Environmental Report for the Strategic Environmental Assessment of the Municipal Waste Management Strategy for Oxfordshire

Oxfordshire
Waste Partnership

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Oxfordshire Waste Partnership

Environmental Report for the Strategic Environmental Assessment of the Municipal Waste Management Strategy for Oxfordshire: *Final*

August 2006

Reference 0035304.09

For and on behalf of
Environmental Resources Management

Approved by: _____

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1 NON-TECHNICAL SUMMARY

1.1 INTRODUCTION

The Department for Environment, Food and Rural Affairs (Defra) has commissioned Environmental Resources Management Limited (ERM) to support the development of a Joint Municipal Waste Management Strategy (Joint MWMS) for Oxfordshire. This is being done through a process of joint working with the Oxfordshire Waste Partnership (OWP), a grouping of the local authorities in Oxfordshire, to undertake a joint strategy process to work towards the development of an Action Plan for municipal waste management in Oxfordshire.

As part of the process of developing the MWMS, the strategy is subject to a Strategic Environmental Assessment (SEA) under the provisions of the Environmental Assessment of Plans and Programmes Regulations 2004 (SI no 1633). The SEA identifies, describes and evaluates the likely significant effects of implementing the strategy, and reasonable alternatives taking into account the objectives and the geographical scope. These issues must be taken into account in the preparation of the strategy.

This Environmental Report sets out the results of the assessment process, showing the likely significant impacts of the strategy and of the options which have been considered as part of developing the strategy. The Environmental Report is an annex of the draft strategy and helps to illustrate the proposals made in the strategy document.

1.2 OUTLINE OF THE STRATEGY AND ITS RELATIONSHIP WITH OTHER PLANS AND PROGRAMMES

The Oxfordshire Waste Partnership's vision is of providing progressively more sustainable waste management services in future, and in particular avoiding greenhouse gas emissions and improving the management of resources. This will be done through achievement of the following objectives.

Box 1.1 Objectives of the Strategy

1. manage waste in accordance with the waste hierarchy: reduce waste first, then reuse, recycle and compost resources, then recover value and, as a last resort, dispose of waste;
2. promote waste reduction, reuse and recycling initiatives to Oxfordshire communities to help everyone manage their own wastes;
3. manage wastes through seeking the most appropriate and sustainable solution that protects the environment, including minimising the transport of waste;
4. meet or exceed performance required by statutory and locally agreed targets;
5. work together through the provision of coordinated services and infrastructure for waste collection treatment, transfer and disposal to maximise the efficient use of resources within Oxfordshire;

6. ensure that waste facilities are suitably sized and distributed and that site identification is informed in accordance with the Minerals and Waste Development Framework and the Regional Spatial Strategy;
7. assist the development of markets, especially those that are local, for recovered materials;
8. enable customer satisfaction through delivery of effective and efficient services to Oxfordshire residents that minimise the overall tax burden at the best possible value;
9. develop flexible and comprehensive waste management services that are robust and deliverable throughout Oxfordshire now and in the long term;
10. lobby government and work with local business to improve the efficient use of resources, reduce the impact of activities on resource consumption which results in the production of municipal waste, and to encourage them to take responsibility for the wastes they produce.

These objectives have been further developed into a set of policies, targets and actions in order to achieve the objectives.

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

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

- National legislation, 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 in order to the landfill of biodegradable municipal waste.

- National waste policy, in particular that set out in Waste Strategy 2000[1] and Waste Not Want Not[2], sets the framework of overarching policy objectives for MWMSs.

- National guidance[3] which sets out government expectations of MWMSs, including key policy objectives for waste management and principles to be used in decision-making in regard to waste.

- The Regional Waste Strategy, No Time to Waste[4], sets out policies to deal with waste arising in the South East region, with a focus on the specific circumstances and challenges of the region. The regional strategy is yet to be adopted.

(1) [1] Waste Strategy 2000 for England and Wales, Department of the Environment, Transport and the Regions, May 2000

(2) [2] Waste Not Want Not: A Strategy for Tackling the Waste Problem in England, Cabinet Office Strategy Unit, November 2002

(3) [3] Guidance on Municipal Waste Management Strategies, Defra, July 2005

(4) [4] No Time to Waste: Regional Waste Management Strategy Consultation Draft, South East England Regional Assembly, March 2003

- The Oxfordshire Minerals and Waste Local Plan[1] sets the planning framework for the management of waste, including municipal waste, within the county. The plan sets out the spatial and land use policies which will be used to govern the management of waste in Oxfordshire and more specifically to control waste-related development.

- County statutory plans, most importantly the Structure Plan[2], set the broader local framework for the implementation of the Joint MWMS, and particularly policies on the location and control of development.

- County non-statutory strategies and plans guide the policy approach at county level on specific issues relating to the environment and sustainable development.

1.3 SUMMARY OF SIGNIFICANT ISSUES AND PROBLEMS IDENTIFIED

The significant issues which have been identified through the review of available baseline data are summarised in the following table.

Table 1.1 Significant Environmental, Social and Economic Issues for Oxfordshire

Category	Key Issues
Air quality	Five Air Quality Management Areas (AQMAs) have been designated in the county, which represent localised urban areas where buildup of traffic-based pollution such as NO_2 may reach levels of concern. Most of the rest of the region appears to have good air quality, with the notable exception of the major coal and gas-fired power stations at Didcot.
Water quality & availability	In 2001 in Oxfordshire 96% of the rivers and canals had good chemical quality water (Grade A-D) compared with 95% in England and Wales. Oxfordshire is less likely to suffer water budget deficits than other parts of the South East – however the county's consumption remains one of the highest, and leakage levels represent up to a third of water used.
Waste	In 2004/05, Oxfordshire generated a total of 317,860 tonnes of municipal waste. Most local authorities in Oxfordshire achieved above the England average recycling level for municipal solid waste. Two thirds of municipal solid waste is currently landfilled. Commercial/industrial and construction/demolition waste are each larger waste streams than the municipal solid waste stream. Two thirds of C&I waste is landfilled, while a quarter of C&D waste is landfilled.
Landscape	Three Areas of Outstanding Natural Beauty, the Chilterns and the Cotswolds fall to the west, and the south of the county. The North Wessex Downs fall on the Southern borders of the County. The remainder of the County, although not designated, consists almost entirely of varied, attractive and valued landscape

(5) [1] *Oxfordshire Minerals and Waste Local Plan,* Oxfordshire County Council, July 1996

(6) [2] *Oxfordshire Structure Plan 2011*, Oxfordshire County Council, August 1998

Category	Key Issues
Land quality	Compared to the rest of the South East, the five districts within Oxfordshire have relatively low amounts of identified previously developed land and derelict buildings.
Biodiversity	Oxfordshire has a number of significant protected sites of international, national and local designation. The Sites of Special Scientific Interest (SSSIs) are in good condition compared to both the regional and the national picture (84% by area meet the government's targets). A number of habitats and species have been prioritised for protection and enhancement in Local Biodiversity Action Plans.
Transport	Data presented shows the A roads and the motorway carry large volumes of traffic around the region. Traffic growth is at around 1% per year, which is a little lower than the national average.
Built, cultural and archaeological heritage	The county has 278 Scheduled Ancient Monuments, 12,077 Listed Buildings, and 55 Historic Parks and Gardens registered with English Heritage. Oxfordshire contains just over 11% of the SAMs in the South East, and 16% of the listed buildings.
Amenity	Oxfordshire is a largely tranquil area. Fly tipping and street littering seem unlikely to be a problem compared to other areas. Satellite data indicates that, as with other parts of the UK, there is significant night light pollution in populous areas.
Health	Census and data from the Office of the Deputy Prime Minister indicates health is relatively good across the County compared to other regions, with residents having better health on average than the regional or national average.
Material assets	There are significant areas of the county that are subject to flood risk, especially around Oxford and wherever development has occurred on the flood plains of the Thames or the Cherwell. Property prices in Oxfordshire are generally more expensive than the South East regional average
Population	The total populations of each of the five districts are remarkably similar, but because Oxford City is so much smaller, the population density is over a factor of ten greater than the other districts in the county.
Economy	Oxfordshire's economy has grown steadily over recent years. This reflects a general trend in the South East region and in the UK as a whole. The GVA per head is relatively high, being 24% above the UK average.
Employment	Oxfordshire has a relatively high level of employment, with 84% of those of working age in work in 2002/03. This compares to 74% for the UK as a whole. The largest sector for numbers in employment in Oxfordshire is in financial and business services, and represents a larger than average proportion of total employment.
Access to services	Specific data on access to services in Oxfordshire was not found

1.3.1 Areas Likely to be Significantly Affected

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

First, the overall effects will be spread throughout Oxfordshire, because waste arises almost everywhere, waste transport will occur throughout the county and the some of the impacts of waste management activities will be widespread and borne by all. In this case, the relevant sustainability characteristics are those set out in the baseline above.

On another level, some of the effects of the management of waste will occur in the vicinity of waste management sites. The Joint MWMS does not address issues of site location, and therefore to a large extent it has not been possible in the assessment to deal with site-specific issues. The assessment has considered issues which may arise in the vicinity of sites in general, but consideration and control of issues at in dividual sites is the responsibility of the Waste Local Plan.

1.3.2 Existing Problems Relevant to the Joint MWMS

A number of existing environmental problems have been identified which could be of potential relevance to the Joint MWMS. These are as follows.

- Two thirds of municipal solid waste is currently landfilled compared with four fifths for England as a whole. Recycling in the county for 2004/05 was 30% which is well above the England average of 22.5% for the same year and early calculations shows that the recycling rate for 2005/06 is 33%. Commercial/industrial and construction/demolition waste are each larger waste streams than the municipal solid waste stream. Two thirds of C&I waste is landfilled, while a quarter of C&D waste is landfilled. There is likely to be an increasing need for new or expanded waste management facilities in the future, given the expected growth in the quantities of waste generated and the forthcoming required reductions in the amount of biodegradable municipal waste sent to landfill.

- Internationally designated sites within Oxfordshire include seven Special Areas of Conservation (SACs). Three have been identified with vulnerabilities which are potentially relevant to note in connection with waste management issues, but the links are tenuous and not considered significant currently:
  - Oxford Meadows SAC is critically dependent on groundwater levels and annual flooding. Gravel extraction is taking place on an adjacent site.
  - Hartslock Wood is possibly vulnerable to aerial pollution but it is not considered a significant threat
  - Aston Rowant has declining juniper populations but the reasons for this are not understood.

1.4 Sustainable Development Objectives Relevant to MWMS

The environmental objectives for the SEA were identified by reviewing relevant policy documents, both statutory and non-statutory, at the national,

regional and county level. The review identified and extracted any environmental policy objectives which are relevant to the Joint MWMS and which will set the environmental policy framework with which the strategy must conform. The review also included strategies and plans relevant to economic and social policy likely to be relevant to municipal waste management issues.

The list of policy objectives identified in the review was then used to derive a set of assessment criteria for the SEA. The proposed strategy and relevant options were assessed against these criteria to identify and evaluate the likely effects of the strategy and options. Not all criteria are relevant to all types of options, and therefore for some levels of options some of the criteria were not used in the assessment. *Table 4.1* lists the criteria and indicates which were used to assess the different levels of option.

1.5 Likely Significant Effects of the MWMS

The likely significant effects of the strategy are considered in two ways, the effects of the strategy itself, and the effects of different options for managing waste within the framework of the strategy.

The options for the MWMS were developed on three levels:

- Options for minimisation of waste arisings and promoting reuse;
- Options for collection systems for recyclables and compostable waste;
- Options for treatment of residual waste.

1.5.1 Minimisation Options

The options selected for consideration for minimisation of waste arisings are as follows:

- Option 1: home composting, at either a medium or a high level of participation;
- Option 2: furniture recycling, either through support for charities or the establishment of a central depot;
- Option 3: reusable nappies, at either a medium or a high level of participation;
- Option 4: waste-aware (or “smart”) shopping;
- Option 5: prevention of unwanted mail;
- Option 6: reuse of unwanted goods (paint, tools and mobile phones).

The assessment of each of these options against the relevant appraisal criteria shows that overall promotion of home composting with a high level of participation, performs well relative to the other options against a large number of the assessment criteria, including being the best option for both cost and the impact on reducing waste generation, and that it also delivers a range of other benefits as well. However, it is potentially more challenging to

deliver than some of the other options. Note that the options are not alternatives, but that several of the options may be implemented simultaneously.

1.5.2 *Recycling Options*

The options selected for consideration for recycling are set out in *Table 1.2*. Each option provides services in addition to the current recycling collection activities in Oxfordshire.

Table 1.2 ***Recycling Options***

Option	Description
1	Fortnightly collection of card and garden waste, fortnightly residuals collection
8	Fortnightly kerbside sort recyclables, fortnightly residuals
12	Alternate weekly co-mingled recyclables, alternate weekly residuals
44	Fortnightly co-mingled recyclables, fortnightly garden / kitchen waste, fortnightly residuals
54	Alternate weekly kerbside sort recyclables, fortnightly garden / kitchen waste, alternate weekly residuals
56	Weekly co-mingled recyclables, garden / kitchen waste alternate weekly, residuals alternate weekly
57	Fortnightly co-mingled recyclables, alternate weekly garden waste, alternate weekly residuals
63	Alternate weekly kerbside sort recyclables, garden / kitchen waste weekly, alternate weekly residuals
65	Alternate weekly kerbside sort recyclables, alternate weekly garden / kitchen waste, fortnightly residuals
A	Weekly co-mingled recyclables, weekly collection of food waste, fortnightly collection of garden waste via a charged collection (for 8,000 properties per district), residuals fortnightly
B	South Oxfordshire, West Oxfordshire, Vale of White Horse scheme as 'A'; Cherwell & Oxford City fortnightly co-mingled recyclables, fortnightly garden & food waste, residuals fortnightly

The results of the assessment show that overall options 44 and 65 perform well relative to the other options against a large number of the assessment criteria, while also avoiding the increase in costs and transport impacts associated with some of the other high-performing options.

Options 1, 8 and 12 perform poorly against some of the assessment criteria, particularly in terms of their expected performance against the waste hierarchy and reducing the amount of waste sent to landfill. These options may also result in greater use of the car in recycling activities, although they are predicted to reduce the transport impacts of collection vehicles. However, options 8 and 12 also perform relatively well on air emissions including greenhouse gases, on resource use and on energy consumption.

1.5.3 *Residual Treatment Options*

The following options for residual waste treatment were selected for appraisal:

- No treatment: all residual waste is sent directly to landfill;
- Energy from waste (EFW): one or two facilities to treat residual waste;
- Advanced thermal treatment (ATT): one or two facilities to treat residual waste;
- Mechanical biological treatment (MBT): two plants to treat residual waste;

The MBT option has been modelled considering three sub-options:

- Refuse Derived Fuel (RDF) being combusted in a dedicated Oxfordshire facility;
- RDF being combusted through existing UK market structures;
- RDF being disposed to landfill.

Each treatment option was coupled with different recycling options (see *Section 1.5.2*) to produce 72 pairs of recycling and residual treatment options. The impacts of the 72 combinations were appraised jointly.

The results indicate that EFW and ATT perform well relative to the other options on reduction of landfill of biodegradable waste, recovery of value and promotion of net self-sufficiency. EFW and ATT also tend to perform well in terms of the waste hierarchy although this is also strongly dependent on the recycling option chosen. In addition, EfW performs best on reduction of total waste to landfill and flexibility, while ATT generally performs poorly on flexibility and deliverability. However, the costs involved with ATT tend to be more reliably positive than with EFW and ATT tends to score slightly better in relation to public acceptability than EFW.

The MBT options tend to have greater adverse impacts on road transport than the thermal treatment options, and in addition have relatively poor flexibility where the RDF is sent to market or to a burner within Oxfordshire.

Having two thermal treatment plants instead of one performs better in terms of road transport distances but tends to be less publicly acceptable, have greater impacts on communities, be less deliverable and be less effective in terms of the implementation of the waste hierarchy.

1.5.4 Significant Effects of the Policies

The key significant impacts of the strategy are in meeting the objectives of sustainable waste management, in other words the strategy will reduce the landfill of waste, including biodegradable waste, by moving waste management activities up the waste hierarchy, promoting waste minimisation and increasing reuse, recycling, composting and recovery of value, either in terms of material resources or energy.

Achievement of these goals is strongly dependent on improving the accessibility of minimisation and recycling services to the public and on significantly increased levels of public participation in waste-related activities, which are recognised and addressed by the strategy. This will have a number of other benefits, including reducing the emissions of greenhouse gases from

waste-related activities, and reducing the likelihood of adverse impacts on water quality and potentially also on biodiversity.

The impacts on levels of waste transport are less clear. The strategy seeks to minimise distances in locating new waste management facilities. However, increased recycling may result in more recyclate being transported out of the county if sufficient capacity is not available locally. This would increase the amount of waste transport and any potential effects arising. The strategy seeks to support local markets, but could be strengthened by an explicit commitment to county net self-sufficiency where possible, as emphasised in other policy documents. Car use for waste transport should be reduced by more accessible services, although this could be made a clearer aim in the strategy.

The costs of waste management are likely to rise with reducing disposal to landfill and expansion of other waste-related services and activities, although the economic impacts will be offset to an extent through minimisation, energy recovery and through managing waste locally which will help to increase the size and diversity of the waste management sector in the county.

Various policies of the strategy will encourage communities to take more responsibility for their own waste and will also help to delay the need for new residual treatment and disposal facilities. These facilities could have impacts on communities within which they are located, both positive in terms of jobs and potentially negative in terms of amenity.

1.6 Mitigation and Enhancement

A number of recommendations are made in order to address the likely significant impacts of the MWMS, both in terms of mitigating adverse impacts and enhancing positive impacts. The main recommendations are:

- Include a commitment to promote locally-based recyclate processing capacity where feasible and recognise that recycling and composting is relevant to waste transport issues as well as recovery and disposal;
- Make a clear commitment to supporting regional net self-sufficiency and to achieving county net self-sufficiency where possible;
- Include a commitment to providing facilities for recycling and reuse that do not require car use;
- Consider the inclusion of targets for composting to strengthen the commitment to reducing the landfill of biodegradable waste;
- Acknowledge the importance of efficient use of water and energy;
- Include a commitment to reuse, recycling and recovery in preference to landfill within policy rather than supporting text;
- Include a commitment within policy to limit residual treatment to those wastes which cannot be reused or recycled.

1.7 MONITORING RECOMMENDATIONS

The report sets out a series of recommendations for monitoring the effects of implementing the strategy, including suggesting a number of indicators for undertaking the monitoring. Monitoring of strategy implementation should focus on its effectiveness in several key areas:

- The achievement in managing waste at levels of the waste hierarchy, including in relation to past performance: minimisation, reuse, recycling, composting, energy recovery and landfill;
- County capacity in waste management facilities, by type;
- The level of county net self-sufficiency in dealing with waste, by type of management method;
- Levels of service accessibility;
- Reporting on the councils' waste-related activities, including costs and effectiveness;
- The cost of waste management services, including expenditure on particular types of schemes, services or activities.

2.1 PURPOSE OF THE SEA

The Department for Environment, Food and Rural Affairs (Defra) has commissioned Environmental Resources Management Limited (ERM) to support the development of a Joint Municipal Waste Management Strategy (Joint MWMS) for Oxfordshire. This is being done through a process of joint working with the Oxfordshire Waste Partnership (OWP), a grouping of the local authorities in Oxfordshire, to undertake a joint strategy process to work towards the development of an Action Plan for municipal waste management in Oxfordshire.

Oxfordshire's joint household waste management strategy dates from 2002. It requires reviewing and updating to incorporate developments in policy, legislation and technology, and to respond to waste growth and forecasts of future growth over the strategy period. The updated strategy is being extended to encompass all the municipal solid waste generated across the OWP and to address forthcoming targets in defining options for future waste management services, specifically for the periods 2005-10 and 2010–20.

The work is taking a 'business case' approach to the provision of waste management services in Oxfordshire, whilst achieving a closer and more co-ordinated working relationship between the six local authorities. The business case approach requires a focus on needs and outcomes, on service costs and on delivering against chosen objectives. The Strategy needs to address the challenges presented by the key drivers of waste management: the need for minimisation, Best Value with respect to the recommendations of the recent best value audit; Gershon benefits of partnership; public satisfaction; statutory recycling targets; diversion from landfill through the Waste and Emissions and Trading Act (WET Act) and the Landfill Allowance Trading Scheme (LATS) and regulatory development.

As part of the process of developing the MWMS, the strategy is subject to a Strategic Environmental Assessment (SEA) under the provisions of the Environmental Assessment of Plans and Programmes Regulations 2004 (SI no 1633). These Regulations implement the European Union SEA Directive[1] in England and Wales, which requires a strategic assessment of the environmental impacts of a range of plans and programmes to be undertaken. This assessment is to be used as a tool for integrating environmental considerations into the preparation of a plan or strategy, in this case the MWMS, by considering the effects of implementing the strategy during its preparation and before its adoption. The SEA is required systematically to assess the strategy against a list of environmental criteria. It should identify,

(1) [1] Directive 2001/42/EC of the European Parliament and of the Council on the assessment of the effects of certain plans and programmes on the environment

describe and evaluate the likely significant environmental effects of implementing the strategy, and reasonable alternatives taking into account the objectives and the geographical scope. These issues must be taken into account in the preparation of the strategy.

This Environmental Report sets out the results of the assessment process, showing the likely significant impacts of the strategy and of the options which have been considered as part of developing the strategy. A number of recommendations are made for ways in which the likely adverse effects can be mitigated, and for monitoring the effects of implementing the strategy. The Environmental Report accompanies the draft strategy which has been put out for public consultation, with the purpose of informing that consultation so that the likely effects of the proposals can be understood more clearly.

2.2 *PROCESS*

The SEA of the proposed MWMS has been undertaken by ERM to meet the requirements of the European Union's Directive on the environmental assessment of plans and programmes (Directive 2001/42/EC) which came into force in England & Wales in July 2004 through the Environmental Assessment of Plans and Programmes Regulations 2004 (Statutory Instrument 2004 No. 1633).

2.2.1 *Scoping*

Scoping work on the SEA was carried out between July and November 2005, which involved the collection of baseline data on environmental, economic and social conditions in the county. It also included a review of all relevant plans, policies and programmes at national, regional and county level to set the policy context within which the MWMS will sit and in particular to identify environmental, economic and social policy objectives with which it must comply or which it will contribute towards achieving.

Arising from the policy review and the analysis of baseline data, a number of assessment criteria were drawn up against which the strategy should be assessed in order to make a systematic assessment of the likely effects of the strategy in respect of the key issues for the county and the sustainable development policy framework governing the strategy. The list of criteria were subject to discussion with officers of the County Council, District Councils and Oxford City Council.

A scoping report was produced and issued in November 2005 for consultation with the four statutory environmental authorities, the District, City and County Councils, as well as with authorities within neighbouring counties. A small number of comments were received and amendments were incorporated wherever relevant.

2.2.2 Strategic Assessment

Following the consultation on the Scoping Report, work was undertaken on developing a series of options for the strategy on three levels:

- Potential schemes for minimising waste arisings or for promoting reuse of goods;
- Scenarios for collection schemes to promote increased recycling and composting;
- Choices for residual treatment technologies.

The options were developed in discussion with the County Council and Waste Collection Authorities. The treatment options were developed by Enviros Consulting Ltd on behalf of the Oxfordshire Waste Partnership, and it was essential that there was close working on options development between ERM and Enviros as the viability and impacts of the treatment options are strongly dependent on the nature of the recycling collection options.

Following agreement with the councils of the different options to be considered, these were then subject to a detailed appraisal of effects against the agreed criteria, by ERM for the minimisation and collection options, and by Enviros for the combined recycling and residual treatment options. Modelling was undertaken for each of the three levels of options to assess the expected impacts quantitatively wherever possible. Where quantification was not possible, a qualitative assessment was made. The likely significant impacts arising under each option was thus identified, and these are set out in this report in summary form. For detailed data on the quantification of options, please refer to the accompanying technical options reports.

In parallel with the development of options for minimisation, recycling and residual treatment, proposals were drafted for the strategy's objectives and policies. These were also assessed against the agreed criteria, to determine the likely significant effects of the strategy. This report summarises the results of that assessment, along with recommendations for mitigation of potential adverse effects and for monitoring the implementation of the strategy.

2.3 Objectives of Strategy

The Oxfordshire Waste Partnership's vision is of providing progressively more sustainable waste management services in future, and in particular avoiding greenhouse gas emissions and improving the management of resources. This will be done through achievement of the following objectives.

Box 2.1 Objectives of the Strategy

11. manage waste in accordance with the waste hierarchy: reduce waste first, then reuse, recycle and compost resources, then recover value and, as a last resort, dispose of waste;
12. promote waste reduction, reuse and recycling initiatives to Oxfordshire communities to

help everyone manage their own wastes;

13. manage wastes through seeking the most appropriate and sustainable solution that protects the environment, including minimising the transport of waste;
14. meet or exceed performance required by statutory and locally agreed targets;
15. work together through the provision of coordinated services and infrastructure for waste collection, treatment, transfer and disposal to maximise the efficient use of resources within Oxfordshire;
16. ensure that waste facilities are suitably sized and distributed and that site identification is informed in accordance with the Minerals and Waste Development Framework and the Regional Spatial Strategy;
17. assist the development of markets, especially those that are local, for recovered materials;
18. enable customer satisfaction through delivery of effective and efficient services to Oxfordshire residents that minimise the overall tax burden at the best possible value;
19. develop flexible and comprehensive waste management services that are robust and deliverable throughout Oxfordshire now and in the long term;
20. lobby government and work with local business to improve the efficient use of resources, reduce the impact of activities on resource consumption which results in the production of municipal waste, and to encourage them to take responsibility for the wastes they produce.

These objectives have been further developed into a set of policies, targets and actions in order to achieve the objectives.

2.4 Relationship of Joint MWMS to Other Plans, Programmes and Policy Objectives

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

- European Union legislation, most importantly the Landfill Directive, sets targets for reduction in the amount of biodegradable municipal waste sent to landfill. Oxfordshire County Council must meet the requirements imposed by the Directive.

- National legislation which is also binding on Oxfordshire County Council, 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 in order to reduce disposal of biodegradable municipal waste to landfill.

- National waste policy, in particular that set out in Waste Strategy 2000[1] and Waste Not Want Not[2], sets the framework of overarching policy objectives for MWMSs. The Joint MWMS must be aligned with these broad policy objectives such as promoting waste minimisation and implementing the waste hierarchy.

(7) [1] Waste Strategy 2000 for England and Wales, Department of the Environment, Transport and the Regions, May 2000

(8) [2] Waste Not Want Not: A Strategy for Tackling the Waste Problem in England, Cabinet Office Strategy Unit, November 2002

- National guidance[1] which sets out government expectations of MWMSs, including key policy objectives for waste management, the role of the Joint MWMS in meeting those objectives and requirements for the process which should be followed in developing the Joint MWMS. It lists a set of principles to be used in decision-making in regard to waste, including the requirement for undertaking an SEA as well as an evaluation of economic and social factors.

- The Regional Waste Strategy, *No Time to Waste*[2], sets out policies to deal with waste arising in the South East region. While being aligned with national waste policy objectives, the strategy has a specific focus on policy to deal with the specific circumstances and challenges of the region. Local authorities, including those in Oxfordshire, should take the strategy into consideration in developing MWMSs, and should seek to align their strategies with the regional strategy. The regional strategy is yet to be adopted.

- The Oxfordshire Minerals and Waste Local Plan[3] sets the planning framework for the management of waste, including municipal waste, within the county. The plan sets out the spatial and land use policies which will be used to govern the management of waste in Oxfordshire and more specifically to control waste-related development. It therefore provides the planning framework by which the facilities to manage waste, including municipal waste, will be delivered, and as such it is important that there is consistency between the Plan and the Joint MWMS where relevant. The Local Plan is due to be replaced by a Minerals and Waste Local Development Framework.

- County statutory plans, most importantly the Structure Plan[4], set the broader local framework for the implementation of the Joint MWMS, and particularly policies on the location and control of development.

- County non-statutory strategies and plans, such as the Best Value Performance Plan, the Community Strategy and the Agenda 21 Strategy, guide the policy approach at county level on specific issues relating to the environment and sustainable development, but are not binding.

A detailed list of all relevant strategies, plans and programmes was set out in the SEA Scoping Report (*Section 3*).

(9) [1] *Guidance on Municipal Waste Management Strategies*, Defra, July 2005

(10) [2] *No Time to Waste: Regional Waste Management Strategy Consultation Draft*, South East England Regional Assembly, March 2003

(11) [3] *Oxfordshire Minerals and Waste Local Plan,* Oxfordshire County Council, July 1996

(12) [4] *Oxfordshire Structure Plan 2011*, Oxfordshire County Council, August 1998

3 BASELINE DATA REVIEW

3.1 INTRODUCTION

This section describes the significant features and conditions within Oxfordshire relevant to sustainable development policy and objectives. It provides an overview of the state of the environment, society and the economy in the county in the period preceding the adoption and implementation of the Joint MWMS. The full baseline information which was used to compile this summary was given in *Section 2* of the SEA Scoping Report.

The aim of this section of the report is to highlight any significant issues or problems that are affecting Oxfordshire's economy, its people, or its environment and to outline the way in which the state of the environment, society and the economy might change in the future. The purpose is to set the context within which waste management activities arising out of the Joint MWMS will take place, so that the significant sustainability issues and the way that municipal waste management activities might interact with those issues can be better understood. It also enables the SEA and the process of selecting the preferred options to identify and focus on those issues which are significant.

This section of the report incorporates the environmental baseline information requirements that are specified in Schedule 2(6) of the Environmental Assessment of Plans & Programmes Regulations 2004.

3.1.1 Difficulties in Collecting Data

There are substantial amounts of data available to populate a sustainability baseline for Oxfordshire. However, in a small number of instances data was not available. Where possible, data for the South East region as a whole has been used to indicate the likely situation in Oxfordshire. In some cases, no data could be found to describe the baseline situation. In particular, there is little data on likely future trends for many issues.

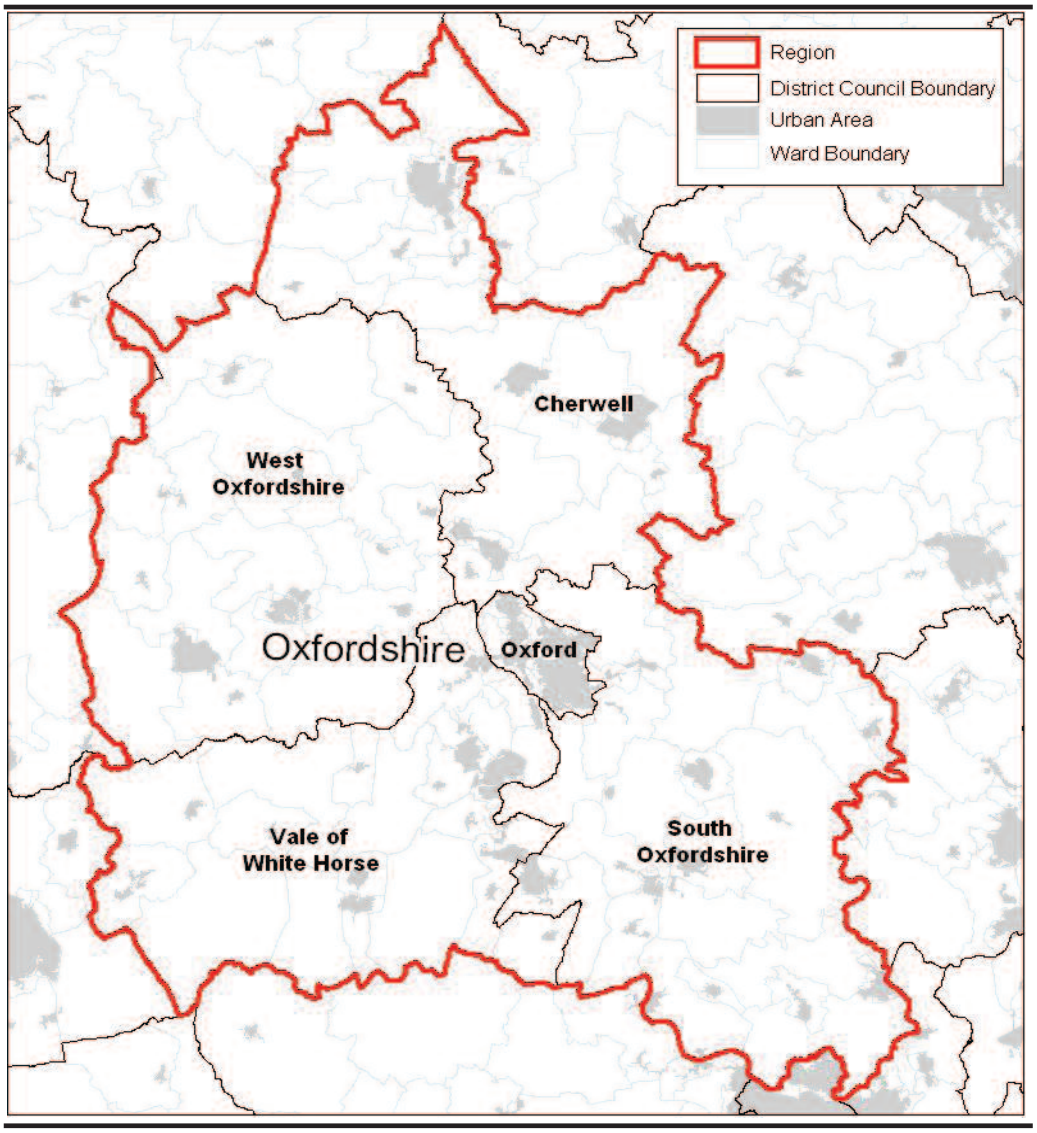
The detailed baseline description in the SEA Scoping Report highlights where there were deficiencies in available data or where data for the South East region has been used as a substitute. Wherever trend data was available this has been included.

3.1.2 Study Area

The area of study for the baseline review is the whole of Oxfordshire, including the districts of West Oxfordshire, Cherwell, South Oxfordshire, and the Vale of White Horse, plus Oxford City Council. Where useful for illustration, we have also made comparisons to the South East region as a whole or sometimes to the rest of the country.

Figure 3.1 below sets out the study area, including the boundaries of the five authority areas within Oxfordshire.

Figure 3.1 Oxfordshire Administrative Area



3.2 SUMMARY OF SIGNIFICANT ISSUES AND PROBLEMS IDENTIFIED

The significant issues which have been identified by the baseline are summarised in the following table. The summary also includes key economic and social issues.

Table 3.1 *Significant Environmental, Social and Economic Issues for Oxfordshire*

Category	Key Issues
Air quality	Five Air Quality Management Areas (AQMAs) have been designated in the county, which represent localised urban areas where buildup of traffic-based pollution such as NO_2 may reach levels of concern. Most of the rest of the region appears to have good air quality, with the notable exception of the major coal and gas-fired power stations at Didcot.
Water quality & availability	In 2001 in Oxfordshire 96% of the rivers and canals had good chemical quality water (Grade A-D) compared with 95% in England and Wales. Oxfordshire is less likely to suffer water budget deficits than other parts of the South East – however the county's consumption remains one of the highest, and leakage levels represent up to a third of water used.
Waste	In 2004 / 05, Oxfordshire generated a total of 317,860 tonnes of municipal waste. Most local authorities in Oxfordshire achieved above the England average recycling level for municipal solid waste. Two thirds of municipal solid waste is currently landfilled. Commercial / industrial and construction / demolition waste are each larger waste streams than the municipal solid waste stream. Two thirds of C&I waste is landfilled, while a quarter of C&D waste is landfilled.
Landscape	Three Areas of Outstanding Natural Beauty, the Chilterns and the Cotswolds fall to the west, and the south of the county. The North Wessex Downs fall on the Southern borders of the County. The remainder of the County, although not designated, consists almost entirely of varied, attractive and valued landscape
Land quality	Compared to the rest of the South East, the five districts within Oxfordshire have relatively low amounts of identified previously developed land and derelict buildings.
Biodiversity	Oxfordshire has a number of significant protected sites of international, national and local designation. The Sites of Special Scientific Interest (SSSIs) are in good condition compared to both the regional and the national picture (84% by area meet the government's targets). A number of habitats and species have been prioritised for protection and enhancement in Local Biodiversity Action Plans.
Transport	Data presented shows the A roads and the motorway carry large volumes of traffic around the region. Traffic growth is at around 1% per year, which is a little lower than the national average.
Built, cultural and archaeological heritage	The county has 278 Scheduled Ancient Monuments, 12,077 Listed Buildings, and 55 Historic Parks and Gardens registered with English Heritage. Oxfordshire contains just over 11% of the SAMs in the South East, and 16% of the listed buildings.
Amenity	Oxfordshire is a largely tranquil area. Fly tipping and street littering seem unlikely to be a problem compared to other areas. Satellite data indicates that, as with other parts of the UK, there is significant night light pollution in populous areas.
Health	Census and data from the Office of the Deputy Prime Minister indicates health is relatively good across the County compared to other regions, with residents having better health on average than the regional or national average.

Category	Key Issues
Material assets	There are significant areas of the county that are subject to flood risk, especially around Oxford and wherever development has occurred on the flood plains of the Thames or the Cherwell. Property prices in Oxfordshire are generally more expensive than the South East regional average
Population	The total populations of each of the five districts are remarkably similar, but because Oxford City is so much smaller, the population density is over a factor of ten greater than the other districts in the county.
Economy	Oxfordshire's economy has grown steadily over recent years. This reflects a general trend in the South East region and in the UK as a whole. The GVA per head is relatively high, being 24% above the UK average.
Employment	Oxfordshire has a relatively high level of employment, with 84% of those of working age in work in 2002/03. This compares to 74% for the UK as a whole. The largest sector for numbers in employment in Oxfordshire is in financial and business services, and represents a larger than average proportion of total employment.
Access to services	Specific data on access to services in Oxfordshire was not found

3.2.1 Areas Likely to be Significantly Affected

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

First, the overall effects will be spread throughout Oxfordshire, because waste arises almost everywhere, waste transport will occur throughout the county and the some of the impacts of waste management activities will be widespread and borne by all. In this case, the relevant sustainability characteristics are those set out in the baseline above.

On another level, some of the effects of the management of waste will occur in the vicinity of waste management sites. The Joint MWMS does not address issues of site location, and therefore to a large extent it has not been possible in the assessment to deal with site-specific issues. The assessment has considered issues which may arise in the vicinity of sites in general, but consideration and control of issues at in dividual sites is the responsibility of the Waste Local Plan.

3.2.2 Existing Problems Relevant to the Joint MWMS

A number of existing environmental problems have been identified which could be of potential relevance to the Joint MWMS. These are as follows.

- Two thirds of municipal solid waste is currently landfilled compared with four fifths for England as a whole. Recycling in the county stands at 28% which is well above the England average of 17%. Commercial/industrial

and construction / demolition waste are each larger waste streams than the municipal solid waste stream. Two thirds of C&I waste is landfilled, while a quarter of C&D waste is landfilled. There is likely to be an increasing need for new or expanded waste management facilities in the future, given the expected growth in the quantities of waste generated and the forthcoming required reductions in the amount of biodegradable municipal waste sent to landfill.

- Internationally designated sites within Oxfordshire include seven Special Areas of Conservation (SACs). Three have been identified with vulnerabilities which are potentially relevant to note in connection with waste management issues, but the links are tenuous and not considered significant currently:
  - Oxford Meadows SAC is critically dependent on groundwater levels and annual flooding. Gravel extraction is taking place on an adjacent site.
  - Hartslock Wood is possibly vulnerable to aerial pollution but it is not considered a significant threat
  - Aston Rowant has declining juniper populations but the reasons for this are not understood.

4 SUSTAINABLE DEVELOPMENT OBJECTIVES AND ASSESSMENT CRITERIA

4.1 SUSTAINABLE DEVELOPMENT OBJECTIVES RELEVANT TO MWMS

The environmental objectives for the SEA were identified by reviewing relevant policy documents, both statutory and non-statutory, at the national, regional and county level. The review identified and extracted any environmental policy objectives which are relevant to the Joint MWMS and which will set the environmental policy framework with which the strategy must conform. The review also included strategies and plans relevant to economic and social policy likely to be relevant to municipal waste management issues. This resulted in some additional policy objectives being identified, under the general categories of economy, accessibility to services and public participation.

The list of policy objectives identified in the review was then used to derive a set of assessment criteria for the SEA. The assessment criteria were developed and agreed by all the District Councils, the City Council and the County Council. The proposed criteria were also subject to wider consultation through the SEA Scoping Report.

The proposed strategy and relevant options were assessed against these criteria to identify and evaluate the likely effects of the strategy. Not all criteria are relevant to all types of options, and therefore for some levels of options some of the criteria were not used in the assessment. *Table 4.1* lists the criteria and indicates which were used to assess the different levels of option.

Table 4.1 Criteria for Assessing Strategy and Options

	Strategy	Minimisation options	Recycling options	Residual options
1. Impact on air quality for key pollutants	✓	✓	✓	✓
2. Emissions of greenhouse gases	✓	✓	✓	✓
3. Consumption of water resources	✓			✓
4. Impact on water quality	✓			✓
5. Compatibility with waste hierarchy	✓	✓	✓	✓
6. Impact on level of waste generation	✓	✓		
7. Impact of option on re-use and recycling of waste	✓	✓	✓	✓
8. Recovery of value from waste	✓		✓	✓
9. Reduction of quantity of waste going to landfill	✓	✓	✓	✓
10. Extent to which option enables waste to be managed within county	✓	✓	✓	✓
11. Impact on biodiversity	✓			
12. Impact of waste transportation, including air pollution, noise and energy use	✓	✓	✓	✓

	Strategy	Minimisation options	Recycling options	Residual options
13. Impact on levels of rail or water transport for waste	✓			✓
14. Impact on car use	✓	✓	✓	
15. Amount of energy consumption and generation	✓	✓	✓	✓
16. Impacts on health	✓		✓	✓
17. Impact on resource use	✓	✓	✓	✓
18. Impact on the economy (costs of waste management)	✓	✓	✓	✓
19. Number of jobs created	✓	✓	✓	✓
20. Accessibility of services	✓	✓	✓	
21. Opportunities for public participation	✓	✓	✓	
22. Impact on communities	✓	✓	✓	✓
23. Landtake	✓			✓
24. Diversion of biodegradable municipal waste from landfill	✓	✓	✓	✓
25. Opportunities / benefits	✓	✓	✓	✓
26. Flexibility to respond to future changes in technology, policy and legislation	✓	✓		✓
27. Deliverability	✓	✓	✓	✓
28. Public perception / acceptability	✓	✓		✓
29. Total road kilometres	✓	✓	✓	✓

5 OPTIONS APPRAISAL

5.1 INTRODUCTION

The options for the Joint MWMS were developed on three levels:

- Options for minimisation of waste arisings and promoting reuse;
- Options for recycling activities;
- Options for treatment of residual waste.

The options are described briefly in the sections below. More details on the options selected and the rationale for this are given in other annexes to the Strategy. A summary of the results of the assessments are set out in this section.

The criteria by which the options were assessed varies for each level of assessment (see *Table 4.1*). This is because some of the criteria are not relevant to particular types of option.

For all appraisal tables throughout the report, the following symbols have been used to indicate the broad nature of the likely impact:

+	impact likely to be positive
-	impact likely to be negative
0	no impact
?	impact unknown

Multiple symbols have been used (e.g. ++) to indicate a different scale of impact relative to the other options.

The tables also include colour to highlight where options perform well (green) or not well (red) relative to other options.

5.2 OPTIONS FOR MINIMISATION AND REUSE

The options selected for consideration for minimisation and reuse of waste are as follows:

- Option 1: home composting, at either a medium or a high level of participation;
- Option 2: furniture recycling, either through support for charities or the establishment of a central depot;
- Option 3: reusable nappies, at either a medium or a high level of participation;
- Option 4: waste-aware (or "smart") shopping;
- Option 5: prevention of unwanted mail;

- Option 6: reuse of unwanted goods (paint, tools and mobile phones).

The results of the assessment of each of these options against the relevant appraisal criteria are set out in the following table. This shows that overall option 1B, promotion of home composting with a high level of participation, performs well relative to the other options against a large number of the assessment criteria, including being the best option for both cost and the impact on reducing waste generation, and that it also delivers a range of other benefits as well. However, it is potentially more challenging to deliver than some of the other options, although all options have some challenging delivery aspects. Note that some of the options will have a negligible impact on the tonnages of waste generated, reused / recycled and diverted from landfill.

Note that these options are not alternatives, but that several of the options may be implemented simultaneously.

Table 5.1 Summary of Minimisation Options Assessment

Criteria	Option 1A Home composting – medium usage	Option 1B Home composting – high usage	Option 2A Furniture reuse – charity support	Option 2B Furniture reuse – central depot	Option 3A Reusable nappies – medium usage	Option 3B Reusable nappies – high usage	Option 4 Smart shopping	Option 5 Unwanted mail	Option 6 Unwanted goods
1. Impact on air quality for key pollutants	++	+++	0	+	+	+	+	+	0
2. Emissions of greenhouse gases	++	+++	0	+	0	0	++	+	0
5. Compatibility with waste hierarchy	++	+++	+	+	+	+	++	+	+
6. Impact on level of waste generation	+	+++	+	+	+	+	+	+	0
7. Impact of option on re-use and recycling of household waste	++	+++	+	+	+	+	0	0	0
9. Reduction in quantity of waste going to landfill	++	+++	0	+	+	+	++	+	0
10. Extent to which option enables waste to be managed within county	++	+++	0	0	0	0	++	+	0

Criteria	Option 1A Home composting – medium usage	Option 1B Home composting – high usage	Option 2A Furniture reuse – charity support	Option 2B Furniture reuse – central depot	Option 3A Reusable nappies – medium usage	Option 3B Reusable nappies – high usage	Option 4 Smart shopping	Option 5 Unwanted mail	Option 6 Unwanted goods
12. Impact of waste transportation, including air pollution, noise and energy use	++	+++	0	0	0	0	++	+	0
14. Impact on car use	+	+	0	0	0	0	0	0	0
15. Amount of energy consumption and generation	+	+	+	+	0	0	+	+	+
17. Impact on resource use	+	+	+	+	?	?	+	+	+
18. Impact on the economy[1]	++	+++	0	0	+	+	++	+	0
19. Number of jobs created	0	0	+	0	+	+	0	0	+
20. Accessibility of services	0	0	+	+	+	+	0	0	+
21. Opportunities for public participation	++	+++	+	+	+	+	+	+	+
22. Impact on communities	++	++	+	+	+	+	++	++	+

Criteria	Option 1A Home composting – medium usage	Option 1B Home composting – high usage	Option 2A Furniture reuse – charity support	Option 2B Furniture reuse – central depot	Option 3A Reusable nappies – medium usage	Option 3B Reusable nappies – high usage	Option 4 Smart shopping	Option 5 Unwanted mail	Option 6 Unwanted goods
24. Diversion of biodegradable municipal waste from landfill	++	+++	0	+	+	+	+	+	0
25. Opportunities/benefits[2]	0	0	++	++	0	0	0	+	+
26. Flexibility to respond to future changes in technology, policy and legislation	++	++	0	0	0	0	+	+	0
27. Deliverability	-	- -	- -	- -	-	- -	- -	-	-
28. Public perception/acceptability	+	+	+/-	+/-	+/-	+/-	+	+	+/-
29. Total road kilometres	++	+++	0	0	0	0	++	+	0

Notes: 1 Excluding £764,000 pa for overall minimisation programme
2 In addition to those already identified against other criteria.

5.3 RECYCLING OPTIONS

The options selected for consideration for recycling are set out in *Table 3.1*. Each option provides services in addition to the current recycling collection activities in Oxfordshire.

Table 5.2 ***Recycling Options***

Option	Description
1	Fortnightly collection of card and garden waste, fortnightly residuals collection
8	Fortnightly kerbside sort recyclables, fortnightly residuals
12	Alternate weekly co-mingled recyclables, alternate weekly residuals
44	Fortnightly co-mingled recyclables, fortnightly garden / kitchen waste, fortnightly residuals
54	Alternate weekly kerbside sort recyclables, fortnightly garden / kitchen waste, alternate weekly residuals
56	Weekly co-mingled recyclables, garden / kitchen waste alternate weekly, residuals alternate weekly
57	Fortnightly co-mingled recyclables, alternate weekly garden waste, alternate weekly residuals
63	Alternate weekly kerbside sort recyclables, garden / kitchen waste weekly, alternate weekly residuals
65	Alternate weekly kerbside sort recyclables, alternate weekly garden / kitchen waste, fortnightly residuals
A	Weekly co-mingled recyclables, weekly collection of food waste, fortnightly collection of garden waste via a charged collection (for 8,000 properties per district), residuals fortnightly
B	South Oxfordshire, West Oxfordshire, Vale of White Horse scheme as 'A'; Cherwell & Oxford City fortnightly co-mingled recyclables, fortnightly garden & food waste, residuals fortnightly

The results of the assessment of each of these options against the relevant appraisal criteria are set out in the following table. This shows that overall options 44 and 65 perform well relative to the other options against a large number of the assessment criteria, while also avoiding the increase in costs and transport impacts associated with some of the other high-performing options.

Options 1, 8 and 12 perform poorly against some of the assessment criteria, particularly in terms of their expected performance against the waste hierarchy and reducing the amount of waste sent to landfill. These options may also result in greater use of the car in recycling activities, although are predicted to reduce the transport impacts of collection vehicles.

It should be noted that for some assessment criteria (air quality impacts, greenhouse gas emissions, resource use and energy consumption) it has only been possible to make an assessment of the impacts jointly with residual treatment options and therefore it has not been possible to assess the collection options independently. However, this joint assessment (see *Table 5.4*) shows that options 8 and 12 perform well relative to the other recycling options on air emissions including greenhouse gases and on resource use, irrespective of the residual treatment technology, and on energy consumption largely irrespective of residual treatment technology. Option 56 performs relatively poorly on air emissions including greenhouse gases and depletion of resources.

Table 5.3 Summary of Recycling Options Assessment

Criteria	Scenario											Comments
	1	8	12	44	54	56	57	63	65	A	B	
1. Impact on air quality for key pollutants	?	?	?	?	?	?	?	?	?	?	?	Air quality impacts are assessed jointly with residual treatment options
2. Emissions of greenhouse gases	?	?	?	?	?	?	?	?	?	?	?	Greenhouse gas emission impacts are assessed jointly with residual treatment options
5. Compatibility with waste hierarchy	-	-	-	++	++	++	+	++	++	+	+	Three options will mean less waste is recycled/composted by 2009/10 than currently projected.
7. Impact of option on re-use and recycling of waste	+	+	+	+	+	+	+	+	+	++	++	
8. Recovery of value from waste	+	+	+	+++	+++	+++	++	+++	+++	++	++	
9. Reduction of quantity of waste going to landfill	-	-	-	++	++	++	+	++	++	+	+	Three options will reduce the tonnage of waste diverted from landfill in 2009/10 from current projection
10. Extent to which option enables waste to be managed within county	?	?	?	?	?	?	?	?	?	?	?	Higher tonnages collected for recycling may increase the amount of waste exported for recycling, although county capacity is unknown.
12. Impact of waste transportation, including air pollution, noise and energy use	++	++	++	+	+	- -	+	- -	+	-	-	By reducing the total road kilometres travelled by collection vehicles, several of the options will contribute to reducing the environmental impacts from waste collection vehicles.
14. Impact on car use	-	-	-	++	++	++	+	++	++	+	+	Figures show tonnes of waste collected for recycling/composting in 2009/10, compared to current projection of 67,676. Lower tonnages are likely to promote more car journeys by householders to recycling facilities.
15. Amount of energy consumption and generation	?	?	?	?	?	?	?	?	?	?	?	Energy consumption assessed jointly with residual treatment options
16. Impacts on health	0	0	0	0	0	0	0	0	0	0	0	Options are unlikely to have significant health impacts.

Criteria	Scenario											Comments
	1	8	12	44	54	56	57	63	65	A	B	
17. Impact on resource use	?	?	?	?	?	?	?	?	?	?	?	Impact on resource use assessed jointly with residual treatment options
18. Impact on the economy (costs of waste management)	++	++	++	+	-	- -	+	- -	+	- -	- -	Four options will increase costs from current projections.
19. Number of jobs created	0	0	0	0	0	0	0	0	0	0	0	All scenarios will create similar numbers of jobs in collection, sorting and recycling. While welcome, the numbers are not significant in the labour market overall.
20. Accessibility of services	+	++	++	+++	+++	+++	+++	+++	+++	+++	+++	
21. Opportunities for public participation	+	+	+	+	+	+	+	+	+	+	+	All options provide similar opportunities for the public to participate in recycling activities
22. Impact on communities	+	++	++	+++	+++	+++	+++	+++	+++	+++	+++	The more types of waste collected for recycling, the greater the responsibility communities will begin to take for their own waste
24. Diversion of biodegradable municipal waste from landfill	+	-	-	+++	+++	+++	++	+++	+++	+	++	Two scenarios will reduce the diversion of BMW diverted from landfill in 2009/10 from current projections.
25. Opportunities/benefits	+	++	++	+++	+++	+++	+++	+++	+++	+++	+++	Collecting a wider range of materials for recycling/composting opens up more opportunities for use of recyclates and compost.
27. Deliverability	+	+	+	+	+	+	+	+	+	+	+	All options are equally deliverable
29. Total road kilometres	++	++	++	+	+	- -	+	- -	+	-	-	Four options will increase the total road kilometres travelled by collection vehicles compared to the current projection

5.4 OPTIONS FOR RESIDUAL WASTE TREATMENT

The following options for residual waste treatment were selected for appraisal:

- No treatment: all residual waste is sent directly to landfill;
- Energy from waste (EFW): one or two facilities to treat residual waste;
- Advanced thermal treatment (ATT): one or two facilities to treat residual waste;
- Mechanical biological treatment (MBT): two plants to treat residual waste;

The MBT option has been modelled considering three sub-options:

- Refuse Derived Fuel (RDF) being combusted in a dedicated Oxfordshire facility;
- RDF being combusted through existing UK market structures;
- RDF being disposed to landfill.

Each treatment option was coupled with the different collection options (see *Section 5.3*) to produce 72 pairs of recycling and residual treatment option. The impacts of the 72 combinations were appraised jointly. In particular, the infrastructure associated with the nature of the collection options has been included, such as composting facilities (windrow and in-vessel), materials recycling facilities and transfer / bulking facilities.

Note that the options with two thermal treatment plants, either EFW or ATT, could only be modelled in conjunction with three recycling options.

The results indicate that EFW and ATT perform well relative to the other options on reduction of landfill of biodegradable waste, recovery of value and promotion of net self-sufficiency. EFW and ATT also tend to perform well in terms of the waste hierarchy although this is also strongly dependent on the recycling option chosen. In addition, EfW performs best on reduction of total waste to landfill and flexibility, while ATT generally performs relatively poorly on flexibility and deliverability. The costs involved with ATT tend to be more reliably positive than with EFW and ATT tends to score slightly better in relation to public acceptability than EFW.

The MBT options tend to have greater adverse impacts on road transport than the thermal treatment options, and in addition have relatively poor flexibility where the RDF is sent to market or to a burner within Oxfordshire.

Having two thermal treatment plants instead of one performs better in terms of road transport distances but tends to be less publicly acceptable, have greater impacts on communities, be less deliverable and be less effective in terms of the implementation of the waste hierarchy.

The residual options make little difference to levels of recycling and composting, air emissions including greenhouse gases, depletion of resources.

Table 5.4

Summary of Residual Treatment and Recycling Options Assessment

Recycling and treatment combination	Air quality	GHG emissions	Consumption of water resources	Water quality	Waste hierarchy	Total recycling / composting	Recovery of value	Reduction of landfill	Self sufficiency	Impact of transport	Rail and water transport	Energy consumption / generation	Public health	Depletion of resources	Treatment/disposal cost	No of jobs	Community impact	Landtake	BMW diversion	Opportunities benefits	Flexibility	Deliverability	Public perception / acceptability	Treatment/disposal road km
1a No treatment	- -	++	0	0	- -	-	+	-	- -	0	?	-	0	++	- -	0	0	-	- - -	+	-	0	- - -	0
8 No treatment	-	+++	0	0	0	+	+	0	- -	+	?	+	0	+++	-	0	0	0	- - -	0	-	0	- - -	+
12 No treatment	-	+++	0	0	0	+	+	0	- -	0	?	+	0	+++	-	0	0	-	- - -	0	-	0	- - -	0
44 No treatment	- -	+	0	0	++	+++	++	+	- -	- -	?	+	0	+	-	0	0	- -	- -	+	-	-	- -	- -
54 No treatment	- -	+	0	0	++	+++	++	+	- -	- -	?	+	0	++	-	0	0	-	- -	+	-	-	- -	- -
56 No treatment	- - -	- - -	0	0	++	+++	++	+	- -	- -	?	+	0	- -	-	0	0	- -	- -	+	-	-	- -	- -
57 No treatment	- -	0	0	0	+	++	++	+	- -	- -	?	+	0	+	-	0	0	-	- -	+	-	0	- -	- -
63 No treatment	- -	-	0	0	++	+++	++	+	- -	- -	?	+	0	-	-	0	0	- -	- -	+	-	-	- -	- -
65 No treatment	- -	+	0	0	++	+++	++	+	- -	- -	?	+	0	+	-	0	0	- -	- -	+	-	-	- -	- -
Food A No treatment	- -	+	0	0	+	++	++	+	- -	-	?	+	0	+	-	0	0	-	- -	+	-	-	- -	-
Food B No treatment	- -	+	0	0	+	++	++	+	- -	- -	?	+	0	+	-	0	0	- -	- -	+	-	-	- -	- -
1a 1xEFW	- -	++	?	0	-	-	+++	+++	+	-	?	++	0	++	-	0	-	- -	+++	+	-	- -	- - -	-
8 1xEFW	-	+++	?	0	++	+	+++	+++	+	-	?	+++	0	+++	+	0	-	-	+++	+	-	- -	- - -	-
12 1xEFW	-	+++	?	0	++	+	+++	+++	+	-	?	++	0	+++	+	0	-	- -	+++	++	-	- -	- - -	-
44 1xEFW	- -	+	?	0	+++	+++	+++	+++	+	- - -	?	++	0	+	-	0	-	- -	++	++	-	- -	- -	- - -
54 1xEFW	- -	+	?	0	+++	+++	+++	+++	+	- -	?	++	0	++	+	0	-	- -	++	++	-	- -	- -	- -
56 1xEFW	- - -	- - -	?	0	+++	+++	+++	+++	+	- - -	?	++	0	- -	-	0	-	- -	++	++	-	- -	- -	- - -
57 1xEFW	- -	0	?	0	++	++	+++	+++	+	- -	?	++	0	+	+	0	-	- -	++	++	-	- -	- -	- -
63 1xEFW	- -	-	?	0	+++	+++	+++	+++	+	- - -	?	++	0	-	-	0	-	- -	++	++	-	- -	-	- - -
65 1xEFW	- -	+	?	0	+++	+++	+++	+++	+	- - -	?	++	0	+	-	0	-	- -	++	++	-	- -	- -	- - -
Food A 1xEFW	- -	+	?	0	++	++	+++	+++	+	- -	?	++	0	+	-	0	-	- -	++	++	-	- -	-	- -
Food B 1xEFW	- -	+	?	0	++	++	+++	+++	+	- -	?	++	0	+	-	0	-	- -	++	++	-	- -	-	- -
1a 2xEFW	- -	++	?	0	-	-	+++	+++	+	-	?	++	0	++	-	0	- -	- -	+++	+	-	- - -	- - -	-
8 2xEFW	-	+++	?	0	++	+	+++	+++	+	-	?	+++	0	+++	+	0	- -	- -	+++	+	-	- - -	- - -	-
12 2xEFW	-	+++	?	0	++	+	+++	+++	+	-	?	++	0	+++	-	0	- -	- -	+++	++	-	- - -	- - -	-
1a 1xATT	- -	++	?	0	++	+	+++	++	+	-	?	++	0	++	+	0	-	- -	+++	+	- - -	- - -	- -	-
8 1xATT	-	+++	?	0	++	+	+++	++	+	-	?	+++	0	+++	++	0	-	-	+++	0	- - -	- - -	- -	-
12 1xATT	-	+++	?	0	++	+	+++	++	+	-	?	+++	0	+++	+	0	-	- -	+++	+	- - -	- - -	- -	-
44 1xATT	- -	+	?	0	+++	+++	+++	++	+	- - -	?	++	0	+	+	0	-	- -	++	++	- - -	- - -	-	- - -
54 1xATT	- -	+	?	0	+++	+++	+++	++	+	- -	?	++	0	++	+	0	-	- -	++	++	- - -	- - -	-	- -
56 1xATT	- - -	- - -	?	0	+++	+++	+++	++	+	- - -	?	++	0	- -	+	0	-	- -	++	++	- - -	- - -	-	- - -
57 1xATT	- -	0	?	0	++	++	+++	++	+	- -	?	++	0	+	+	0	-	- -	++	+	- - -	- - -	-	- -
63 1xATT	- -	-	?	0	+++	+++	+++	++	+	- - -	?	++	0	-	+	0	-	- -	++	++	- - -	- - -	-	- - -
65 1xATT	- -	+	?	0	+++	+++	+++	++	+	- - -	?	++	0	+	+	0	-	- -	++	++	- - -	- - -	-	- - -
Food A 1xATT	- -	+	?	0	++	++	+++	++	+	- -	?	++	0	+	+	0	-	- -	++	+	- - -	- - -	-	- -
Food B 1xATT	- -	+	?	0	++	++	+++	++	+	- -	?	++	0	+	+	0	-	- -	++	++	- - -	- - -	-	- -
1a 2xATT	- -	++	?	0	++	+	+++	++	+	-	?	++	0	++	-	0	- -	- -	+++	+	- -	- - -	- -	-
8 2xATT	-	+++	?	0	++	+	+++	++	+	-	?	+++	0	+++	+	0	- -	- -	+++	0	- -	- - -	- -	-
12 2xATT	-	+++	?	0	++	+	+++	++	+	-	?	+++	0	+++	+	0	- -	- -	+++	+	- -	- - -	- -	-
1a MBT RDF to burner	- -	++	?	0	+	+	+	+	+	- -	?	++	0	++	- -	0	-	- -	++	++	- -	-	- -	- -
8 MBT RDF to burner	-	+++	?	0	+	+	+	+	+	- -	?	++	0	+++	-	0	-	- -	+	++	- -	-	- -	- -
12 MBT RDF to burner	-	+++	?	0	+	+	+	+	+	- -	?	++	0	+++	- -	0	-	- -	+	++	- -	-	- -	- -
44 MBT RDF to burner	- -	+	?	0	++	+++	++	++	+	- - -	?	++	0	+	- -	0	-	- - -	++	+++	- - -	-	-	- - -
54 MBT RDF to burner	- -	+	?	0	++	+++	++	++	+	- - -	?	++	0	++	-	0	-	- -	++	+++	- - -	-	-	- - -
56 MBT RDF to burner	- - -	- - -	?	0	++	+++	++	++	+	- - -	?	++	0	- -	- -	0	-	- - -	++	+++	- - -	-	-	- - -
57 MBT RDF to burner	- -	0	?	0	+	++	++	++	+	- - -	?	++	0	+	- -	0	-	- -	++	++	- -	-	-	- - -
63 MBT RDF to burner	- -	-	?	0	++	+++	++	++	+	- - -	?	++	0	-	- -	0	-	- - -	++	+++	- - -	-	-	- - -
65 MBT RDF to burner	- -	+	?	0	++	+++	++	++	+	- - -	?	++	0	+	- -	0	-	- - -	++	+++	- - -	-	-	- - -
Food A MBT RDF to burner	- -	+	?	0	+	++	++	+	+	- - -	?	++	0	+	- -	0	-	- -	++	++	- - -	-	-	- - -
Food B MBT RDF to burner	- -	+	?	0	++	+++	++	++	+	- - -	?	++	0	+	- -	0	-	- - -	++	+++	- - -	-	-	- - -
1a MBT RDF to market	- -	++	?	0	+	+	+	++	-	- -	?	+	0	++	- -	0	-	- -	++	++	- -	-	-	- -
8 MBT RDF to market	-	+++	?	0	+	+	+	+	-	- -	?	++	0	+++	-	0	-	- -	+	+	- -	-	-	- -
12 MBT RDF to market	-	+++	?	0	+	+	+	+	-	- -	?	++	0	+++	- -	0	-	- -	+	+	- -	-	-	- -
44 MBT RDF to market	- -	+	?	0	++	+++	++	++	-	- - -	?	++	0	+	-	0	-	- -	++	++	- - -	-	-	- - -
54 MBT RDF to market	- -	+	?	0	++	+++	++	++	-	- - -	?	++	0	++	-	0	-	- -	++	++	- - -	-	-	- - -
56 MBT RDF to market	- - -	- - -	?	0	++	+++	++	++	-	- - -	?	+	0	- -	-	0	-	- -	++	++	- - -	-	-	- - -
57 MBT RDF to market	- -	0	?	0	+	++	++	++	-	- - -	?	++	0	+	-	0	-	- -	++	++	- -	-	-	- - -
63 MBT RDF to market	- -	-	?	0	++	+++	++	++	-	- - -	?	+	0	-	-	0	-	- -	++	++	- - -	-	0	- - -
65 MBT RDF to market	- -	+	?	0	++	+++	++	++	-	- - -	?	++	0	+	-	0	-	- -	++	++	- - -	-	-	- - -
Food A MBT RDF to market	- -	+	?	0	+	++	++	++	-	- - -	?	++	0	+	-	0	-	- -	++	++	- - -	-	0	- - -
Food B MBT RDF to market	- -	+	?	0	++	+++	++	++	-	- - -	?	++	0	+	-	0	-	- -	++	++	- - -	-	0	- - -
1a MBT RDF to landfill	- -	++	?	0	+	+	+	+	-	- -	?	+	0	++	- - -	0	-	- -	- -	+	- - -	-	- - -	- -
8 MBT RDF to landfill	-	+++	?	0	+	+	+	+	-	-	?	++	0	+++	- -	0	-	- -	- -	0	- -	-	- - -	-
12 MBT RDF to landfill	-	+++	?	0	+	+	+	+	-	- -	?	++	0	+++	- -	0	-	- -	- -	+	- -	-	- - -	- -
44 MBT RDF to landfill	- -	+	?	0	++	+++	++	+	-	- - -	?	++	0	+	- -	0	-	- -	- -	++	- -	-	- -	- - -
54 MBT RDF to landfill	- -	+	?	0	++	+++	++	+	-	- - -	?	++	0	++	-	0	-	- -	-	++	- -	-	- -	- - -
56 MBT RDF to landfill	- - -	- - -	?	0	++	+++	++	++	-	- - -	?	+	0	- -	-	0	-	- -	- -	++	- -	-	- -	- - -
57 MBT RDF to landfill	- -	0	?	0	+	++	++	+	-	- -	?	++	0	+	- -	0	-	- -	- -	+	- -	-	- -	- -
63 MBT RDF to landfill	- -	-	?	0	++	+++	++	+	-	- - -	?	+	0	-	- -	0	-	- -	- -	++	- -	-	- -	- - -
65 MBT RDF to landfill	- -	+	?	0	++	+++	++	+	-	- - -	?	++	0	+	- -	0	-	- -	- -	++	- -	-	- -	- - -
Food A MBT RDF to landfill	- -	+	?	0	+	++	++	+	-	- -	?	++	0	+	- -	0	-	- -	- -	+	- -	-	- -	- -
Food B MBT RDF to landfill	- -	+	?	0	++	+++	++	+	-	- - -	?	++	0	+	- -	0	-	- -	-	++	- -	-	- -	- - -

6 POLICIES AND OBJECTIVES OF THE MWMS

6.1 INTRODUCTION

The objectives and policies of the MWMS were appraised against the framework of SEA criteria. For the appraisal of MWMS objectives, the purpose is to identify where there are potential incompatibilities between any of these objectives and the sustainable development policy objectives framed by the SEA criteria. For the policies of the MWMS, the purpose of the appraisal is to identify the likely significant effects of the policies on the achievement of sustainable development objectives and to recommend ways of mitigating any adverse effects and enhancing opportunities for positive effects. The results of the appraisal and the recommendations arising are set out in this section.

6.2 COMPATIBILITY OF MWMS OBJECTIVES AND SEA CRITERIA

The strategic objectives were assessed against the SEA criteria objectives to show where there are expected to be relevant links between them. Table 6.1 sets out where the links are predicted to be positive compatible (✓), neutral (Ø), uncertain (?) or possible conflict (x).

There are no identified potential conflicts between the MWMS objectives and sustainable development objectives, although there are a number of areas where the effects of the MWMS on sustainable development objectives is uncertain. In each case, a commentary is given to explain the potential effects and the issues are examined in more detail in the policy appraisal to understand more clearly the impact of the MWMS against each of the relevant criteria. In all other cases, the MWMS objectives are either positive compatible or neutral.

Table 6.1 MWMS Objectives

1	Manage waste in accordance with the waste hierarchy: reduce waste first, then reuse, recycle and compost resources, then recover value and, as a last resort, dispose of waste
2	Promote waste reduction, reuse and recycling initiatives to Oxfordshire communities to help everyone manage their own wastes
3	Manage wastes through seeking the most appropriate and sustainable solution that protects the environment, including minimising the transport of waste
4	Meet or exceed performance required by statutory and locally agreed targets
5	Work together through the provision of coordinated services and infrastructure for waste collection, treatment, transfer and disposal to maximise the efficient use of resources within Oxfordshire
6	Ensure that waste facilities are suitably sized and distributed and that site identification is informed in accordance with the Minerals and Waste Development Framework and the Regional Spatial Strategy
7	Assist the development of markets, especially those that are local, for recovered materials
8	Enable customer satisfaction through delivery of effective and efficient services to Oxfordshire residents that minimise the overall tax burden at the best possible value

9	Develop flexible and comprehensive waste management services that are robust and deliverable throughout Oxfordshire now and in the long term
10	Lobby government and work with local business to improve the efficient use of resources, reduce the impact of activities on resource consumption which results in the production of municipal waste, and to encourage them to take responsibility for the wastes they produce.

Table 6.2 Appraisal of MWMS Objectives

MWMS Objective	1	2	3	4	5	6	7	8	9	10	Uncertainties
SEA Criteria											
1. Impact on air quality for key pollutants	?	Ø	✓	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Air quality impacts depend on options chosen for managing waste. See options appraisal for assessment.
2. Emissions of greenhouse gases	✓	Ø	✓	Ø	Ø	Ø	Ø	Ø	Ø	Ø	
3. Consumption of water resources	?	Ø	✓	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Consumption of water resources depends mainly on choices for residual treatment technologies. See options appraisal for details.
4. Impact on water quality	✓	Ø	✓	Ø	Ø	Ø	Ø	Ø	Ø	Ø	
5. Compatibility with waste hierarchy	✓	✓	Ø	✓	Ø	Ø	✓	Ø	Ø	✓	
6. Impact on level of waste generation	✓	✓	Ø	Ø	Ø	Ø	Ø	Ø	Ø	✓	
7. Impact of option on re-use and recycling of waste	✓	✓	Ø	✓	Ø	Ø	✓	Ø	Ø	✓	
8. Recovery of value from waste	✓	✓	Ø	✓	Ø	Ø	✓	Ø	Ø	✓	
9. Reduction of quantity of waste going to landfill	✓	✓	Ø	✓	Ø	Ø	✓	Ø	Ø	✓	
10. Extent to which option enables waste to be managed within county	?	✓	Ø	?	Ø	Ø	✓	Ø	Ø	?	The effect on capacity for county self-sufficiency is unclear, particularly with increased levels of recycling. Encouraging responsibility for waste may promote county self-sufficiency, but this is not an explicit objective.
11. Impact on biodiversity	?	Ø	✓	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Reducing landfill of waste may reduce the risk of water pollution incidents and therefore the risk of adverse effects on aquatic biodiversity, although effects on biodiversity are also dependent on landtake and air quality. Overall impacts are unclear and will depend to a large extent on issues for specific developments.
12. Impact of waste transportation, including air pollution, noise and energy use	?	Ø	✓	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Increased recycling may have adverse effects on the amount of waste transport and the impacts associated with the movement of waste. However, levels of waste transport are also dependent on options chosen for managing waste and this is assessed in the

MWMS Objective	1	2	3	4	5	6	7	8	9	10	Uncertainties
											options appraisal. Some local impacts of waste transport are dependent on development control decisions.
13. Impact on levels of rail or water transport for waste	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	
14. Impact on car use	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	
15. Amount of energy consumption and generation	?	Ø	Ø	✓	Ø	Ø	Ø	Ø	Ø	✓	The effect on levels of energy consumption and generation are dependent on options chosen for managing waste. This is assessed in more detail in the options appraisal.
16. Impacts on health	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	
17. Impact on resource use	✓	Ø	Ø	Ø	Ø	Ø	✓	Ø	Ø	✓	
18. Impact on the economy (costs of waste management)	?	Ø	Ø	Ø	✓	Ø	✓	✓	Ø	Ø	Costs and economic impact will vary with different options for managing waste. See options appraisal for assessment.
19. Number of jobs created	✓	Ø	Ø	Ø	Ø	Ø	✓	Ø	Ø	Ø	
20. Accessibility of services	✓	✓	Ø	Ø	Ø	Ø	Ø	✓	Ø	Ø	
21. Opportunities for public participation	✓	✓	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	
22. Impact on communities	✓	✓	Ø	Ø	Ø	?	Ø	Ø	Ø	✓	The development of waste management facilities may have significant impacts on particular communities. Although not explicitly stated, planning policy requires authorities to consider community impacts in locating developments.
23. Landtake	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	
24. Diversion of biodegradable municipal waste from landfill	✓	Ø	Ø	✓	Ø	Ø	Ø	Ø	Ø	Ø	
25. Opportunities/benefits	Ø	Ø	Ø	Ø	Ø	Ø	✓	Ø	Ø	Ø	
26. Flexibility to respond to future changes in technology, policy and legislation	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	✓	Ø	
27. Deliverability	?	✓	Ø	Ø	Ø	✓	Ø	✓	✓	Ø	The deliverability of the waste hierarchy will vary depending on the options chosen for managing waste. See options appraisal for

MWMS Objective	1	2	3	4	5	6	7	8	9	10	Uncertainties
											assessment.
28. Public perception/acceptability	?	✓	Ø	Ø	Ø	Ø	Ø	✓	Ø	Ø	Public acceptability may vary depending on the options chosen for managing waste. See options appraisal for assessment.
29. Total road kilometres	?	Ø	✓	Ø	Ø	Ø	✓	Ø	Ø	Ø	Increased recycling may have adverse effects on the amount of waste transport while minimising the generation of waste will reduce the need for waste transport. However, levels of waste transport are also dependent on options chosen for managing waste and this is assessed in the options appraisal.

6.3 SIGNIFICANT EFFECTS OF THE POLICIES

The policies were appraised in turn against each of the SEA assessment criteria to identify where there are likely to be significant environmental or other effects. The following conclusions have been drawn.

The key significant impacts of the strategy are in meeting the objectives of sustainable waste management, in other words the strategy will reduce the landfill of waste, including biodegradable waste, by moving waste management activities up the waste hierarchy, promoting waste minimisation and increasing reuse, recycling, composting and recovery of value, either in terms of material resources or energy.

Achievement of these goals is strongly dependent on improving the accessibility of minimisation and recycling services to the public and on significantly increased levels of public participation in waste-related activities, which are recognised and addressed by the strategy. This will have a number of other benefits, including reducing the emissions of greenhouse gases from waste-related activities, and reducing the likelihood of adverse impacts on water quality and potentially also on biodiversity.

The impacts on levels of waste transport are less clear. The strategy seeks to minimise distances in locating new waste management facilities. However, increased recycling may result in more recyclate being transported out of the county if sufficient capacity is not available locally. This would increase the amount of waste transport and any potential effects arising. The strategy seeks to support local markets, but could be strengthened by an explicit commitment to county net self-sufficiency where possible, as emphasised in other policy documents. Car use for waste transport should be reduced by more accessible services, although this could be made a clearer aim in the strategy.

The costs of waste management are likely to rise with reducing disposal to landfill and expansion of other waste-related services and activities, although the economic impacts will be offset to an extent through minimisation, energy recovery and through managing waste locally which will help to increase the size and diversity of the waste management sector in the county.

Various policies of the strategy will encourage communities to take more responsibility for their own waste and will also help to delay the need for new residual treatment and disposal facilities. These facilities could have impacts on communities within which they are located, both positive in terms of jobs and potentially negative in terms of amenity. The overall balance of impacts for each of these three criteria is unknown and will also depend on the choice of options for managing waste. Public acceptability of the strategy will be principally tested through consultation.

For several of the appraisal criteria, the likely impacts of the strategy are unknown as they are mainly dependent on the choice of technologies for

managing and treating waste. This includes the overall landtake for waste management facilities, the opportunities and benefits which may arise from process outputs, the deliverability of different technology choices and the ability to respond flexibly to future changes in policy, technology and legislation. These issues are examined in the options appraisal.

A summary of the assessment against each of the criteria is set out in *Table 6.3*. The following symbols are used:

+	impact likely to be positive
-	impact likely to be negative
0	no impact
?	impact unknown
Ø	not relevant

The tables also include colour to indicate the relative significance of the impacts. Red indicates a high level of significance, yellow indicates medium significance and green indicates a low level of significance.

An assessment of the cumulative impacts of the strategy is given in *Table 6.4*.

Table 6.3

Significant Effects of Joint MWMS Policies

SEA criteria	Policies														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Impact on air quality	?	Ø	+	+	?	?	Ø	Ø	?	?	?	?	+		Ø
2. Emissions of greenhouse gases	?	Ø	+	+	?	+	Ø	Ø	?	?	?	?	+	Ø	Ø
3. Impact on consumption of water resources	0	Ø	+	+	Ø	0	Ø	Ø	0	0	?	?	Ø	Ø	Ø
4. Impact on water quality	Ø	Ø	+	+	Ø	+	Ø	Ø	+	+	?	?	Ø	Ø	Ø
5. Compatibility with waste hierarchy	+	+	+	+	+	+	+	+	+	+	Ø	+	Ø	+	Ø
6. Impact on level of waste generation	+	Ø	+	Ø	+	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø
7. Impact of option on re-use	+	+	Ø	+	Ø	+	+	+	?	+	Ø	+	Ø	+	Ø
8. Recovery of value from waste	+	Ø	Ø	+	Ø	+	+	+	+	+	Ø	+	Ø	+	Ø
9. Reduction in quantity of waste going to landfill	+	+	+	+	+	+	+	+	+	+	Ø	+	Ø	+	Ø
10. Extent to which option enables	?	Ø	+	+	+	?	?	Ø	+	+/?	?	?	+	?	Ø
11. Impact on biodiversity	?	Ø	+	Ø	+	?	+	+	?	?	?	?	0	?	Ø
12. Impact of waste transportation	Ø	Ø	+	Ø	+	-	-	-	?	?	?	?	+/0	+	Ø
13. Impact on levels of rail	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	?	?	Ø	Ø	Ø	Ø	Ø
14. Impact on car use	Ø	Ø	Ø	Ø	Ø	Ø	+	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø
15. Amount of energy consumption and generation	+	Ø	+	+	+	+	Ø	Ø	+	+	?	?	+	Ø	Ø
16. Impacts on health	0	Ø	0	0	0	0	0	0	0	0	?	?	0	0	Ø
17. Impact on resource use	+	+	+	+	+	+	+	+	+	+	Ø	?	+	+	Ø
18. Impact on the economy (costs of waste management)	?	Ø	?	?	?	?	-	-	?	?	Ø	+	+/?	?	+
19. Number of jobs created, including skilled jobs	Ø	Ø	+	+	Ø	+	+	+	+	+	Ø	Ø	+	+	Ø

SEA criteria	Policies														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
20. Accessibility of services	Ø	Ø	+	+	Ø	Ø	+	0	Ø	Ø	Ø	Ø	Ø	Ø	Ø
21. Opportunities for public participation	Ø	Ø	+	+	Ø	+	+	+	Ø	+	Ø	Ø	Ø	Ø	Ø
22. Impact on communities	+	Ø	+	+	Ø	Ø	+	+	+/-	Ø	Ø	Ø	0	Ø	Ø
23. Landtake	Ø	Ø	+	+	+	?	?	?	?	?	?	?	Ø	Ø	Ø
24. Diversion of biodegradable municipal waste from landfill	Ø	Ø	+	Ø	Ø	+	+	+	+	Ø	?	?	Ø	+	Ø
25. Opportunities/benefits	Ø	Ø	+	+	Ø	+/0	Ø	Ø	?	Ø	Ø	Ø	Ø	Ø	Ø
26. Flexibility to respond to future changes in technology, policy and legislation	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	?	Ø	Ø	?	Ø	Ø	Ø
27. Deliverability	Ø	Ø	Ø	Ø	Ø	0	+	+	?	Ø	?	?	Ø	Ø	Ø
28. Public perception/acceptability	Ø	Ø	Ø	Ø	Ø	?	?	?	?	Ø	?	+	Ø	Ø	+
29. Total road kilometres	+	Ø	+	Ø	+	-	-	-	?	Ø	?	?	+	+	Ø

Table 6.4 Cumulative Assessment

SEA criteria	Cumulative assessment of effects of strategy	
1. Impact on air quality	?	Waste reduction and reuse will have a positive effect on overall air quality, by reducing emissions from the processing of waste. Benefits will also derive from the commitment to locate facilities with the aim of minimising transport of waste. However, impacts are primarily dependent on choices for waste management processes and technologies, although these are not likely to be significant as overall air quality is not a key issue for Oxfordshire.
2. Emissions of greenhouse gases	+	Increasing waste minimisation and recycling and reuse, and seeking to minimise the transport of waste will all help to lower emissions of greenhouse gases. Although this will make a small impact relative to emissions in Oxfordshire overall, avoiding greenhouse gas emissions is a key objective of the strategy. Levels of emissions are also dependent on technologies chosen for waste treatment and this is examined in detail in the options appraisal. The likely impacts from managing residual waste streams and specialised material streams are unknown.

SEA criteria	Cumulative assessment of effects of strategy	
3. Impact on consumption of water resources	?	Waste reduction and reuse could help to reduce water consumption although the effect will be small compared to overall requirements for waste management activities and overall consumption in Oxfordshire. Nevertheless, water consumption should be recognised as a component of resource efficiency.
4. Impact on water quality	+	Reducing reliance on landfill will help to reduce risks of water pollution incidents.
5. Compatibility with waste hierarchy	+	Policies have a strong commitment to moving waste up the hierarchy.
6. Impact on level of waste generation	+	Minimisation of waste generation is a clear aim of the strategy.
7. Impact of option on re-use and recycling household waste	+	Increasing reuse, recycling and composting are clear aims of the strategy. Levels of recycling will also be affected by the choice of residual waste treatment options.
8. Recovery of value from waste	+	Recovery of value, either in terms of resources or energy, is a clear aim of the strategy and supported in many of the policies.
9. Reduction in quantity of waste going to landfill	+	Reduction of landfill is a clear aim of the strategy and is supported in many of the policies.
10. Extent to which option enables waste to be managed within county	+/?	The strategy makes a commitment to taking responsibility for the waste produced, including supporting local markets, although is not explicit on net self-sufficiency. The commitment to responsibility will be supported by provision of the necessary residual treatment technologies and the commitment to reducing landfill and also the generation of waste. However, increased recycling may result in more recyclate being transported out of the county for treatment if local recycling capacity is not available, although it will also reduce the requirement for landfill capacity and so contribute to county net self-sufficiency in landfill capacity. The likely impacts on self-sufficiency from managing residual waste streams and specialised material streams are unknown.
11. Impact on biodiversity	+/?	Reducing the need for landfill, particularly of biodegradable waste, will help to reduce the risk of water pollution which may have local benefits for aquatic biodiversity. Reducing the amount of waste to be treated and disposed will help to reduce pressure for development land which could otherwise have biodiversity impacts. However, development of new treatment and recycling facilities could potentially have consequences for biodiversity, depending on the nature of the site. Replacing peat-based composts will have biodiversity benefits. The likely impacts from managing residual waste streams and specialised material streams are unknown.
12. Impact of waste transportation	?	Policies will have different effects, both positive and negative. Limiting the growth in waste generation will help to reduce the growth in waste transport, although increased recycling and possibly also more residual treatment may add to the need for waste transport. However, the clear commitment to minimise transport along with the recognition of amenity constraints will help to

SEA criteria	Cumulative assessment of effects of strategy	
		reduce the impacts of waste transport. Impacts also are dependent on choice of options and the location of facilities. The overall balance of effects is unknown.
13. Impact on levels of rail or water transport for waste	?	Moving away from a reliance on landfill to other methods of managing waste may create opportunities for siting new facilities to allow transport by rail or water. However, this is dependent on planning decisions and development control.
14. Impact on car use	?	More accessible services should reduce the need for householders to transport recyclables by car to HWRCs and bring sites.
15. Amount of energy consumption and generation	+	Recovery of value by energy recovery is a clear policy commitment. Seeking to minimise transport distances wherever possible will also reduce energy consumption for waste transport. Reducing biodegradable waste to landfill is likely to reduce generation of energy from landfill gas, although the impact is unlikely to be significant and also dependent on residual technology choices, all of which will have a positive impact on levels of energy consumption/generation. Increasing recycling will also reduce energy consumption by reducing the processing of virgin materials.
16. Impacts on health	0/?	The strategy indicates that waste should be managed in a way that does not endanger health. Impacts are unlikely, although likely impacts from managing residual waste streams and specialised material streams are unknown. Minimising the amount of waste generated will reduce the likelihood of any adverse effects.
17. Impact on resource use	+	The strategy clearly encourages the efficient use of resources. Minimisation, increased recycling and reuse will all help to reduce resource use. Increased composting will help to displace consumption of other soil conditioners, although it may also reduce the capacity for recovery of energy from landfill gas and therefore displacement of fossil fuels.
18. Impact on the economy (costs of waste management)	?	Costs of waste management may rise with reducing disposal to landfill, increased recycling, information and awareness-raising activities, and expansion of services. However, these costs will be offset to an extent through minimisation, energy recovery and through managing waste locally which will help to increase the size and diversity of the waste management sector in the county. Overall balance of impacts is unknown and will depend on choice of options for managing waste. Residual options will incur capital and operational costs. Improving services in part through efficient use of resources is a clear policy commitment.
19. Number of jobs created, including skilled jobs	+	The strategy will create or safeguard jobs in a variety of different waste management activities, although numbers will be small and not significant in terms of the labour market overall.
20. Accessibility of services	+	Minimisation, reuse, recycling and composting schemes will provide new or expanded services to the public which will increase accessibility. The strategy makes a clear commitment to making services accessible to all.
21. Opportunities for public participation	+	Implementing schemes to encourage minimisation, reuse, recycling and composting will increase the opportunities for public participation in related activities. Communication and awareness-raising will also help to promote public participation.

SEA criteria	Cumulative assessment of effects of strategy	
22. Impact on communities	+/-	Implementing schemes to encourage minimisation, recycling and reuse of waste will encourage communities to take more responsibility for their own waste. It will also help to delay the need for new residual treatment and disposal facilities and any potential impacts of those facilities on communities. Awareness-raising activities may also help to encourage communities to accept responsibility for the waste they produce. Residual treatment facilities could have impacts on communities within which they are located, both positive (in terms of jobs) and potentially negative (in terms of amenity). The balance of impacts is unknown, but will be similar for all options for residual treatment.
23. Landtake	?	Increased recycling, composting and residual treatment will increased the need for new waste management capacity although this will be offset by a reduction in the need for landfill. Reducing the amount of waste generated will also help to reduce the need for new waste management capacity overall.
24. Diversion of biodegradable municipal waste from landfill	+	The strategy has a strong focus on diverting waste from landfill, including biodegradable waste. The potential scale of benefits for diverting biodegradable waste from landfill would be clearer with the inclusion of targets for composting.
25. Opportunities/benefits	+/0/?	Encouraging home composting may help to replace the use of other soil improvers, some of which can be produced from unsustainable sources. For recyclates and other types of compost, the challenge will principally be to find markets. Encouraging reuse of goods can enable people to obtain goods who may not be able to afford to buy new. Opportunities arising from the outputs of waste treatment depend on the technologies used and are examined in more detail in the options appraisal.
26. Flexibility to respond to future changes in technology, policy and legislation	?	Flexibility is mainly affected by the choice of residual treatment technologies which is examined in the options appraisal. The effects in relation to specialised material streams is unknown.
27. Deliverability	+/?	Increasing recycling and composting performance should help to increase the deliverability of future needs for waste management facilities by decreasing the need for residual treatment and landfill. The delivery of the targets for recycling and composting will require effort and resources to deliver, but are not undeliverable particularly in the short to medium term. The deliverability of waste treatment technologies depends on the choice of technology and is examined in the options appraisal. The deliverability of potential methods of managing residual waste streams and specialised material streams are unknown.
28. Public perception/acceptability	?	It is not possible to assess with any certainty the public perception of the different elements of the strategy. This will be determined through consultation on the strategy. However, the strategy does indicate that specialised material streams will be managed to high levels of public satisfaction. Furthermore, the policy commitment to efficient and effective use of resources is likely to have public acceptability.
29. Total road	?	The strategy makes a clear commitment to minimising waste transport distances in the location of facilities. However, increased

SEA criteria	Cumulative assessment of effects of strategy	
kilometres		recycling is likely to increase the amount of waste transport, particularly if sufficient local processing capacity is not available. Supporting the development of local markets will help to minimise any future growth in waste transport. Waste minimisation will also help to reduce the amount of tonne-kilometres travelled by waste, although this is unlikely to make a significant impact on the total road kilometres. Total road kilometres is also dependent to an extent on the choice of technology for residual waste treatment, which is examined in the options appraisal.

7.1 PROPOSED MITIGATION MEASURES

Table 7.1 makes a number of recommendations in order to address the likely significant impacts of the MWMS. In summary, these are as follows.

To address the risk that increased recycling will increase the amount of waste transport required for Oxfordshire and the potential associated impacts:

- Include a commitment to promote locally-based recyclate processing capacity where feasible. For example, add to policy 14 "The provision of sufficient local recycling and composting capacity will be promoted to minimise transport of recyclables and to maximise the benefits to the local economy" and amend the supporting text to recognise that recycling and composting is relevant to waste transport issues as well as recovery and disposal;
- Make a clear commitment to supporting regional net self-sufficiency and to achieving county net self-sufficiency where possible (policy 13);
- Include a commitment to providing facilities for recycling and reuse that do not require car use.

To strengthen the commitment to reducing the landfill of biodegradable waste, consider the inclusion of targets for composting.

To acknowledge the importance of efficient use of water and energy, include a reference to these aspects in the supporting text to policy 1.

To strengthen the policy commitment to the waste hierarchy:

- Include commitment to reuse, recycling and recovery in preference to landfill within policy 10 rather than supporting text;
- Include a commitment within policy 9 to limit residual treatment to those wastes which cannot be reused or recycled.

To clarify the issues relating to residual waste streams and specialised material streams, the supporting text should describe the types of wastes to be managed and the potential issues relating to management of the wastes.

There are a number of assessment criteria where it has not been possible to assess the likely impacts of the MWMS because these will vary depending on the choice of options for minimisation, recycling and residual treatment. It has therefore also not been possible at this stage to make any recommendations for mitigating or enhancing potential impacts as the likely significance of impacts is unknown.

For some assessment criteria, the likelihood and significance of any impacts is strongly dependent on the choice of location for waste management facilities, the characteristics of individual sites and on any conditions imposed with planning approval. These matters are outside of the scope of the MWMS and fall within the remit of the Minerals and Waste Local Development Framework. It is recommended that the following issues be required by Oxfordshire County Council to be included in any Environmental Statement prepared as part of proposals for waste management facilities, including as a requirement of Environmental Impact Assessments:

- Impact on biodiversity, including any opportunities for enhancement;
- Impacts of waste transport;
- Impact on levels of rail or water transport for waste;
- Impact on communities including consideration of the effects of previous facilities on communities.

7.2 Proposals for Monitoring and Indicators

Table 7.1 contains recommendations for monitoring the significant effects of implementation of the MWMS. These indicators should be included within a programme of annual monitoring to allow the County Council, Districts and City Council to identify the impact of implementing the strategy and to respond if necessary to any adverse impacts.

Monitoring of strategy implementation should focus on its effectiveness in several key areas:

- The achievement in managing waste at levels of the waste hierarchy, including in relation to past performance: minimisation, reuse, recycling, composting, energy recovery and landfill;
- County capacity in waste management facilities, by type;
- The level of county net self-sufficiency in dealing with waste, by type of management method;
- Levels of service accessibility;
- Reporting on the councils' waste-related activities, including costs and effectiveness;
- The cost of waste management services, including expenditure on particular types of schemes, services or activities.

Table 7.1 Recommendations for Mitigation and Monitoring

Policy	Assessment	Recommendations for mitigation or enhancement	Recommended monitoring indicators (to be completed)
Policy 1: Resource use and taking responsibility	Promoting the efficient use of resources will have a range of positive impacts on sustainable development objectives, including reducing the generation of waste, managing waste at higher levels of the hierarchy than currently and increasing the value recovered from waste. Water and energy are not clearly included within the scope of resources to be used more efficiently, although this would add to the potential benefits arising from the policy. Taking responsibility for waste may result in a greater self-sufficiency within the county, although this is not explicit and could be given clearer emphasis in the strategy. The policy should also affect communities in a positive way through increased awareness of waste management issues and a greater recognition of the need for local facilities for the treatment of waste.	The supporting text should clarify that efficient use of resources will include the use of water and energy.	Tonnes of MSW managed at different hierarchy levels, including trends: • arisings • reused • recycled • composted • used to recover energy • disposed to landfill % of waste arisings not managed within county
Policy 2: Lobbying Government	May indirectly encourage management of waste according to the waste hierarchy and reuse and recovery of resources, but is unlikely to have a significant effect on overall levels of waste generation and reuse in Oxfordshire, particularly in the short term.	The policy would be strengthened if the supporting text gave an indication of the particular aims of lobbying government or the key objectives it is hoped to achieve.	
Policy 3: Encouraging waste reduction and management	Encouraging waste minimisation will help to implement the waste hierarchy by tackling waste at the top level of the hierarchy. It may also help to reduce the landfill of waste and promote the more efficient use of resources, as well as reduce the impacts arising from the management of waste, such as air emissions including greenhouse gases. However, these effects are also strongly dependent on the choices for managing the waste that is produced. There are likely to be both economic benefits and costs, although the balance of economic impacts is not clear and is examined in more detail in the options appraisal. The policy will also help to increase awareness of waste management issues and encourage the public to take more responsibility for the waste they produce, including participation in minimisation activities. There may also be benefits particularly		Tonnes of MSW arising and trends Expenditure on waste reduction schemes

Policy	Assessment	Recommendations for mitigation or enhancement	Recommended monitoring indicators (to be completed)
	from home composting which can replace the use of other soil conditioners.		
Policy 4: Encouraging waste reuse	Encouraging reuse of goods will help to implement the waste hierarchy by tackling waste near to the top of the hierarchy, and enables the realisation of the highest possible value for waste goods. It may also help to reduce the landfill of waste and promote the more efficient use of resources including energy, as well as reduce the impacts arising from the treatment and disposal of waste, such as air emissions including greenhouse gases. However, these effects are also strongly dependent on the choices for managing the remaining waste that is produced. The provision of reuse services will have a cost although will also help to reduce waste treatment costs. The balance of economic impacts is not clear and is examined in more detail in the options appraisal. However, it will also enable people to obtain goods who may not be able to afford to buy new, and this can be an important benefit for some individuals or groups. The policy will also help to increase awareness of waste management issues and encourage the public to take more responsibility for the waste they produce, including participation in the reuse of goods. There may also be benefits particularly from home composting which can replace the use of other soil conditioners.		Tonnes of MSW managed through reuse schemes. Report on expenditure on reuse schemes, income generated and non-financial benefits.
Policy 5: Reducing growth of municipal waste by 2012	Reducing waste generation is highly important for achieving the top level of the waste hierarchy, although aiming for zero growth will not actually reduce the amount of waste generated as envisaged in the hierarchy. The policy will make some contribution to reducing the need for landfill and achieving environmental benefits such as promoting more efficient use of resources and reducing the impacts from waste treatment and disposal, but these impacts are also strongly dependent on levels of recycling and residual treatment and choices of methods and technologies for these activities. There are likely to be both economic benefits and costs, although		Tonnes of MSW arising and trends Expenditure on waste reduction schemes

Policy	Assessment	Recommendations for mitigation or enhancement	Recommended monitoring indicators (to be completed)
	the balance of economic impacts is not clear and is examined in more detail in the options appraisal.		
Policy 6: Recycling targets	Policy makes a clear commitment to increased recycling, which helps to move waste up the waste management hierarchy and recover value from waste. It will also have a wide range of environmental benefits including reduced consumption of resources including energy, and reduced greenhouse gas emissions. It will reduce the landfill of waste which may help to reduce the risk of pollution incidents although such impacts are also dependent on operational standards. However, there may be consequences arising from the need for new facilities to process the waste and the increased need to transport it. The overall significance of landtake requirements is largely dependent on choices for waste management technologies. Increased recycling could result in significant increases in transport of waste to recyclate processors, but could be reduced by provision of local capacity wherever appropriate and feasible. Development control policy will play an important role in controlling and mitigating such impacts. The potential scale of benefits for diverting biodegradable waste from landfill are unclear without an indication of targets for composting. Increasing recycling will help to promote the growth and diversity of the waste management sector, although collection and management of waste for recycling and composting may result in increase in costs, depending on the options chosen for increasing recycling and composting. The overall balance of economic impacts is not known but further detail on costs is given in the options appraisal. There are social benefits in terms of the necessary increased public participation in recycling and composting activities, although the delivery of the targets may be challenging in the longer term and will require focused effort and resources.	The strategy could include a commitment to promote locally-based recyclate processing capacity where feasible and appropriate to maximise the opportunities to reduce waste transport and capitalise on economic benefits within the county. Ensure planning decisions on local facilities take account of effects of waste transport. Consider the inclusion of targets specifically for composting in order to achieve objective of diverting biodegradable waste.	Tonnes of MSW managed at different hierarchy levels, and performance against targets: • recycled • composted Waste management capacity within Oxfordshire for • recycling • composting % of recyclables/compostables not managed within county Cost of waste collection services
Policy 7: Access to	The commitment to provision of accessible facilities is an	Include a commitment to promote	% of households covered by kerbside

Policy	Assessment	Recommendations for mitigation or enhancement	Recommended monitoring indicators (to be completed)
facilities	important precondition to improved recycling performance. This will have a range of benefits from reduced landfill impacts, particularly from biodegradable waste, to recovery of value and resources. However, it may also lead to increased waste transport for increasing volumes of recyclate, particularly if local processing capacity is unavailable, and will have ongoing financial costs for provision of services and facilities. Benefits will derive from the increased opportunities for public participation in recycling and other waste management activities, and will enable all communities to take more responsibility for the waste they produce, although impacts from new recycling facilities is likely to be of more concern to communities. Further benefits could be achieved if facilities do not require householders to use a car to access them.	locally-based recyclate processing capacity where feasible. Include a commitment to providing facilities that do not require car use.	collections and type % of households within 500m of a bring site % of households within 5km of a HWRS
Policy 8: Encouraging separation of recyclables	Encouraging separation of recyclables by both households and businesses is an important activity for promoting increased recycling and therefore management of waste higher in the waste hierarchy than currently. It will contribute to securing a range of benefits, from reduced landfill impacts to recovery of value and more efficient use of resources, increasing public participation in environmentally-responsible activities and encouraging all residents to take responsibility for the waste they produce. However, it may also lead to increased waste transport for increasing volumes of recyclate, particularly if local processing capacity is unavailable, and will have ongoing financial costs for provision of information and awareness-raising. Better recycling performance will reduce the need for residual treatment and landfill capacity which may help to increase the deliverability of such facilities, although this will be offset to an extent by the likely requirement for land for new recycling facilities.	Include a commitment to promote locally-based recyclate processing capacity where feasible.	Tonnes of MSW collected for: • recycling • composting and trends. Report on implementation of information and awareness schemes, including expenditure on schemes % of recyclables/compostables not managed within county
Policy 9: Recovering value from residual waste	Policy gives a clear commitment to the recovery of value from waste. Energy recovered in this way could have benefits for reducing greenhouse gas emissions although the nature and significance of any impacts are dependent on the choice of	Ensure promotion of alternative modes to road in Waste Local Plan. Ensure planning procedures minimise	Tonnes of MSW managed at different hierarchy levels, and trends: • arisings

Policy	Assessment	Recommendations for mitigation or enhancement	Recommended monitoring indicators (to be completed)
	technologies and processes for managing waste. However, residual treatment can also contribute to recycling levels depending on the choice of technology and it should be recognised in the supporting text that this could also be an element of value recovery. The supporting text indicates that residual treatment will be limited to those wastes which cannot be recycled or composted, although this could be made explicit in the policy. Reducing reliance on landfill will reduce the potential negative effects arising from the landfill of waste, including the avoidance of financial penalties. Providing residual treatment capacity and reducing reliance on landfill will also contribute to achieving net self-sufficiency in waste management capacity, although this is also dependent on recycling and composting capacity. Certain impacts are largely dependent on choices for residual treatment technology and are examined in more detail in the options appraisal. These include the effects on waste transport distances, the impact on costs, landtake requirements, any opportunities or benefits deriving from treatment processes, the flexibility to respond to future changing requirements, the deliverability of facilities and levels of public acceptability. New residual treatment facilities are likely to have impacts on the communities where they are located. Planning procedures must ensure that the potential impacts on communities are minimised and consider the effects of previous facilities on communities.	impacts on communities and consider the effects of previous facilities on communities. Include a commitment within the policy to limit residual treatment to those wastes which cannot be reused or recycled. Recognise in supporting text that the contribution of residual treatment to greater recycling levels can also be an element of value recovery.	• reused • recycled or composted • used to recover energy • disposed to landfill Report on extent of non-road transport and potential future opportunities
Policy 10: Optimum use of landfill	The policy encourages management of waste at higher levels of the hierarchy than landfill, which will promote increased recycling and reuse, and recovery of resources and energy. This will secure a range of environmental benefits including reduced risks of pollution, and potentially reduced greenhouse gas emissions, although this is mainly dependent on choices of waste management technologies. Supporting increased recycling as an alternative to landfill will promote greater public participation in reuse and recycling activities and therefore encourage	Include commitment to reuse, recycling and recovery in preference to landfill within policy rather than supporting text. Promote local recycling businesses where possible.	Tonnes of MSW managed at different hierarchy levels, and trends: • arisings • reused • recycled or composted • used to recover energy • disposed to landfill % of waste arisings not managed within

Policy	Assessment	Recommendations for mitigation or enhancement	Recommended monitoring indicators (to be completed)
	communities to take responsibility for the waste they produce. The commitment to reuse, recycling and recovery in preference to landfill would be strengthened by inclusion in policy rather than supporting text. The policy seeks to conserve landfill capacity thereby contributing to county net self-sufficiency in landfill, although this will require additional facilities to manage waste in other ways, which in particular may reduce county net self-sufficiency in recycling or composting capacity. The effects on the amount of waste transport are unclear, as are the likely economic impacts and the balance of effects on landtake. These are examined in more detail in the options appraisal.		county, by type of waste and management methods.
Policy 11: Dealing with residual waste streams	It is not possible to assess the potential impacts where these may be relevant to dealing with potentially polluting waste streams, as no indication is given of the types of waste to be managed, the potential methods of management, or the nature of what would constitute the best outcome.	The policy or supporting text should be strengthened to clarify priorities and issues.	Tonnes of residual waste for treatment, and trends. Report on residual waste management methods.
Policy 12: Specialised material streams	It is not possible to assess the potential impacts of the management of specialised material streams, as no indication is given of the potential methods of management. Priorities for managing these wastes are given only in terms of economic value, customer satisfaction and meeting legislative requirements.	The supporting text could be strengthened to clarify priorities and issues.	Tonnes of specialised material streams for treatment, and trends. Report on management methods for specialised material streams.
Policy 13: Size and location of facilities	The policy clearly aims to minimise transport distances and to ensure these are well-located in relation to areas of population, while recognising that there may be environmental and amenity constraints on development. The risk and significance of any impacts is mainly dependent on development control policy. Minimising transport distances will help to reduce energy and resource consumption and costs arising from the transport of waste. The supporting text implies that self-sufficiency is an aim of the policy, although this is not clearly stated and only appears to address regional self-sufficiency. A commitment to county net self-sufficiency would support broader policy objectives and	Policies should include a commitment to achieving county net self-sufficiency where possible and to supporting the development of local waste management capacity wherever possible and appropriate.	Report on county waste management capacity, by type: • reuse schemes • recycling • composting • energy recovery • treatment • landfill % of waste not managed within county

Policy	Assessment	Recommendations for mitigation or enhancement	Recommended monitoring indicators (to be completed)
	would support development of the local waste management sector. It would also support the concept of communities taking responsibility for the waste they produce. Encouragement could be given to supporting development of local capacity wherever appropriate.		
Policy 14: Developing local markets	Working to develop markets may be important for ensuring the viability of increased recycling levels for some materials and therefore an important activity for promoting increased recycling. It will contribute to securing a range of benefits, from reduced landfill impacts to recovery of value and resources. It should also help to support growth and stability in the local waste sector and help towards the achievement of net self-sufficiency. It will also help to limit the growth in waste transport as a result of increasing volumes of recyclate requiring transport to processors.	The concept of market could be clarified and the commitment to supporting those markets strengthened by more specificity on the aims and objectives, either in policy or supporting text.	Report on market development work, including costs and impacts. % of waste not managed within county
Policy 15: Improving services	Policy will make a direct contribution to providing acceptable costs for waste services which is likely to lead to public acceptability of those services.		Cost of waste management services, total and per tonne of MSW

Annex 1

Detailed Assessment of Reduction and Reuse Options

Criteria	Option 1A	Option 1B	Option 2A	Option 2B
	Home composting – medium usage	**Home composting – high usage**	**Furniture reuse – charity support**	**Furniture reuse – central depot**
1. Impact on air quality for key pollutants	Will reduce amount of MSW entering the waste stream by up to 5%, so reducing emissions from facilities and from waste transport.	Will reduce amount of MSW entering the waste stream by up to 9%, so reducing emissions from facilities and from waste transport.	Will reduce amount of MSW entering the waste stream by up to 0.2%, so having a negligible impact on emissions from facilities. No effect on emissions from waste transport as waste will still need to be transported.	Will reduce amount of MSW entering the waste stream by up to 1.5%, so having a small impact reducing emissions from facilities. No effect emissions from waste transport as waste will still need to be transported.
2. Emissions of greenhouse gases	Will reduce likelihood of methane emissions from landfill, although landfill gas capture is now standard practice at most landfill sites. Poorly managed compost heaps can be a source of methane. Reducing amount of MSW entering the waste stream will reduce emissions of CO_2 from waste transport.	Will reduce likelihood of methane emissions from landfill, although landfill gas capture is now standard practice at most landfill sites. Poorly managed compost heaps can be a source of methane. Reducing amount of MSW entering the waste stream will reduce emissions of CO_2 from waste transport. Benefits will be greater than with medium usage option.	Will have a negligible impact on greenhouse gas emissions from treatment and disposal of waste. No effect on emissions from waste transport as waste will still need to be transported.	Will have a small impact on greenhouse gas emissions from treatment and disposal of waste. No effect on emissions from waste transport as waste will still need to be transported.
5. Compatibility with waste hierarchy	Promotes waste hierarchy by reducing generation of waste by up to 19,000 tpa	Promotes waste hierarchy by reducing generation of waste by up to 34,300 tpa	Promotes waste hierarchy by reducing generation of waste by up to 800 tpa and promoting reuse.	Promotes waste hierarchy by reducing generation of waste by up to 5,700 tpa and promoting reuse.
6. Impact on level of waste generation	Reduces amount of waste entering municipal waste stream by up to 5%	Reduces amount of waste entering municipal waste stream by up to 9%	Reduces amount of waste entering municipal waste stream by up to 0.2%	Reduces amount of waste entering municipal waste stream by up to 1.5%
7. Impact of option on re-use and recycling of household waste	Increases reuse/recycling of waste by up to 19,000 tpa or 5% of household arisings.	Increases reuse/recycling of waste by up to 34,300 tpa or 9% of household arisings.	Increases reuse/recycling of waste by up to 800 tpa or 0.2% of household arisings.	Increases reuse/recycling of waste by up to 5,700 tpa or 1.5% of household arisings.

Criteria	Option 1A Home composting – medium usage	Option 1B Home composting – high usage	Option 2A Furniture reuse – charity support	Option 2B Furniture reuse – central depot
9. Reduction in quantity of waste going to landfill	Will avoid up to 19,000 tpa entering waste stream, which will contribute to reduction of landfill of waste. However, impact on landfill is mainly dependent on choices for residual waste management.	Will avoid up to 34,300 tpa entering waste stream, which will contribute to reduction of landfill of waste. However, impact on landfill is mainly dependent on choices for residual waste management.	Will avoid up to 800 tpa entering waste stream, which will contribute to reduction of landfill of waste. However, impact on landfill is mainly dependent on choices for residual waste management.	Will avoid up to 5,700 tpa entering waste stream, which will contribute to reduction of landfill of waste. However, impact on landfill is mainly dependent on choices for residual waste management.
10. Extent to which option enables waste to be managed within county	By reducing amount of compostable waste entering waste stream, option will make a contribution towards achieving county net self-sufficiency by reducing the need for new centralised composting facilities.	By reducing amount of compostable waste entering waste stream, option will make a contribution towards achieving county net self-sufficiency by reducing the need for new centralised composting facilities. The benefit will be greater than with the medium usage option.	Unlikely to have any significant impact on county net self-sufficiency	Unlikely to have any significant impact on county net self-sufficiency
12. Impact of waste transportation, including air pollution, noise and energy use	By reducing amount of waste entering waste stream, option will reduce need for waste transport and its effects.	By reducing amount of waste entering waste stream, option will reduce need for waste transport and its effects.	No effect on waste transport as furniture will still require transport	No effect on waste transport as furniture will still require transport
14. Impact on car use	Likely to reduce the number of trips to HWRSs to dispose of garden waste	Likely to reduce the number of trips to HWRSs to dispose of garden waste	No effect	No effect
15. Amount of energy consumption and generation	Will reduce energy consumption required for waste collection and treatment, although will also reduce the potential for energy generation from landfill gas.	Will reduce energy consumption required for waste collection and treatment, although will also reduce the potential for energy generation from landfill gas.	Will reduce energy consumption required for waste treatment, and will also reduce energy required for manufacture of new goods.	Will reduce energy consumption required for waste treatment, and will also reduce energy required for manufacture of new goods.
17. Impact on resource use	Should help to reduce household consumption of bought garden compost, much of which is extracted from non-sustainable resources.	Should help to reduce household consumption of bought garden compost, much of which is extracted from non-sustainable resources.	Will reduce consumption of resources for manufacture of new goods.	Will reduce consumption of resources for manufacture of new goods.
18. Impact on the economy (excluding £764,000 pa for overall minimisation programme)	Estimated to result in net annual financial benefit of £1,563,000 in 2019/20	Estimated to result in net annual financial benefit of £2,872,000 in 2019/20	Estimated to result in net annual financial benefit of £11,000 in 2019/20	Estimated to result in net annual financial benefit of £71,000 in 2019/20

Criteria	Option 1A	Option 1B	Option 2A	Option 2B
	Home composting – medium usage	**Home composting – high usage**	**Furniture reuse – charity support**	**Furniture reuse – central depot**
19. Number of jobs created	No significant impact on number of jobs	No significant impact on number of jobs	Will create a number of jobs and training opportunities, potentially including some skilled or semi-skilled.	No significant impact on number of jobs, although may create volunteering opportunities
20. Accessibility of services	No effect	No effect	Will increase the collection of bulky waste from households thereby increasing service accessibility. Will also provide low-cost goods for low-income families, schools and charities.	Will increase the collection of bulky waste from households thereby increasing service accessibility. Will also provide low-cost goods for low-income families, schools and charities.
21. Opportunities for public participation	Public participation a central component, with a target participation of 127,000 households or 50% of those with a garden	Public participation a central component, with a target participation of 228,000 households or 90% of those with a garden	Public participation essential to success of scheme, although no targets for number of households participating.	Public participation essential to success of scheme, although no targets for number of households participating.
22. Impact on communities	Will have beneficial impacts on communities by encouraging people to take responsibility for waste, and reducing the need for new composting facilities	Will have beneficial impacts on communities by encouraging people to take responsibility for waste, and reducing the need for new composting facilities	Will have beneficial impacts on communities by encouraging people to take responsibility for the waste they produce	Will have beneficial impacts on communities by encouraging people to take responsibility for the waste they produce
24. Diversion of biodegradable municipal waste from landfill	Will divert 19,000 tpa of biodegradable waste from landfill	Will divert 34,000 tpa of biodegradable waste from landfill	Will divert 300 tpa of biodegradable waste from landfill	Will divert 2,000 tpa of biodegradable waste from landfill
25. Opportunities/benefits	None additional to those already covered.	None additional to those already covered.	Could help to meet requirements of the WEEE Directive. Second-hand and charity stores can raise money.	Could help to meet requirements of the WEEE Directive. Second-hand and charity stores can raise money.
26. Flexibility to respond to future changes in technology, policy and legislation	Option is highly flexible	Option is highly flexible	Option requires organisational capacity and infrastructure to provide services, which may have difficulty responding to change in technology, policy or legislation.	Option requires organisational capacity and infrastructure to provide services, which may have difficulty responding to change in technology, policy or legislation.

Criteria	Option 3 Reusable nappies – medium usage	Option 3B Reusable nappies – high usage	Option 4 Smart Shopping	Option 5 Unwanted Mail	Option 6 Unwanted Goods
1. Impact on air quality for key pollutants	Avoiding up to 1.1% of current MSW arisings will have a small impact on emissions from transport or facilities. This will be offset by the collection and delivery of nappies where laundry services are used. The balance of impacts between reusables and disposables is not significant.[1]	Avoiding up to 1.7% of current MSW arisings will have a small impact on emissions from transport or facilities. This will be offset by the collection and delivery of nappies where laundry services are used. The balance of impacts between reusables and disposables is not significant.[2]	Reducing MSW by up to 3% will reduce emissions from facilities and transport.	Reducing MSW by up to 1% will have only a small impact on emissions from facilities and transport.	Reducing MSW by up to 0.04% will have a negligible impact on emissions from facilities. No effect on emissions from transport as waste will still need to be transported.
2. Emissions of greenhouse gases	Avoiding generation of waste by up to 1.1% of MSW arisings will have a small impact on greenhouse gas emissions from transport, treatment and disposal of waste. However, collection and delivery of nappies by laundry services will add to greenhouse gas emissions, as will energy use in laundering. The balance of impacts between reusables and disposables is not significant.[3]	Avoiding generation of waste by up to 1.7% of MSW arisings will have a small impact on greenhouse gas emissions from transport, treatment and disposal of waste. However, collection and delivery of nappies by laundry services will add to greenhouse gas emissions, as will energy use in laundering. The balance of impacts between reusables and disposables is not significant.[4]	Emissions of carbon dioxide will be reduced from both facilities and transport.	Emissions of carbon dioxide will be slightly reduced from both facilities and transport. May also help to reduce likelihood of methane emissions from landfill, although landfill gas capture is now standard practice at most landfill sites.	Will have a negligible impact on emissions of carbon dioxide from facilities. No effect on transport emissions as waste will still need to be transported.

(13) [1] *Life Cycle Assessment of Disposable and Reusable Nappies in the UK*, Environment Agency, May 2005

(14) [2] *ibid*

(15) [3] *ibid*

(16) [4] *ibid*

Criteria	Option 3 **Reusable nappies – medium usage**	Option 3B **Reusable nappies – high usage**	Option 4 **Smart Shopping**	Option 5 **Unwanted Mail**	Option 6 **Unwanted Goods**
5. Compatibility with waste hierarchy	Promotes waste hierarchy by reducing generation of waste by up to 4,000 tpa and promoting reuse	Promotes waste hierarchy by reducing generation of waste by up to 6,500 tpa and promoting reuse	Promotes waste hierarchy by reducing generation of waste by up to 11,300 tpa	Promotes waste hierarchy by reducing generation of waste by up to 3,700 tpa	Promotes waste hierarchy by reducing generation of waste by up to 200 tpa and promoting reuse
6. Impact on level of waste generation	Reduces amount of waste entering municipal waste stream by up to 1.1%	Reduces amount of waste entering municipal waste stream by up to 1.7%	Reduces amount of waste entering municipal waste stream by up to 3%	Reduces amount of waste entering municipal waste stream by up to 1%.	Reduces amount of waste entering municipal waste stream by up to 0.04%
7. Impact of option on re-use and recycling of household waste	Promotes the re-use of household goods, but will have no impact on recycling levels.	Promotes the re-use of household goods, but will have no impact on recycling levels.	Likely to reduce the amount of packaging waste but not to have any significant impact on recycling and reuse. May potentially have an adverse impact on recycling performance by removing recyclable waste from the waste stream.	Likely to reduce the amount of packaging waste but not to have any significant impact on recycling and reuse. May have an adverse impact on recycling levels by removing a recyclable material from the waste stream.	Promotes reuse of up to 0.04% of household waste.
9. Reduction in quantity of waste going to landfill	Will avoid up to 4,000 tpa entering waste stream, which will contribute to reduction of landfill of waste. However, impact on landfill is mainly dependent on choices for residual waste management.	Will avoid up to 6,500 tpa entering waste stream, which will contribute to reduction of landfill of waste. However, impact on landfill is mainly dependent on choices for residual waste management.	Will avoid up to 11,300 tpa entering waste stream, which will contribute to reduction of landfill of waste. However, impact on landfill is mainly dependent on choices for residual waste management.	Will avoid up to 3,700 tpa entering waste stream, which will contribute to reduction of landfill of waste. However, impact on landfill is mainly dependent on choices for residual waste management.	Will avoid up to 200 tpa entering waste stream, which will contribute to reduction of landfill of waste. However, impact on landfill is mainly dependent on choices for residual waste management.

Criteria	Option 3 **Reusable nappies – medium usage**	Option 3B **Reusable nappies – high usage**	Option 4 **Smart Shopping**	Option 5 **Unwanted Mail**	Option 6 **Unwanted Goods**
10. Extent to which option enables waste to be managed within county	Unlikely to have a significant impact on county net self-sufficiency	Unlikely to have a significant impact on county net self-sufficiency	May have a small positive impact on county net self-sufficiency by reducing a waste stream which would otherwise ideally be recycled, thereby reducing pressure on recycling capacity.	May have a small positive impact on county net self-sufficiency by reducing a waste stream which would otherwise ideally be recycled, thereby reducing pressure on recycling capacity.	Unlikely to have a significant impact on county net self-sufficiency
12. Impact of waste transportation, including air pollution, noise and energy use	By reducing amount of waste for collection and disposal, option will reduce impact of waste transport, although this will be offset to some extent by need for collection and delivery by laundry services. The difference in transport impacts between reusables and disposables is not significant. [1]	By reducing amount of waste for collection and disposal, option will reduce impact of waste transport, although this will be offset to some extent by need for collection and delivery by laundry services. The difference in transport impacts between reusables and disposables is not significant. [2]	By reducing amount of waste entering waste stream, option will reduce need for waste transport and its effects.	By reducing amount of waste entering waste stream, option will make a small reduction in the need for waste transport and its effects.	No effect on waste transport as goods for reuse will still require transport.
14. Impact on car use	No effect	No effect	No effect	No effect	No effect

(17) [1] *ibid*

(18) [2] *ibid*

Criteria	Option 3 Reusable nappies – medium usage	Option 3B Reusable nappies – high usage	Option 4 Smart Shopping	Option 5 Unwanted Mail	Option 6 Unwanted Goods
15. Amount of energy consumption and generation	Promoting reuse of nappies will reduce energy consumption for manufacture of new disposables, although reuse requires energy for laundering and may reduce potential for energy generation from landfill or incineration. The balance of impacts between reusables and disposables is not significant.[1]	Promoting reuse of nappies will reduce energy consumption for manufacture of new disposables, although reuse requires energy for laundering and may reduce potential for energy generation from landfill or incineration. The balance of impacts between reusables and disposables is not significant.[2]	Will reduce energy consumption required for waste collection and disposal, and will also reduce energy required for manufacture and transport of packaging goods.	Will reduce energy consumption required for waste collection and disposal, and will also reduce energy required for manufacture and printing of paper.	Will reduce energy consumption required for waste treatment and will also reduce energy required for manufacture of new goods.
17. Impact on resource use (depletion of resources)	Promoting reuse of goods will reduce resource consumption for manufacture of new disposables, although will also increase use of detergents.	Promoting reuse of goods will reduce resource consumption for manufacture of new disposables, although will also increase use of detergents.	Will reduce consumption of resources for manufacture of packaging.	Will reduce consumption of resources for production of printed material.	Will reduce consumption of resources for manufacture of new goods.
18. Impact on the economy (excluding £764,000 pa for overall minimisation programme)	Estimated to result in net annual financial benefit of £294,000 in 2019/20	Estimated to result in net annual financial benefit of £502,000 in 2019/20	Estimated to result in net annual financial benefit of £934,000 in 2019/20	Estimated to result in net annual financial benefit of £287,000 in 2019/20	No effect on financial costs
19. Number of jobs created, including skilled jobs	Will create a small number of jobs	Will create a small number of jobs	No significant impact on number of jobs	No significant impact on number of jobs	May create a small number of jobs and training opportunities
20. Accessibility of services	Will increase availability of home nappy services	Will increase availability of home nappy services	No effect	No effect	Can supply low-cost goods to disadvantaged individuals, groups, charities and schools.

(19) [1] *ibid*

(20) [2] *ibid*

Criteria	Option 3 Reusable nappies – medium usage	Option 3B Reusable nappies – high usage	Option 4 Smart Shopping	Option 5 Unwanted Mail	Option 6 Unwanted Goods
21. Opportunities for public participation	Public participation a central component of such schemes, with a target participation of 50% of babies in reusables.	Public participation a central component of such schemes, with a target participation of 80% of babies in reusables.	Public participation a central component, with a target participation of 50% of households	Public participation a central component, with a target participation of 50% of households	Public participation a central component, with a target participation of at least 50% of households
22. Impact on communities	Will have beneficial impacts on communities by encouraging people to take responsibility for the waste they produce	Will have beneficial impacts on communities by encouraging people to take responsibility for the waste they produce	Will have beneficial impacts on communities by encouraging people to take action to reduce waste and by reducing the need for new recycling facilities	Will have beneficial impacts on communities by encouraging people to take action to reduce waste and by reducing the need for new recycling facilities	Will have beneficial impacts on communities by encouraging people to take responsibility for the waste they produce
24. Diversion of biodegradable municipal waste from landfill	Will divert 2,000 tpa of biodegradable waste from landfill	Will divert 3,000 tpa of biodegradable waste from landfill	Will divert 4,700 tpa of biodegradable waste from landfill	Will divert 3,700 tpa of biodegradable waste from landfill	No effect
25. Opportunities/benefits	None additional to those already covered.	None additional to those already covered.	None additional to those already covered.	Where commingled recycling services are offered, the reduction of this waste stream will allow more capacity within kerbside boxes	Could help to meet requirements of the WEEE Directive.
26. Flexibility to respond to future changes in technology, policy and legislation	Option requires organisational capacity and infrastructure to provide service, which may have difficulty responding to change in technology, policy or legislation.	Option requires organisational capacity and infrastructure to provide service, which may have difficulty responding to change in technology, policy or legislation.	Option is flexible	Option is flexible	Option requires organisational capacity and infrastructure to handle waste streams, which may have difficulty responding to change in technology, policy or legislation.

Criteria	Option 3 **Reusable nappies – medium usage**	Option 3B **Reusable nappies – high usage**	Option 4 **Smart Shopping**	Option 5 **Unwanted Mail**	Option 6 **Unwanted Goods**
27. Deliverability	An initial investment in the nappies is required which can be an economic barrier to some families.	Requires capital expenditure. An initial investment in the nappies is required which can be an economic barrier to some families.	Difficult to achieve major reductions in waste without industry cooperation	To achieve maximum reduction, householders will need also to commit to reducing unwanted mail by refusing handouts, flyers and free newspapers and magazines	Poor public image/pre-conceived negative images of used goods can become a barrier to establishing a successful scheme.
28. Public perception/acceptability	Reusable nappies can be regarded unfavourably by some parents.	Reusable nappies can be regarded unfavourably by some parents.	Popular with public	Popular with public	Not unacceptable although public can have pre-conceived negative images of used goods
29. Total road kilometres	By reducing amount of waste for collection and disposal, option will reduce impact of waste transport, although this will be offset to some extent by need for collection and delivery by laundry services. The difference in transport impacts between reusables and disposables is not significant. [1]	By reducing amount of waste for collection and disposal, option will reduce impact of waste transport, although this will be offset to some extent by need for collection and delivery by laundry services. The difference in transport impacts between reusables and disposables is not significant. [2]	Will reduce amount of waste to be collected by up to 11,300 tonnes pa, equivalent to 1030 RCV loads and 510 trucks to recycling or disposal.	Will reduce amount of waste to be collected by up to 3,700 tonnes pa, equivalent to 340 RCV loads and 170 trucks to recycling or disposal.	Will not affect need for waste transport

(21) [1] *ibid*

(22) [2] *ibid*