					

8	Biodiversity	I	Depends on type, scale and location of facilities	+	Allows avoidance of areas of high biodiversity	I	Criteria would need to include avoidance of areas of biodiversity interest
9	Open space	Similar impacts for all alternatives					
10	Countryside, historic environment.	Similar impacts for all alternatives					
11	Culture, leisure	Similar impacts for all alternatives					
12	Transport	I	More smaller facilities could reduce the distance travelled from waste origin	I	Fewer larger sites would generate more longer traffic movements, but could be located so as to optimise location vis a vis road network	I	More smaller facilities could reduce the distance travelled from waste origin
13	Soil quality	O	No significant effect	+	Allows sites of high soil quality to be avoided	O	No significant effect
14	Mineral supply	+	Gives some flexibility to developers	-	May identify sites that developers don't want to develop on	+	Gives more flexibility to developers
15	Resource cons.	I	Small scale facilities more likely to be developed under this scenario; recycling more likely to take place if facilities are delivered; so similar impacts to 14. Smaller operators may be able to provide a more flexible service	I	May lead to fewer, larger scale developments; but these are more likely to be implemented.	I	Smaller scale facilities more likely to be developed under this scenario than b.
16	Waste reduction	I	Smaller scale facilities may	I	Gives more certainty to	I	Smaller scale facilities

			be more easily delivered; may be more difficult to deliver larger scale.		developers that planning permission would be developed (and thus waste management capacity would be increased), though there is the risk that sites may not be the right ones in terms of a developer being able to acquire undeveloped land.		may be more easily delivered may be more difficult to deliver larger scale.
17	Waste treatment	**I**	See Objective16	**I**	See Objective 16	**I**	See Objective16
18	Water	**O**	Less control over location with option 1 than option2. Depends on type of facility, management, control measures in place	**+**	Gives more control over location of facilities; allows water pollution to be avoided	**O**	Criteria could include location with respect to water courses. Would need to mitigate.
19	Energy	Not related to how facilities are located					
20	Employment	**O**		**O**		**O**	
21	Economy	**O**		**O**		**O**	
Summary: Recommend that identification of site specific allocations in the MWDF would be the more sustainable option. However, the other two approaches would allow flexibility in the MWDF. Therefore it is considered that a combination of the three options (criteria, identification of broad areas and actual site selection) may be the most appropriate sustainable strategy.							

8. Issue: How should provision be made for the new waste management facilities that will be needed?

Assumes all facilities are to meet the needs of waste management arising in Oxfordshire -not imports.

Sustainability Objective		Identify locations for specific types of facility		Identify locations for more general types of facility, to allow flexibility for evolving waste management practice and technology		Rule out particular types of facility as unacceptable on planning grounds at particular locations or countywide	
		+/-	Explanation	+/-	Explanation	+/-	Explanation
1	Decent home	O		O		O	
2	Flooding	I		I		I	
3	Health	+	Can avoid pollution and near to population	O		+	
4	Accessibility	+	Allows identification of smaller sites for local needs	O		O	
5	Efficient land use	+	Can better match type of facility to the size and nature of the site	O		O	
6	Air	+	Can avoid pollution	O		+	
7	Climate change	O		O		O	
8	Biodiversity	I	Depends on site location	I		I	
9	Open space	O		O		O	
10	Countryside, historic environment	O		-		+	
11	Culture, leisure	O		O		O	
12	Transport	O	Questionable whether can rule out high traffic generation in unsuitable locations.	O	Co-location of waste management facilities could lead to less traffic	O	Can rule out high traffic generation in unsustainable location

			Site location could bring positive or negative effect		Site location could bring positive or negative effect		Site location could bring positive or negative effect
13	Soil quality	O		O		O	
14	Mineral supply	O		O		O	
15	Resource cons.	O		O		O	
16	Waste reduction	O		+	More flexible - allows new technology	-	Reduces options - could restrict future development to new technology - especially if applies to whole
17	Waste treatment	O		+	Less restrictive	-	
18	Water	O		-		+	Stronger protection of water environment
19	Energy	+	Can locate plant close to where energy is used	O		-	Would rule out potential energy generation
20	Employment	O		O	Waste parks would generate new industries	O	
21	Economy	O		+	Waste parks would generate new industries	O	
Summary: From our viewpoint, the appraisal was not clear on which was the overall best strategy on how to provide new waste management facilities. Flexibility of sites (not restricting types of technologies on a site) was favoured but, as with the previous issue, it is considered that the best solution may be a combination of the approaches (some sites to be specific for certain technologies and others for a more general range of technologies).							

9. Issue: What scale of new waste management sites should provision be made for?

Appraisal assumes that facilities only deal with Oxfordshire's wastes.
Appraisal assumes that treatment includes sorting. Incineration would typically be larger scale; neighbourhood recycling facilities small scale; but generally different waste management sites could be either smaller or larger scale. Appraisal assumes that a) would lead to one facility per town/district; b) would lead to one or two facilities for the county

Sustainability Objective		Identify a small number of strategic sites for large-scale waste treatment facilities or integrated groups of facilities ('resource parks');		Identify a larger number of more local sites for small-scale waste treatment facilities	
		+/-	Explanation	+/-	Explanation
1	Decent home	O		O	
2	Flooding	I	Depends more on location than size of facility	I	Depends on location
3	Health	?	Fewer larger sites might be easier to manage and police, but if something does happen the impact is likely to be larger.	?	More smaller facilities would be harder to police, but problems at one would have less impact than a)
4	Accessibility	+	Would enable greater accessibility to waste management facilities	O	
5	Efficient land use	+	Would be easier to identify Brownfield for small sites than for a few large sites	O	
6	Air	?		?	
7	Climate change	?		?	
8	Biodiversity	I	Depends on location and management	I	
9	Open space	I	See 9.	I	
10	Countryside, historic environment	I	See 9.	I	
11	Culture, leisure	O	Could support local initiatives, e.g. community recycling etc. days	O	Could support visitor centre, more centralised educational activities

12	Transport	Depends on the type of facilities and waste; need more information about what happens in practice.			
13	Soil quality	**I**	Depends on location and management	**I**	
14	Mineral supply	**O**		**O**	
15	Resource cons.	**+**		**O**	
16	Waste reduction	**O**		**O**	
17	Waste treatment	**O**		**O**	
18	Water	**I**	Depends on location and management	**I**	
19	Energy	**+/-**	Smaller sites less economic in terms of landfill gas collection. Other types of waste management facilities – e.g. aggregates recycling- more efficient in terms of energy efficiency.	**+/-**	More likely to get landfill gas collection from larger sites. Other types of waste management facilities may use more energy if materials moved longer distances.
20	Employment	**?**		**?**	Larger scale facilities often are more mechanised, with less employment. But this does not necessarily have to be the case.
21	Economy	**+**	More small facilities could generate more business competition, greater spread across the county, could be more likely to employ local residents.	**O**	
Summary: Recommendation is for a few large sites which could accommodate strategic and/or integrated management facilities. However, this option is heavily dependant on the transport effects being sustainable.					

10. Issue: Where should new waste management facilities be located?

Appraisal assumes that this applies to waste management facilities but not landfill.

Sustainability Objective		a) Locate waste treatment facilities in or close to the urban centres where most waste is produced		b) Locate waste treatment facilities in more rural locations where sites may be more readily available	
		+/-	Explanation	+/-	Explanation
1	Decent home	-	More likely to conflict with possible sites for new housing (which is more likely to be in urban areas)	O	
2	Flooding	-		O	If there is flooding at (or partly caused by) a rural site, it would affect fewer people, and there is generally more room to attenuate impacts in rural areas
3	Health	+/-	Impacts of sites themselves are more likely to have a health impact (odour, noise etc.) in urban areas, but transport to/from sites less likely to cause health problems. Also depends on route to/from site	+/-	Opposite of a).
4	Accessibility	+		O	
5	Efficient land use	+	More likely to get Brownfield sites in urban areas	O	
6	Air	+-	Urban locations are more likely to have existing air pollution problems. Less traffic generated under this scenario.	+-	Opposite of a)
7	Climate change	+	Fewer transport emissions	O	
8	Biodiversity	I	Depends on location, type of facility, management	I	

9	Open space	-	More likely to affect publicly accessible open space in urban areas	O	
10	Countryside, historic environment.	-	Would have more impacts in terms of historic environment and architecture.	-	Would have more impacts on countryside and landscape.
11	Culture, leisure	O		O	
12	Transport	O	Less likely to lead to longer journeys from origin to waste treatment site.	-	
13	Soil quality	O		-	More likely to affect agricultural quality in rural areas
14	Mineral supply	O		O	
15	Resource cons.	+	Locating facilities in urban areas could make people more aware of the impacts of their waste; could make it easier for people to recycle, reuse etc.	O	
16	Waste reduction	O		O	
17	Waste treatment	O		+	Could be easier to identify sites away from urban areas, due to conflict with other land uses (e.g. housing)
18	Water	I	Already likely to be poorer quality in rivers. Could have cumulative impacts on urban water quality.	I	Both really depend on implementation.
19	Energy	+	More possibilities for CHP type facilities in urban rather than rural areas, plus less energy used for transport	O	
20	Employment	+	Jobs accessible to more people in urban areas.	O	
21	Economy	O		O	

Summary: Recommend locating waste facilities in or close to urban areas. The disadvantages of this (conflict with potential housing sites, noise and air pollution) are assessed to be relatively minor in relation to the benefits (less distance to travel, potential for combined heat and power and higher likelihood of development on brownfield land).

11. Issue: At what type of site should waste treatment facilities be located?

Comment: this appraisal assumes that we are appraising larger sites. Smaller sites would have similar impacts, but may be insignificant because they are so small. Waste facilities can also be very different. Are we talking about small, clean recycling sites or large MRFs, chemical treatment plants etc?

Sustainability Objective		a) Locate waste treatment facilities on industrial sites;		b) Locate waste treatment facilities at existing waste management sites;		c) Locate waste treatment facilities on brownfield sites in the countryside;		d) Locate waste treatment facilities on greenfield sites.	
		+/-	Explanation	+/-	Explanation	+/-	Explanation	+/-	Explanation
1	Decent home	**O**		**O**		**-**	Could conflict with provision of housing. Depends on definition of 'countryside': near villages would have more conflict with housing than further away from villages.	**-**	See c)
2	Flooding	**I**	Depends on where the site, ability to compensate, flood defences etc.	**I**	See b)	**I**	See c)	**-**	Development in the countryside could increase runoff because of harder surfacing. Would need mitigation.
3	Health	**O**	Will depend on type of facility. Wind row composting would not be appropriate close to workplaces but in vessel would be ok.	**+**	Employees at an existing site may be more aware of potential health risks and have PPC	**+**	May help to remediate a brownfield site which may have been heavily polluted.	**+**	Reducing health inequalities by locating facilities away from poorer areas where people may have poorer health.
4	Accessibility	**+**	Likely to be well related to main transport network.	O	See a)	**O**		**O**	

			Modern estates are better located in terms of accessibility than older ones. However industrial estate landlords may not want waste facilities on site.						
5	Efficient land use	+		+		+		-	
6	Air	-	May reduce transport distance but air quality poorer in urban areas thus locating more facilities here may reduce air quality	-		+	Air quality better in rural areas so may reduce inequalities	+	Air quality better in rural areas so may reduce inequalities
7	Climate change		May reduce mileage		May reduce mileage				
8	Biodiversity	O	Unlikely to be designated site	O	See a	+	Cleaning up a polluted site and planting/provision of ponds and hedges could increase biodiversity.	O	Some existing vegetation could e lost
9	Open space	O	Unlikely to be heavily used public space but permissive paths could be created through an estate.	O	See a		See a	O	Likely to take up open space.
	Countryside, historic	O	Some older industrial estates		See a				

	environment.		may have historic listed buildings. However some estates could be improved by demolition of old industrial buildings and replacement by modern buildings with landscaping.						
	Culture, leisure	**O**		**+**	May be an educational element e.g. interpretation centre	**+**	See b	**-**	Unlikely to benefit
	Transport	**O**	Depends on location of waste arisings and markets. Rail network is full. Local journeys by rail are not economically viable.	**O**	Better not to generate waste in the first place/better to reuse waste on site e.g. crushing hardcore and reusing to create foundations of new development.	**+/-**	See d	**+/-**	Likely to be transported solely by road but roads may be quieter and pass by fewer house. Staff likely to travel by car.
	Soil quality	**O**		**O**		**O**		**-**	
	Mineral supply	**O**	Likely to be built up land with no access	**O**	See a	**O**	See a	**-**	May sterilise mineral reserve

			to underlying mineral						
	Resource cons.	+	May be able to use existing buildings, access etc thus less need to build new buildings and roads etc.	+	See a	+	See a	-	May need considerable resources to create foundations, buildings, access routes etc+
	Waste reduction	O	Location irrelevant	O		O		O	
	Waste treatment	O		O		O		O	
	Water	+	Could improve existing water system. Just as likely to have water courses in urban as rural areas.	+	See a		See a		Could mitigate potential pollution though engineering and sealed drainage.
	Energy	+	More potential for combined heat and power in more built up areas.	0		0		+/-	Would be easier to create a state of the art energy efficient building from scratch.
	Employment	-	Location Irrelevant	-	See a	-	See a	-	See a
	Economy		See above		See above		See above		See above
Summary: The suitability of sites depends on factors such as the type of technology, size of facility, size of site and the density of surrounding human population. Each site must be assessed on its own merits. It was highlighted that for all options the impact upon the flood plain must be considered.									