Appendix A

Joint Materials Resource Management Strategy (JMRMS) for West Sussex (2005-2035)

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Forward

This strategy builds on 'Waste Strategy for West Sussex' (2004-2009), the first Joint Municipal Waste Management Strategy (JMWMS) for the County.

Over the past few years the local authorities in West Sussex have implemented a diverse range of collection systems and infrastructure to increase recycling and composting. However, there is now an urgent need to implement a longer-term waste management strategy which reduces the reliance on landfill still further.

This new Strategy acknowledges that there is no single 'right' way to manage waste. We need to adopt an integrated approach, tailoring our chosen mixture of waste management options to our circumstances and to the wastes we have to deal with every day in West Sussex.

The diversity of solutions that are known as 'scenarios' match the diversity of the waste itself. The aim when assessing various approaches will be to develop an appropriate local waste management infrastructure which balances cost and environmental considerations while being robust enough to manage all of the County's waste.

The Materials Resource Management Strategy includes the development of a Strategic Environmental Assessment (SEA). The objective of the SEA is to assess the environmental impacts of the main proposals in the Strategy.

At the heart of the strategy is tackling the growth in waste and a need to gain much more value from the waste we do produce – while at the same time managing it in an environmentally and economic way. It describes the step change needed in the way we think and manage our waste if we are to make a full contribution to sustainable development.

We will need to create new waste facilities in West Sussex. These facilities will all need planning permissions at a time when the national record of delivering permissions has not been good mainly due to the lack of public information and mis-perceptions.

If this is to improve markedly it is vital to gain the public's involvement in, and acceptance of, this Strategy. For householders it is easy for waste to be 'out-of-sight-out-of-mind'. Many people do not know what happens to their waste once it has been collected from their home.

As with earlier strategies, this Strategy has been shaped through extensive community involvement and consultation. The partnership authorities are grateful to the many individuals, community groups and organisations across the County who contributed by feeding back views and key issues of concern in the development of the Strategy.

This Strategy sets out the scale of the challenge facing us and the actions we will need to take to meet it. Achieving the shift to sustainable resource management will not be easy, and it will require the greater involvement of the residents of West Sussex. But it is essential if we are to make a full contribution to delivering a better quality of life.

Executive Summary

Why do we need a new Strategy?

All authorities under the Waste and Emissions Trading (WET) Act 2003, have a duty to have in place a joint municipal waste management strategy.

The UK is bound by the EC Landfill Directive (99/31/EC) which sets mandatory targets for the reduction of biodegradable municipal waste sent to landfill. To help meet these requirements, the government has established national targets for the recovery of municipal waste and recycling/composting of household waste.

As a result the waste authorities in West Sussex have been set Statutory Performance Standards for recycling and composting household waste. The County Council, as the Waste Disposal Authority, has also been allocated allowances specifying the maximum amount of biodegradable municipal waste they can send to landfill under the Landfill Allowance Trading Scheme (LATS).

In 1998 the County Council made a strategic decision to divide the management of household waste into two discrete but complementary service contracts; the Recycling and Wastes Handling Contract (RWHC) and the Materials Resource Management Contract (MRMC).

In 2004 West Sussex produced 'Waste Strategy for West Sussex (2004-2009)', the first Joint Municipal Waste Management Strategy (JMWMS) for the County, which has been endorsed by Defra.

To meet our European obligations and national long-term targets we urgently need a significant expansion in new waste management facilities. To facilitate this, the Materials Resource Management Strategy (2005-2035) provides the next stages in the framework for delivery.

West Sussex County Council is proposing to let the Materials Resource Management Contract (MRMC) in 2008 which will reflect the requirements of this new Strategy, particularly through waste prevention and the utilisation of alternative technologies that substantially reduce the dependence on landfill.

As with the earlier strategies, the **Joint Materials Resource Management Strategy** (JMRMS) is a true partnership project, with the Strategy being developed and implemented by the County Council, the Borough and District Councils, and the Environment Agency.

Where are we today?

- The total amount of waste disposed to landfill in West Sussex fell from 316,000 tonnes in 2004 to 308,000 by March 2006

- Recycling and composting increased from 22% in 2004 to 30% by March 2006.

- The Recycling and Waste Handling Contract was let almost two years ago to Viridor Waste Management Ltd and is now known as 'Reclaim'.

- The infrastructure required by the Recycling and Waste Handling Contract is now being delivered. During that time we have seen:

    - New and improved recycling and disposal facilities at Littlehampton Household Waste Recycling Site (HWRS)
    - New HWRS site at Billingshurst HWRS
    - New and improved site, including a transfer station and a HWRS at Westhampnett
    - Improvements to the HWRS site at Bognor Regis

- There is a programme in place to improve other infrastructure in West Sussex with a particular emphasis on expanding the recycling facilities and making the service more accessible to all residents.

- In order for the collection of recyclables to be expanded by the District and Borough Councils there was a need for a new Materials Recycling Management Facility (MRF). The proposed MRF received confirmation of Planning Consent in March 2006 and it is planned to be operating in the Summer of 2007. This will enable the processing of co-mingled recyclable materials ready for transportation to various recycling markets.

- Enhanced collection schemes delivered by the District and Borough Councils, making recycling accessible to all residents in West Sussex.

Where do we want to get to?

The JMRMS builds on this progress and reflects the **long-term ambitions** of all the waste authorities in West Sussex. It includes key **policies, objectives** and **commitments** for all the local authorities of the West Sussex. It provides an action plan; focused on waste prevention, waste reuse, recycling, composting which will deliver:

- 45% recycling and composting through the Recycling and Waste Handling Contract in partnership with the District and Borough Councils by 2015.

- 80,000 tonnes of waste diverted from landfill through waste prevention per year by 2015.

- 0% waste growth by 2015.

- Deliver the necessary waste infrastructure to meet the Landfill Directive targets and increase recycling. This legislation restricts how much we can landfill over

the next 14 years and by 2020 the West Sussex Waste Disposal Authority will only be permitted to landfill 130,000 tonnes of Household Waste per annum.

There are a number of possible waste technologies that could provide a 'solution' for West Sussex and these are outlined in this Strategy and are called **'Scenarios'**. All of the modelled scenarios include residual waste treatment options that provide additional recycling over and above the recycling delivered through the Recycling and Waste Handling Contract. All of the options also provide the necessary diversion of biodegradable waste.

The main conclusions of the **Strategic Environmental Assessment** (SEA) were that the objectives of the JMRMS appear to perform well against SEA objectives. The SEA also concluded that all the waste management scenarios, with the exception of the basecase of continuing landfilling, generally performed well in the assessment with several impacts common to all or many options. Mitigation measures have been devised to minimise many of the potential negative impacts, and a framework has been designed to monitor the effects of the JMRMS.

Alongside the technical development of the JMRMS it was recognised that it was important to inform the community about the suggested 'scenarios' and gain an understanding of public views and concerns to include in the decision making processes. This is also important to ensure that the waste authorities have a clear benchmark of public perception upon which to build a future communications strategy.

Consultation on the draft JMRMS Strategy (2005-2035) and associated Environmental Report was carried out between 28th November 2005 and 10th January 2006 by MORI.

Mori interviewed 1,011 residents aged 16+ throughout the County. The interviews were conducted face-to-face in respondents' homes.

In addition a self-completion questionnaire was also designed. The 3,000 questionnaires were uniquely numbered and sent to our Community Involvement groups, libraries, help points and local council offices. A letter was sent to all parish councils and a flier was handed out at Household Waste Recycling Sites highlighting the existence of the survey and where it could be obtained. 500 questionnaires were completed and returned.

It appeared that a combination of factors were important to residents in choosing their most preferred and least preferred solutions.

The factors that residents perceived they preferred included:

- Scenarios that produce energy, electricity or fuel
- Scenarios that involve waste prevention
- Scenarios in which different elements are based at one site

Factors that residents perceived they did not prefer:

- Scenarios that do not seem to have any end result or where the material had to go to landfill anyway
- Scenarios that involved Anaerobic Digestion, a type of biological treatment, but this may be due to appearance
- Any scenarios that may imply an increase in pollution levels

The Inter-Authority Waste Group will ensure the continuous input of all relevant stakeholders during the development and implementation of the Strategy. Regular and **on-going reviews** of the Strategy will be maintained to ensure that it responds to cultural, and statutory and regulatory changes.

Introduction: Context for the Joint Materials Resource Management Strategy

West Sussex occupies an area of approximately 200,000 hectares which contains 325,300 households and a population of 758,600. The County has coastal, rural and urban settlements, including many new housing developments. It is anticipated that a further 58,000 new homes will need to be provided for by 2026.

Municipal Waste comprises about 40% of the waste requiring management in West Sussex. In 2004/5 there were 463,358 tonnes of municipal waste generated in the County, the bulk of which was household.

Historically speaking, the majority of this Municipal Waste has been landfilled, but recent regulatory, financial, environmental, and social pressures have forced a move away from this type of treatment and end disposal.

In 1999, a household waste strategy for West Sussex, 'A Way with Waste', was produced. The strategy included a programme of action to reduce the waste created by households, encourage more recycling and composting, and to derive more benefit from the residual waste element.

Building on the programme established by 'A Way with Waste', in 2004 West Sussex produced 'Waste Strategy for West Sussex', the first Joint Municipal Waste Management Strategy (JMWMS) for the County.

As with the earlier strategies, this Joint Materials Resource Management Strategy (JMRMS) is a true partnership project, with the Strategy being developed and implemented by the County Council, the District and Borough Councils, and the Environment Agency. Full public consultation and a Strategic Environmental Assessment accompanied this development.

Purpose of this Strategy

This Strategy is the next step in the development of the process for dealing with the County's Municipal Waste and prescribes a framework for the management of that waste over the next few decades. It includes key policies, objectives and commitments for all the local authorities of the West Sussex and provides an action plan focused on waste prevention, waste reuse, recycling, composting, and end treatment and final disposal. Essentially, it is a Strategy that provides a real alternative to the previous high levels of landfilling of residual wastes in West Sussex.

West Sussex County Council is due to let a MRMC in 2008 which will reflect the requirements of this new Strategy, particularly through waste prevention and the utilisation of alternative technologies that substantially reduce the dependence on landfill. This Strategy drives and reflects the long-term ambitions of the proposed MRMC.

The Recycling and Waste Handling Contract (RWHC) was let almost two years ago and in this time the service has delivered an increase of 8 percent recycling. Based on the current performance, it is believed we will reach 30% recycling by March 2006, with the ultimate goal of 45% recycling by 2015. The infrastructure required by the contract awarded to Viridor Waste Management Ltd, known as ‘Reclaim’, is now being delivered and includes a new Materials Recovery Facility (MRF), composting facilities and upgraded Household Waste Recycling Sites.

Section 1.0: Process Issues

1.1 Partnership arrangements

1.1.1 Within West Sussex

Local authorities have responsibilities under the 1990 Environmental Protection Act (1990 EPA) and the 1978 Refuse Disposal (Amenity) Act to manage certain controlled wastes.

West Sussex County Council is the Waste Disposal Authority (WDA) for West Sussex. It is responsible for:

- arranging for the safe disposal of household and other similar waste collected by the District and Borough Councils (the Waste Collection Authorities- WCAs)
- providing Household Waste Recycling Sites where residents can deliver their household waste for disposal and recycling.

There are seven Waste Collection Authorities in West Sussex: Adur District Council, Arun District Council, Chichester District Council, Crawley Borough Council, Horsham District Council, Mid Sussex District Council, and Worthing Borough Council. The WCAs are responsible for the collection of household waste in their areas.

The Waste Regulation Authority is the Environment Agency, responsible for the licencing and monitoring arrangements related to controlled wastes in West Sussex.

West Sussex County Council, as Planning Authority, is responsible for the land use planning framework for waste-related activities, including the preparation of the Minerals and Waste Development Framework.

To ensure the effective joint working of these agencies, a number of County-wide inter-agency working groups were established some years ago. These are:

- Inter-Authority Waste Members Group- The Council members responsible for the waste portfolio across the West Sussex authorities;
- Inter-Authority Strategic Waste Officer Group- the directors and senior planning and policy managers from across the local authorities, and the Environment Agency;
- Contract Management Liaison Group- the waste managers from across the local authorities, and the Environment Agency; and
- New Initiatives and Education and Awareness Group- the recycling/waste prevention officers from the local authorities. This group also addresses implementation of waste prevention and education issues.

These groups enable the effective communication and ownership of operational and strategic waste issues across West Sussex.

Furthermore, a 'Memorandum of Understanding' (MOU) has been agreed between the County, and the District and Borough Councils. The agreement cements the spirit of partnership working between the local authorities in West Sussex. The 'MOU' is the central working arrangement between the WDA and WCAs that will deliver the Materials Resource Management Strategy.

The detailed MOU establishes the guiding principles and duration of the agreement. It also places a requirement on the partner authorities to provide five year Service Requirement Plans, and for the WCAs to deliver wastes and recyclables to facilities agreed between them and the WDA.

In addition, the MOU also establishes how the following will be arranged:

- the reception of commercial, industrial, clinical and hazardous waste;
- invoicing procedure for commercial and industrial waste;
- contract management;
- waste management facilities;
- opening hours of facilities;
- collection of recyclables;
- specifications for collected recyclables;
- recycling credits payments;
- processing, storage, and marketing of collected materials;
- payments by the WDA to WCAs;
- abandoned vehicles; and
- Household Waste Recycling Sites

The MOU will be extended to incorporate the new MRMC.

A further example of this partnership approach is the procurement of a county wide contract for dealing with abandoned vehicles. This single contract allows the differing statutory duties to be carried out by one contractor thus allowing economies of scale to be delivered resulting in cost savings.

The Innovation Forum has sponsored a project to consider how closer joint working between local authorities on wastes management can achieve improved performance and drive efficiencies. The project was launched by Elliot Morley at a symposium on 8th December 2004. It has been led by West Sussex County Council and supported by the Local Government Association (LGA), Office of the Deputy Prime Minister (ODPM) and the Department Environment Food and Rural Affairs (DEFRA).

The report from the Forum identifies the key issues which local authorities need to address in taking forward joint working and then uses case study material to examine how successful partnerships have tackled those issues. This report will be used to further develop our partnership.

1.1.2 Hampshire

Hampshire has an advanced integrated waste management strategy. Historically, much of the MSW generated in Hampshire has gone to landfill. Recognising the shortage of landfill capacity in the County and following public consultation in 1993, Hampshire County Council, together with the Southampton and Portsmouth unitary authorities and 11 district councils, set up "Project Integra". Project Integra is founded on the basis of a 7 point action plan:

1. Action on waste minimisation;
2. Action on composting;
3. Action on recycling;
4. Support for anaerobic digestion;
5. Use of recovery technologies, including thermal treatment;
6. The need for three to five waste processing facilities (not exceeding 200,000 tonnes per annum); and
7. Residual waste to landfill

To date, Project Integra has achieved a collective recycling rate of 30%, with 95% of Hampshire's households having access to a kerbside collection of recyclables. Progress has also been made on infrastructure with the development of:

1. Two Materials Recovery Facilities (located in Portsmouth and Alton);
2. Three centralised composting sites;
3. Nine waste transfer stations;
4. A network of 26 Household Waste Recycling Centres; and
5. Three Energy from Waste Facilities (EfW) located in Chineham, Marchwood and Portsmouth

Hampshire has just published, (February 2005), a new strategy "More from Less" which has been based upon extensive stakeholder consultation. The strategy has a vision of changing the way materials resources are used in order to maximise efficiency and minimise wastage. The strategy considers commercial and industrial waste together with MSW and outlines a number of desirable outcomes including:

1. Overall year on year waste growth reduced to 1% by 2010 and 0.5% by 2020;
2. An overall recycling rate of 50% by 2010;
3. Net self-sufficiency in dealing with all waste arisings by 2016;
4. Materials and energy recovery maximised for unavoidable waste; and
5. Landfill reduced to a minimum practicable level by 2020

Hampshire is better placed than many WDA's in England to deal with residual waste because its three EfW facilities, Chineham (90,000 tonnes), Marchwood and Portsmouth (both 165,000 tonnes each) are already operating. However, Hampshire recognises that it still has to improve the capture rate of its kerbside collections and expand its MRF and composting capacity in order to achieve its recycling targets.

Project Integra has a target of a 50% recycling rate for Hampshire by the year 2010, and achieved a recycling rate of 30% in 2004/05.

1.1.3 Surrey

Having obtained Private Finance Initiative (PFI) funding and let the contract to SITA, planning applications for EfW facilities have been rejected on two occasions. Subsequently, Surrey produced a revised waste management strategy for consultation (September 2003). It identifies that:

1. The achievement of recycling targets coupled with current EfW capacity will only allow the Landfill Directive targets to be met until 2010;
2. There will be a need for new waste management facilities from 2008 onwards, which could include landfill; and
3. In addition to landfill, there will be a need for additional new facilities from 2011 onwards.

The strategy identifies seven waste management options, each with MRFs coupled with various combinations of Compost Plant, Anaerobic Digestion, Thermal Treatment, Mechanical Biological Treatment (MBT) and Landfill. Modelled scenarios suggested thermal treatment options to be the least expensive mechanism of achieving Landfill Directive targets.

Surrey achieved a recycling rate of 24% in 2004/05.

Surrey has a problem with its own residual waste until an option is agreed and planning consent obtained. There is unlikely to be an opportunity for West Sussex to work jointly with Surrey in the short term.

1.1.4 East Sussex / Brighton & Hove

East Sussex County Council and Brighton & Hove City Council have prepared, and are about to adopt, a Waste Local Plan, and work will commence on the preparation of Waste Development Plan Documents. The soon to be adopted Plan aims to provide an integrated waste management approach, progressively reducing the amount of waste to landfill and increasing recycling and recovery options to meet Government targets.

Brighton & Hove achieved a recycling rate of 20% in 2004/5, while East Sussex achieved 24%. An aspirational target of 40% recycling and 67% recovery has been set for 2015.

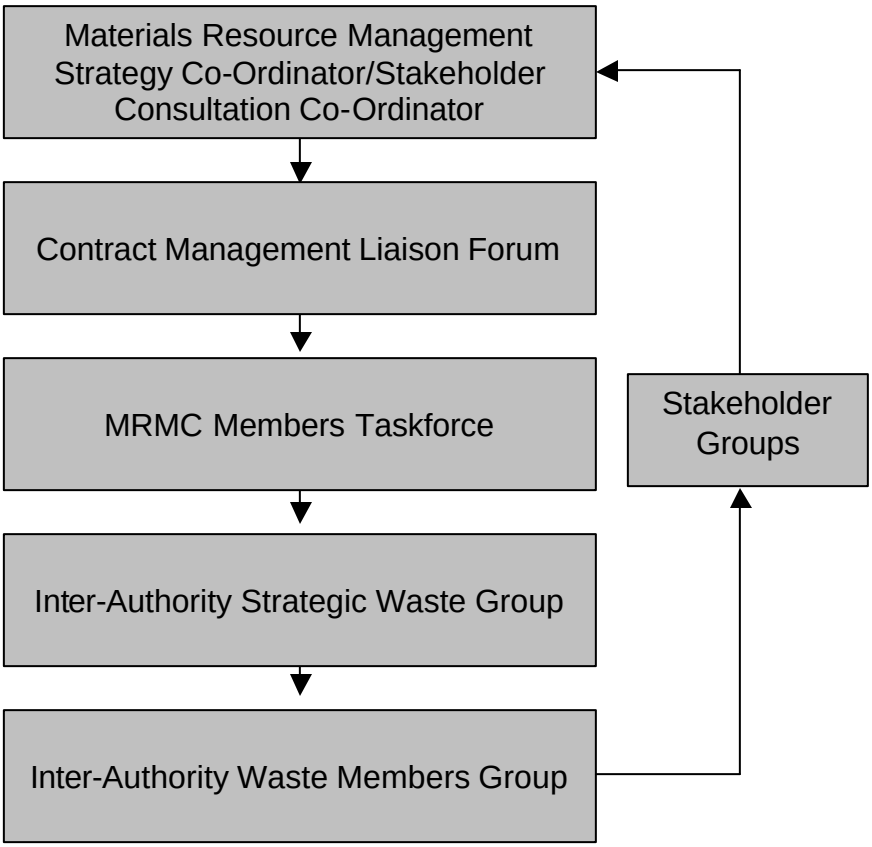
The two major landfill sites at Beddingham, near Lewes, and Pebsham, Bexhill, which take most of the waste from East Sussex and Brighton & Hove, are due to become full during 2007. Waste arisings are predicted to grow by 2% per year over the short term, decreasing to 0.5% per year by 2015.

The Councils jointly let a 25 year disposal contract with Onyx in April 2003. The contract contains a planned EfW near Newhaven. The option has been appraised through Best Practicable Environmental Option (BPEO), and the site is identified as suitable for waste management operations and an EfW in the Waste Local Plan. However, planning permission has not yet been obtained.

1.2 Decision-making structures and Management of Joint Materials Resource Management Strategy process

The organisational structure and processes behind the on-going development and delivery of the Joint Materials Resource Management Strategy (JMRMS) are illustrated in figure 1 below.

Figure 1: Decision-making structure of JMRMS process



1.3 Stakeholder engagement / involvement

A wide and varied number of stakeholders have been engaged throughout the historical development of the various waste strategies for West Sussex, at both County, and Borough and District level.

The extent of the County-level stakeholder involvement that has gone into developing both of the previous strategies, and this JMRMS is illustrated in Appendix

1.

The waste authorities of the County are committed to maintaining this high level of engagement, and view stakeholder involvement as crucial to the development and implementation of this Strategy and the associated MRMC.

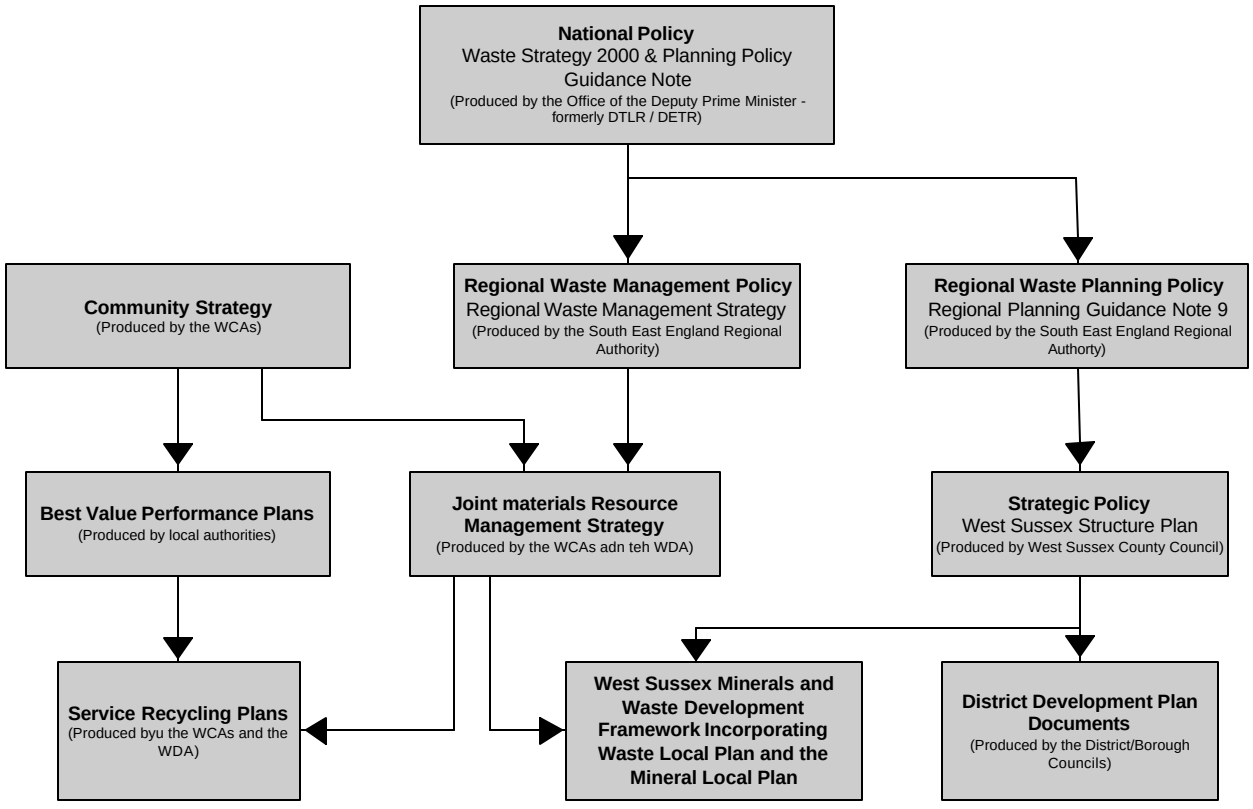
1.4 Links to spatial planning

Spatial planning influences the distribution of activities and how they interact, with the aim of balancing demand for development with the need to protect the environment, and to achieve social and economic objectives.

1.4.1 How the Strategy fits in with other plans and strategies in the County

Figure 2 details how the Materials Resource Management Strategy sits with other key relevant strategies and policies.

Figure 2: Hierarchy of waste policy



1.4.2 Waste Local Plan Revised Deposit Draft

The West Sussex Waste Local Plan Revised Deposit Draft (WLP) provides the framework for land use planning relating to waste management in West Sussex. The WLP identifies sites and criteria for use in identifying other sites suitable in

principle for waste management facilities. It also contains policies against which planning applications for waste management facilities will be assessed.

In December, 2005, the County Council decided to discontinue preparation of the WLP due to considerable legal and financial risk. It is considered that the most appropriate way forward is to integrate work undertaken on the WLP and the Minerals Development Plan Document through the preparation of a Minerals and Waste Core Strategy Development Plan Document and a Strategic Waste Site Allocations Development Plan Document.

The WLP works alongside this Strategy to:

- Move waste management in West Sussex up the waste hierarchy;
- Apply the proximity and self-sufficiency principles;
- Clearly identify the benefits associated with any proposals, and balance these against any impacts which may adversely affect the environment or local communities; and
- Where appropriate, consider the use of alternative transport in preference to road when moving waste.

The following main targets are established in the WLP to ensure the necessary step changes in waste management:

- By 2005 to:
    - reduce the amount of industrial and commercial waste landfilled to 85% of the 1998 levels;
    - recover value from 40% of municipal waste and to recycle or compost at least 25% of household waste by 2005.
- By 2015 to:
    - recover value from 67% of municipal waste, and to recycle or compost at least 33% of household waste.

1.5 Strategic Environmental Assessment

The Government has recently published three new documents on waste strategies and planning:

- Planning Policy Statement 10 (PPS 10)'Planning for Sustainable Waste Management';
- Guidance on the Preparation of MWM Strategies; and
- Changes to Decision-making principles in Waste Strategy 2000.

A new key requirement is for local authorities to subject draft MWMSs to a Strategic Environmental Assessment (SEA). This ensures that local, environmental, social and

economic issues are considered in the drafting of any new Strategy.

The new guidance suggests that whilst Best Practicable Environmental Option (BPEO) is one tool for assessment for strategies, the broader SEA should now be adopted. As a consequence, the BPEO approach for this Strategy has been extended to cover the additional aspects included within a SEA.

West Sussex commissioned AEA Technology to conduct two BPEO appraisals (Jan 2005), and the findings from these informed the preparation of the WLP.

The BPEO concept was defined in the 12th Report of the Royal Commission on Environmental Pollution as:
"the outcome of a systematic and consultative decision-making procedure which emphasises the protection and conservation of the environment across land, air and water. The BPEO procedure establishes, for a given set of objectives, the option that provides the most benefits or the least damage to the environment as a whole, at acceptable cost, in the long term as well as in the short term".

Waste Strategy 2000 sets out a step-wise approach to determining BPEO:

1. Define and agree appraisal criteria
2. Develop strategic waste planning options
3. Appraise strategic waste planning options
4. Rank and value performance
5. Weighting indicators
6. Sensitivity analysis and option refinement

The Guidance "Strategic planning for sustainable waste management" recommends 12 objectives with 21 indicators as assessment criteria. These objectives are grouped into three principal assessment categories:

1. Environmental objectives
2. Socio-economic objectives
3. Operational objectives

Furthermore, West Sussex County Council has added 8 additional assessment criteria within these three categories. Each of the objectives is further defined by a range of indicators, which provide a quantitative or qualitative measure of the performance of the scenario against that objective. The assessment of scenarios combines a number of methods for deriving indicator values including modelling, specific software tools, and professional judgement. For the environmental assessment we have made use of the industry standard life cycle assessment tool WISARD as developed and recommended by the Environment Agency. Additionally, for determining performance against targets and costs, AEA Technology's in-house model (WASTEFLOW) has been utilised. Table 1 summarises the various appraisal methods.

Table 1: Summary of appraisal methods

WISARD	Generic data & waste modelling	Professional judgement
• Resource depletion • Greenhouse gas emissions • Emissions that are injurious to public health • Emissions contributing to air acidification • Emissions contributing to depletion of the ozone layer • Emissions contributing to water pollution	• Land-take • Number of properties in 250m radius • Transport distances • Number of jobs likely to be created • Potential for public involvement and education • Percentage of waste recovered • Percentage of waste recycled • Costs • Waste prevention • Compliance with policy/strategy	• Noise, litter and vermin problems • Water pollution • Landscape and visual impacts • Likelihood of implementation within required timescale regarding technology maturity, planning and public involvement

Environmental Objectives

The environmental objectives and their respective indicators are noted in Table 2. Indicator values are either determined from modelling outputs, or a 'performance score' based on professional judgement. Transport distances have been modelled by assuming specific locations for new infrastructure. However, the locations used in the modelling do not prejudice any future planning decisions.

Table 2: Environmental objectives

Objectives	Indicators
1. Resource depletion	Resource depletion (avoided burden in million years) – *WISARD output*
	Land-take (hectares) *(performance score)*
2. To reduce greenhouse gas emissions	Emissions of greenhouse gases (000 tonnes equivalent of CO_2) – *WISARD output*
3. To minimise air quality impacts	Emissions which are injurious to public health (Human Toxicity Index) – *WISARD output*
	Air acidification (tonnes equivalents of H^+) – *WISARD output*
	Ozone depletion (tonnes equivalents of CFC-11) – *WISARD output*
	Extent of odour problems *(performance score)*
	Extent of dust problems *(performance score)*
4. To conserve landscapes and townscapes	Visual and landscape impacts *(performance score)*
	Number of properties in 250m radius to sites (estimated)
5. To protect local amenity	Extent of noise and vibration problems *(performance score)*
	Extent of litter and vermin problems *(performance score)*
6. To minimise adverse effects on water quality	Eutrophication (million grams equivalents of PO_4) – *WISARD output* i.e. contamination of drinking water
	Extent of water pollution *(performance score)*
7. To minimise local transport impacts	Collection transport distance in County (thousand kilometres)
	Transport distance out of County (thousand kilometres)
	Proportion of non-motorway traffic (%)
	Transport distance by rail (thousand kilometres)
	Transport distance by water (thousand kilometres)

Socio-Economic Objectives

The principal objectives and indicators are presented in Table 3. An estimate of the number of jobs created to operate the required waste management infrastructure has been made based on the amount of waste likely to be handled and/or processed by the treatment and disposal facilities. The cost of the waste management service can be measured in many ways depending on the time and the elements considered. In our assessment the aggregate cost of the service from 2006 until 2031 has been used. Costs have been determined using WASTEFLOW.

Table 3: Socio-economic objectives

Objectives	Indicators
8. To provide local employment opportunities	Number of direct jobs created (jobs estimated)
9. To provide opportunities for public involvement / education	Potential for participation in recycling and composting (% households with kerbside collection of recyclables)
10.To minimise costs of waste management	Overall costs (£million 2006 - to 2031) - *WASTEFLOW*

Operational Objectives

The two principle criteria of the operational objectives are:

1. the 'reliability of delivery'; and
2. performance against waste policy.

The former aims to provide a measure of the degree to which each scenario is proven and deliverable. This takes into account various uncertainties and risks such as gaining permission to develop sites, and the technical difficulty of financing, building and operating the waste management process, and also the level of public involvement required. The waste management system must also comply with the various targets for recycling, recovery and landfill diversion. Objective 12 provides a measure of the performance of the various scenarios against these targets. The objectives are provided in table 4.

Table 4: Operational objectives

Objectives	Indicators
11.To ensure reliability of delivery	Maturity of technology/markets incl. Combined Heat and Power
	Public acceptance and planning issues
	Level of public involvement required
12.To conform with waste policy	Percentage of material recovered (%)
	Percentage of material recycled/composted (%)
	Waste prevention (weight of waste generated)
	Complies with Council's policies and waste strategy

As previously mentioned, new government guidance propose that the BPEO process for determining Municipal Waste Management Strategies should be replaced by SEA, the requirement for which is set out in the SEA Directive.

The objective of the SEA Directive is "to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development". The SEA Directive applies to Waste

Management Plans which set the framework for future development consent for projects listed in Annexes I and II to Directive 85/337/EEC (the "Environmental Impact Assessment (EIA) Directive); and whose formal preparation begins after 21 July 2004. The directive requires an “Environmental Assessment” that comprises:

1. an Environmental Report on the likely significant effects of the draft plan;
2. consultation on the draft plan and the accompanying Environmental Report (Appendix 2);
3. taking into account the Environmental Report and the results of consultation in decision making; and
4. providing information showing how the results of the environmental assessment have been taken into account when the plan has been adopted.

The Environmental Report identifies and evaluates the likely significant environmental effects of implementing the Strategy, and any reasonable alternatives.

Information to be included in the Environmental Report must cover:

1. the environmental protection objectives relevant to the Strategy;
2. the significant effects on the environment, including issues such as biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage, landscape; and
3. the interrelationship between these factors.

The Report should also cover an outline of the reasons for selecting the alternative scenarios, the mitigation measures envisaged, and proposed monitoring measures.

The detailed methodology used by consultants AEA Technology in assisting West Sussex County Council to carry out its BPEO meets many of the requirements of a SEA.

The principle differences/gaps between the BPEO that has been undertaken and the proposed methodology for SEA are primarily about process rather than analysis. The BPEO has addressed all of the environmental impacts that are required apart from some of the site-specific issues such as habitat, biodiversity and cultural heritage, which cannot be carried out until specific sites are known.

Whilst some sites are identified in the WLP, these may or may not be used in any eventual solution, and as such it is premature to perform the analysis until sites are selected. The main process gaps between BPEO and SEA are:

1. The formal consultation stages for SEA have not been completed on the BPEO;
2. Mitigation measures are part of the SEA formal processes whilst the BPEO develops scenarios that already have mitigation measures addressed, and thus do not specifically identify those mitigation measures;
3. The SEA requires the impacts to be geographically identified, and whilst BPEO

does provide exemplar sites and thus is able to be mapped and graphically displayed , the current BPEO does not provide this as there is uncertainty regarding the precise locations of facilities.

4. SEA requires consideration of the cumulative and combined effects of the impacts identified to be considered. The BPEO does not address this aspect currently due to the uncertainty over the precise location of facilities.

These differences have been addressed. This Strategy has been subjected to a full SEA, the details and results of which are provided in the non-technical summary of the Environmental Report in Appendix 3.

Section 2.0: Where are we today?

2.1 Roles and Responsibilities

2.1.1 Department of Environment, Food and Rural Affairs (Defra) and Office of the Deputy Prime Minister (ODPM)

Defra has lead responsibility for waste policy and strategy, while ODPM leads on planning policy issues.

2.1.2 The Regional Assembly and the Regional Technical Advisory Body for Waste

The South East England Regional Assembly (SEERA), like all Regional Assemblies, is responsible for developing Regional Waste Management Strategies, which set regional objectives and a relevant delivery framework, to steer Local Waste Management Strategies. The Assembly is supported by the South East Regional Technical Advisory Body for Waste (SERTAB) that provides detailed technical advice. The strategy was developed with the input of SERTAB. SEERA, as the Regional Planning Body, has presented the Government with a draft South East Plan, which states that there should be 2,900 new homes built per annum in West Sussex until 2026.

2.1.3 Waste Collection and Disposal Authorities

The Government expects the two tiers of local authorities to work together to achieve the following:

- Effective working relationships that will deliver a comprehensive JMWMS that includes clear objectives and timescales for action;
- Put in place effective arrangements to reduce waste and maximise recycling and recovery. These should achieve the statutory performance for waste;
- Raise awareness of the costs of dealing with waste and the role that individuals can play in reducing waste;
- Involve local people in decisions on waste and work with community schemes to promote reuse and recycling; and
- Form consortia and other arrangements that will gain improved terms with re-processors and other outlets for recyclable materials.

2.1.4 Waste Planning Authorities

The Government wants Waste Planning Authorities to look to achieve a number of goals when carrying out their responsibilities of identifying suitable sites for waste facilities. The most significant of these are:

1. The need to move substantially away from landfill towards recycling, composting and energy from waste

2. Be consistent with the tradable landfill permits available and the statutory performance standards for recycling
3. Implement national and regional planning policy guidance and plans
4. Make realistic assessments of likely future requirements for number, type and siting of waste management facilities in their area in the light of waste strategies and proposals for development e.g. new housing
5. Promote informed debate with the public and businesses in their area about the need for waste management facilities and the options available to achieve the BPEO.

2.1.5 Regional Development Agencies

The Regional Development Agencies have a statutory purpose to contribute to sustainable development that must be reflected in their actions and decisions. The Government sees them contributing to sustainable waste management by:

1. Developing and supporting secondary materials industries in their region eg. wood reprocessing
2. Seeking to attract private sector investment into the recycling sector
3. Encouraging companies to consider the impact of waste on economic performance
4. Promoting waste reduction
5. Making links between suppliers of secondary materials and re-processors

2.1.6 The Environment Agency

The Environment Agency's primary role in relation to waste is to ensure that waste management activities do not cause pollution of the environment or harm to human health. The Agency also has an advisory and information gathering role. The most significant actions that the Government wants the Agency to achieve in relation to improving waste management practices are to:

1. Develop life-cycle techniques to help waste managers determine BPEO and SEA procedures
2. Use the 'Integrated Pollution Prevention Control' (IPPC) legislation to bring about a reduction in waste produced by industry and to ensure waste is used as a resource wherever practicable
3. Improve information on wastes accepted at waste management facilities in terms of type and source of waste
4. Repeat the survey of industrial and commercial waste to improve information on waste

2.1.7 The State Veterinary Service

The State Veterinary Service (SVS) is the responsible authority for the regulation of the Animal By-Products Regulations 2003. These regulations apply to municipal waste for any process where waste identified as catering waste is treated. The definition of catering waste includes waste from domestic kitchens and thus organic

wastes separately collected for biological treatment have the potential to be included in the definition. Catering wastes require specific treatment conditions including cleaning regimes, minimum times and temperatures and enclosure if the waste is to be used on land. The SVS is responsible for authorising the processes that have to comply with these regulations.

2.1.8 The Community Sector

The strengths of the community sector are in its ability to be innovative and its commitment to change. The Government wants community groups to call on these strengths in order to:

1. Be fully involved in local authority efforts to build partnerships for more sustainable waste management;
2. Develop partnerships with local authorities in line with published guidance; and
3. Continue to motivate public involvement and participation in recycling and composting schemes.

2.2 Legal obligations

In response to European legislation, and international concern over the environmental impacts of waste disposal, the Government have published '*Waste Strategy 2000'*.

The strategy sets out a national framework for reducing the amount of waste going to landfill by moving towards more sustainable waste management options. The overall aim is to tackle the growth in waste production and, where waste is produced, maximise the amount recovered through increased re-use, recycling, and composting and energy recovery.

Waste Strategy 2000 An over-arching policy document that is the Government's response to obligations on waste issues contained in European Law. Accordingly, it is both a national waste management plan (as required by European Council Directives 75/442/EEC, amended by 91/156/EEC and 96/350/EC Framework Directive on Waste) and a strategy to divert waste away from landfills (European Council Directive 1999/31/EC).

By managing waste and resources more efficiently, West Sussex and the UK as a whole, can make an important contribution towards sustainable development. This is defined as "*development that meets the needs of the present, without preventing future generations from meeting their own needs*". The Government's sustainable development strategy is based on four key elements:

1. Effective protection of the environment
2. Prudent use of natural resources
3. Social progress which meets the needs of everyone

4. High and stable levels of economic growth and employment

The Prime Minister's Strategy Unit reviewed the progress towards the targets set within Waste Strategy 2000 in 2002. The report suggested that "Waste Strategy 2000" may not be sufficient to move waste onto a more sustainable footing and included 34 recommendations, which included raising the national recycling and composting standard to 35% by 2010 and 45% by 2015. In response to the "Waste Not, Want Not" report, the Government established the Waste Implementation Programme to address the recommendations made by the Strategy Unit.

The UK Government published a consultation document in February 2006 which reviewed progress since 2000, and included a number of proposals:

- Increased national targets for recycling and composting of household waste (40% by 2010 and 50% by 2020) making a much bigger contribution to our overall recovery targets for municipal waste
- Setting future national targets for landfill of commercial and industrial waste
- Encouraging energy recovery, as part of our energy policy and an alternative to landfill, but not at the expense of practicable waste prevention, recycling and composting.

The consultation period ended in May 2006, and the Government should produce a final version of the new waste strategy by the end of 2006.

2.2.1 The Landfill Directive

The European Commission has set challenging targets to ensure that the necessary steps towards sustainable waste management are made. The EU Landfill Directive, which came into force on 16th July 2001, is the main driver behind this. The Commission introduced the following mandatory targets to reduce the amount of biodegradable municipal waste (BMW) going to landfill.

- By 2010* reduce biodegradable municipal waste landfilled to 75% of that produced in 1995.
- By 2013* reduce biodegradable municipal waste landfilled to 50% of that produced in 1995.
- By 2020* reduce biodegradable municipal waste landfilled to 35% of that produced in 1995.

* Includes 4 year derogation

When biodegradable (organic) waste decays it gives rise to methane and CO_2, major greenhouse gases, and a liquid leachate that can pollute ground and surface water.

The Landfill Directive requires that landfill sites are classified as hazardous, non-

hazardous or inert and effectively ends the co-disposal of hazardous and non-hazardous wastes. It also bans the landfilling of certain wastes such as tyres from 2003, and requires that all waste going to landfill will have to be pre-treated to reduce its environment impact. The UK is implementing these targets for BMW through the tradable allowances scheme.

2.2.2 Waste and Emissions Trading Act

To ensure that local authorities comply with the requirements of the EU Landfill Directive and '*Waste Strategy 2000',* the Government has introduced a system of tradable allowances for the landfilling of BMW as part of the Waste and Emission Trading Act 2003. An allocation of the amount of BMW that can be landfilled each year from 2005/06 to 2019/20 has been provided to West Sussex County Council, and these are shown in Table 5.

Table 5: Landfill allowance allocation[1]

Year	Allocation tonnes of BMW	Year	Allocation tonnes of BMW
Base Year	265,565	2012/13	119,663
2005/06	256,974	2013/14	114,530
2006/07	244,087	2014/15	109,397
2007/08	226,905	2015/16	104,264
2008/09	205,428	2016/17	99,131
2009/10	179,655	2017/18	93,998
2010/11	159,657	2018/19	88,865
2011/12	139,660	2019/20	83,732

It will be possible to trade in allowances between authorities to alleviate any local shortfall of treatment capacity. The penalties for having insufficient allowances for the BMW landfilled will be costly, having been set at £150/t. The implication of this is that most authorities will plan to meet these targets and thus trading is likely to be minimal in the longer term. However, in the short term there may be potential for a market whilst infrastructure for waste treatment is developed.

2.2.3 Other legislation involved in the drive towards sustainable waste management

In addition to the legislation mentioned in the sections above, consideration of other legislation is also integral to this Strategy, and the partners are only too well aware of the implications of such regulations. An outline of the related legislation is provided in Appendix 4.

This Strategy will provide details of how legislation relating to the landfill Directive,

[1] Readers should note that the values in Table 5 relate to BMW and assuming that residual waste contains 68% BMW these would allow WSCC to landfill approximately 123,000 tonnes of residual waste in 2019/20.

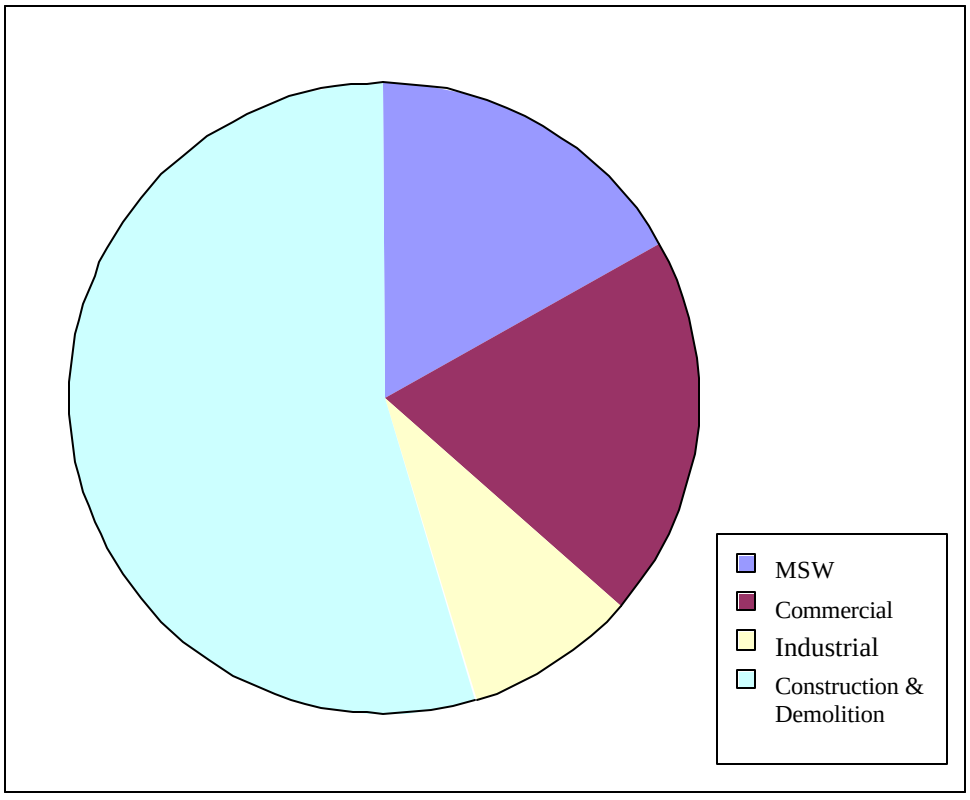
the Waste and Emissions Trading Act, and Waste Strategy 2000 is to be addressed. The strategy will also enable all local authority requirements covered by the additional legislation outlined in Appendix 4 to be achieved.

2.3 Waste data and analysis

The Environmental Protection Act 1990 requires that the collection, disposal, recovery, treatment and transport of controlled waste is regulated. The current controlled waste streams are municipal, commercial and industrial, construction and demolition, and agricultural. Local authorities are only responsible for managing municipal waste.

The estimated total arisings of controlled waste in West Sussex in 2004/05 (based on data provided by the Environment Agency) were about 2.7 million tonnes, and Figure 3 shows that municipal waste of around 455,000 tonnes represents about 17% of total controlled waste arisings.

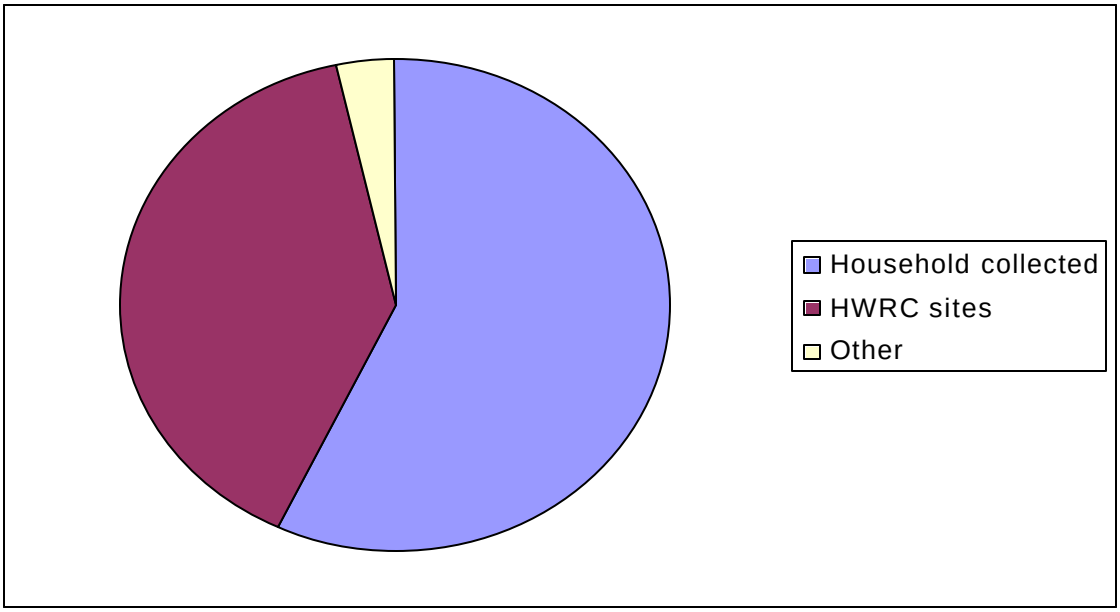
Figure 3: Estimated arisings of controlled waste in 2004/05



Municipal solid waste (MSW) covers all waste under the control of local authorities. This includes all household collected waste, street and beach litter, waste delivered to Council recycling points, waste taken to Household Waste Recycling Sites (HWRSs), and commercial and industrial waste collected by local authorities.

Figure 4 shows that waste collected from households in 2004/2005 (including material collected by kerbside recycling schemes) represented about 57% of MSW arisings, and that waste taken to HWRSs represented another 40%. The other sources of MSW, such as litter, street sweepings and bulky household waste collections, only represent a total of about 3% of overall MSW arisings.

Figure 4: Sources of municipal waste arisings n 2004/2005



Measures to restrict the amount of trade / commercial waste disposed of at HWRSs were introduced in 2001. This has resulted in a reduction in the amount of municipal waste produced.

2.4 Waste composition

Analyses of both household collected (dustbin) waste and recyclables and waste taken to HWRSs were conducted in West Sussex during the 1990s. The composition of this waste was similar to that identified in the development of *Waste Strategy 2000*. However, a review of analyses conducted over the past 5 years as part of the development of "Waste not – Want not" identified that there had been a significant increase in the arisings of food and kitchen waste since the early 1990s.

Figures 5 and 6 illustrate the estimated composition of both household collected waste and waste brought to HWRSs in West Sussex. These are similar to those determined in recent surveys in other counties in England. It is important to note that household collected waste has a high proportion, typically between 60% and 70%, of biodegradable wastes.

The data shows that about two thirds of household waste could potentially be targeted for recycling. However, a number of factors, such as the current

availability of markets, and level of public participation in recycling services, means that it will be a challenge to achieve recycling targets of over 45%.

There is a requirement of 45% recycling to be achieved through the RWHC (Reclaim) by 2015. There is a further aspiration for the MRMC to recycle a further 12% by recovering recyclable materials such as metal as part of the treatment process for the residual waste. This will bring the total recycling in the County to 57%.

The data on waste composition will inform implementation of the Strategy through better targeting of recycling and composting programmes. However, it is recognised that the implementation of these programmes will affect the composition of the residual waste which will need to be processed in order to meet the targets set by the Landfill Directive. Thus it may be necessary to conduct further analyses later in the period of the Strategy to assess progress towards meeting all of the set objectives.

Figure 5: Composition of household collected waste

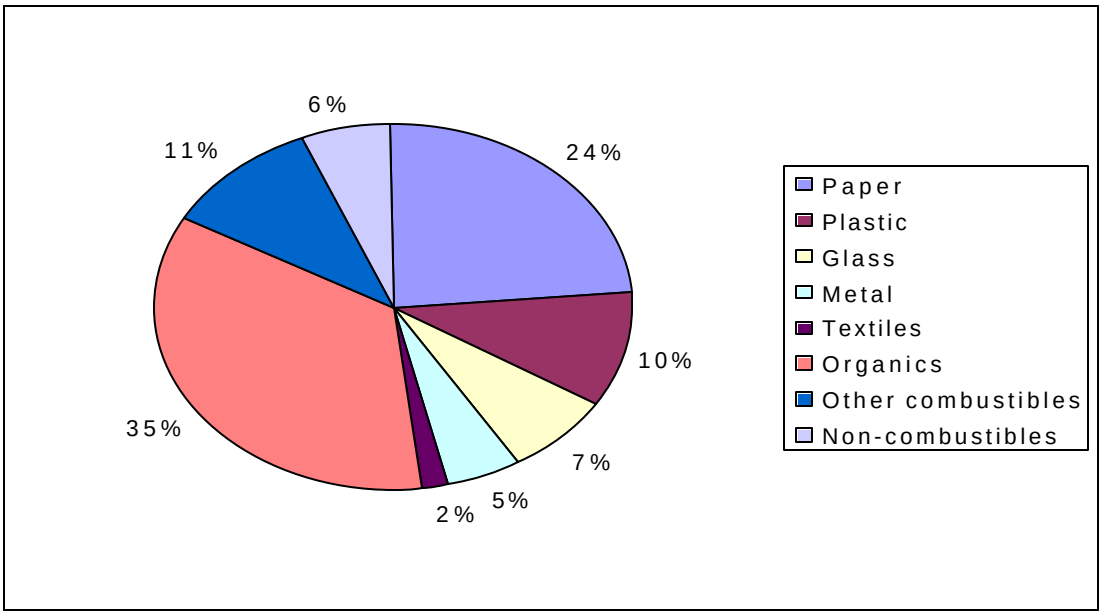
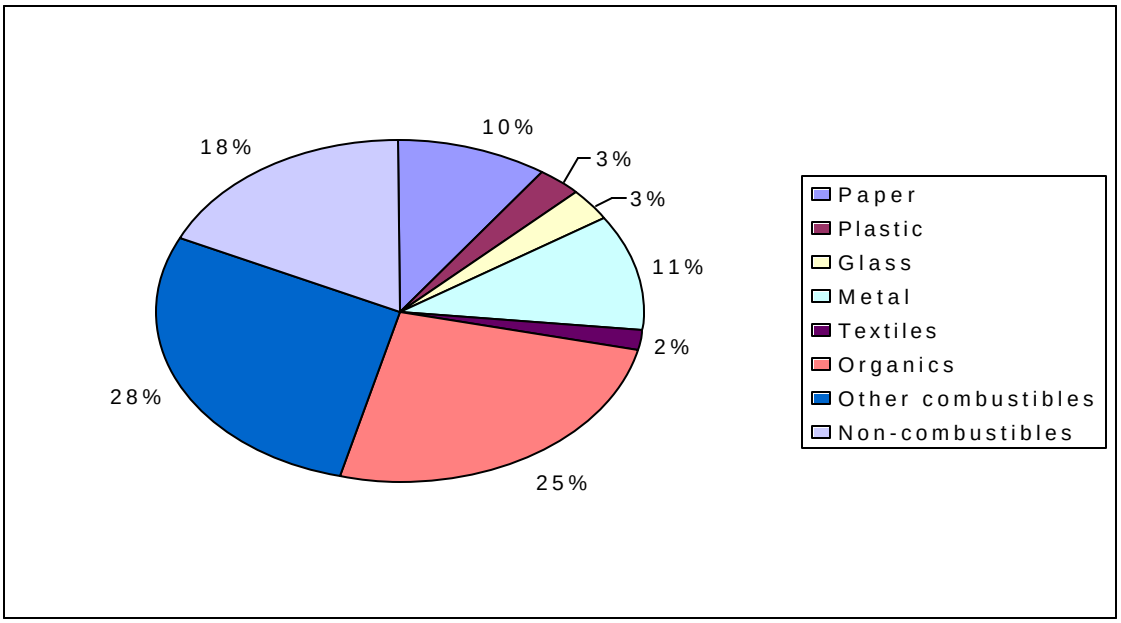


Figure 6: Composition of waste brought to HWR Sites in West Sussex



2.5 Waste contracts and existing arrangements

West Sussex local authorities provide a refuse collection service to over 325,000 properties. Collections are made from a mixture of back door and kerbside, black sacks and wheeled bins. Most properties receive a weekly collection service for refuse or recyclables. Several new collection schemes have been, or are currently being introduced, some with funding from the 'National Waste Minimisation and Recycling Fund'. It is anticipated that these schemes will help the partner authorities to increase recycling rates and ultimately reach the recycling targets.

Details of the WCAs future intentions regarding the development of future recycling schemes is provided in Appendix 5.

In addition to household collection services provided by the District and Borough Councils, the County Council provides:

- 1 material recovery facility;
- 4 bulking facilities for recyclables;
- 7 composting sites;
- 12 static HWRSs, including WEEE and hazardous household waste reception facilities; and
- 2 mobile services, covering 13 villages

2.5.1 Recycling

Viridor Waste Management received confirmation of Planning Consent for a new MRF at Ford, West Sussex on 30th March 2006. The proposed MRF facility will

provide:

- a materials recycling facility
- a visitor and information centre
- administrative offices
- a local liaison group

The MRF will have an annual throughput of up to 100,000 tonnes in the long term and will carry out manual and mechanical sorting and baling of recyclable materials collected from West Sussex residents doorsteps, bring banks and HWRSs. Once separated and baled, the materials will be ready for transport to various recycling markets. The facility is expected to open in the summer of 2007. Bulking facilities are also located at Burgess Hill, East Grinstead, Sompting and Westhampnett.

In addition to the MRF in West Sussex some materials are sent direct to market or for processing outside of the County. Some commercial organisations also offer recycling services within the County for materials such as tyres, shoes, spectacles, car oil and mobile phones.

A summary of recycling performance by the partner authorities is shown in Table 6.

Table 6: West Sussex Waste Authority recycling data to 2004/5*

	Adur	Arun	Chichester	Crawley	Horsham	Mid-Sussex	Worthing	West Sussex	
								HWRSs	Total
No of Households 2004/5	26,615	67,644	51,587	40,170	54.014	55,300	46,267	N/A	341,597
% of population served by a property recycling service 2004/05	99.8%	97.3%	93.2%	99.8%	98.0%	100%	91%	N/A	96.9%
Number of households served by kerbside collection of recyclables 2004/5	21,000	65,800	48,087	40,090	52,900	55,300	42,000	N/A	325,177
Number of bring sites 2004/5	152	44	129	51	48	43	25	11	503
Percentage of household waste sent for recycling 2004/5	22%	14%	21.4%	23%	14%	20%	14.31%	11%	16%
Actual recycling tonnage 2004/5	4,422	7,416	8,517	7,487	7,571	8,535	5,402	17,752	67,102

* Excludes composting

A breakdown of the total tonnage of materials recycled in 2002/3 to 2004/5 in West Sussex is shown in Appendix 6.

2.5.2 Composting

The County Council provides green waste collection points at all of its static HWRSs. In addition, many of the collection authorities have separate collection services for green waste. The green wastes collected at the HWRSs, and by Adur District Council (by Magpie), Horsham District Council, Worthing Borough Council and Srun District Council are taken for on-farm or commercial composting to various sites across the County.

A summary of composting activity across West Sussex is shown in table 7.

Table 7: West Sussex Waste Authority composting data 2004/5

	Adur	Arun	Chichester	Crawley	Horsham	Mid-Sussex	Worthing	West Sussex	
								HWRSs*	Total
Total tonnage of household waste – percentage sent for composting 2004/5	0.37%	0.02%	0%	0.2%	21%	1.6%	2.55%	18%	10%
Total tonnage of materials composted 2004/5	75	11	0	51	11,295	710	962	29,115	42,219

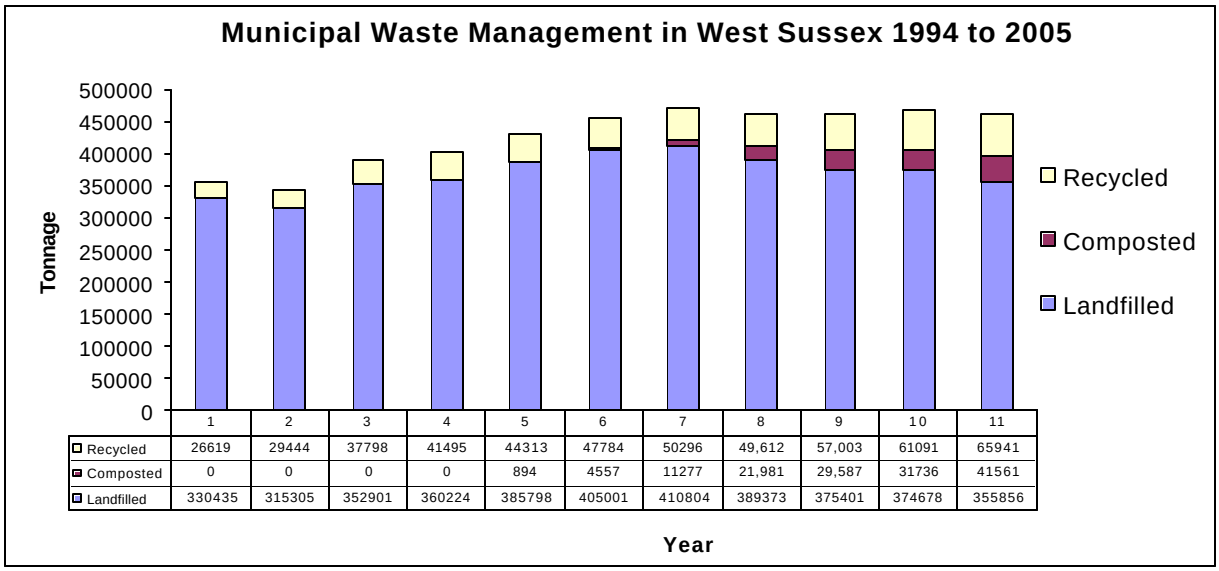
*HWRSs – Household Waste Recycling Sites

Some of the WCAs have introduced composting collection schemes which will result in an improvement in the above figures, and details of these schemes can be found in Appendix 5.

2.5.3 Waste Disposal and Treatment Arrangements in West Sussex

The majority of municipal waste in West Sussex is currently landfilled. Table 8 shows how waste has been treated and disposed of in West Sussex from 1994 to 2005.

Table 8: Waste treated and disposed of in West Sussex



	1	2	3	4	5	6	7	8	9	10	11
Recycled	26619	29444	37798	41495	44313	47784	50296	49,612	57,003	61091	65941
Composted	0	0	0	0	894	4557	11277	21,981	29,587	31736	41561
Landfilled	330435	315305	352901	360224	385798	405001	410804	389373	375401	374678	355856

There are 3 landfill sites currently accepting municipal waste in West Sussex as detailed in table 9 below.

Table 9: Landfill sites and operators in West Sussex

Site Name	Site Location	Contractor	Local Authority	End Contract Date
Brookhurst Wood Landfill Site	North Horsham	Biffa Waste Services	Horsham DC	2009
Horton Landfill Site	Small Dole	Viridor Waste Disposal Ltd	Horsham DC	2009
Lidsey Landfill Site	Lidsey	SITA Southern Ltd	Arun DC	2005

Each of these landfill site operators is contracted to West Sussex County Council for the disposal of municipal waste.

In addition to wastes disposed of within the County, 2.8% of waste (approximately 11,000 tonnes) for disposal from West Sussex is exported to specialist waste facilities outside the County. Clinical waste for example is exported out of the County for disposal by incineration. There is also some municipal waste imported for disposal in West Sussex, currently around 22% of the total waste disposed (approximately 100,000 tonnes).

2.5.4 Best Value Performance Indicators

It is a statutory requirement for local authorities to publish annual Best Value Performance Indicators. Table 10 below provides the performance figures for the eight West Sussex waste authorities for 2004/05.

Table 10: Summary of Best Value Performance Indicators 2004/5

		Adur	Arun	Chichester	Crawley	Horsham	Mid-Sussex	Worthing	West Sussex	
									HWRSs	Total
BV82a	Total tonnage of household waste - percentage sent for recycling	22%	14%	21.4%	23%	14%	19.54%	14.31%	11%	15.8%
BV82b	Total tonnage of household waste - percentage sent for composting	0.37%	0.02%	0%	0.15%	21%	1.63%	1.6%	18%	10%
BV82c	Total tonnage of household waste - percentage used to recover heat, power and other energy sources	0%	0%	0%	0%	0%	0%	0%	0.3%	0.3%
BV83d	Total tonnage of household waste -percentage landfilled	77.6%	86%	78.6%	76.8%	65%	78.8%	84.1%	70.5%	73.7%
BV86	Cost of waste collection per household	£34.14	£35.54	£48.67	£43.40	£42.29	£36.68	£30.33	N/A	N/A
BV87	Cost of waste disposal per tonne	N/A	N/A	N/A	N/A	N/A	N/A	N/A		£53.84
BV84	kg of waste collected per head of population	337	373	370	333	437	357	371	214	584
Local PI	% of population served by property recycling service	99.8%	100%	93.2%	99.8%	98%	100%	91%		

Figure 7 shows the amount of waste generated per person in West Sussex in 2004/05. The total figure of 584 kg per head is the sum of the average arising in the seven District and Borough Councils (the amount of waste that they collect) and the arisings at the HWRS sites (these are operated by the County).

Figure 7: Amount of waste generated per person

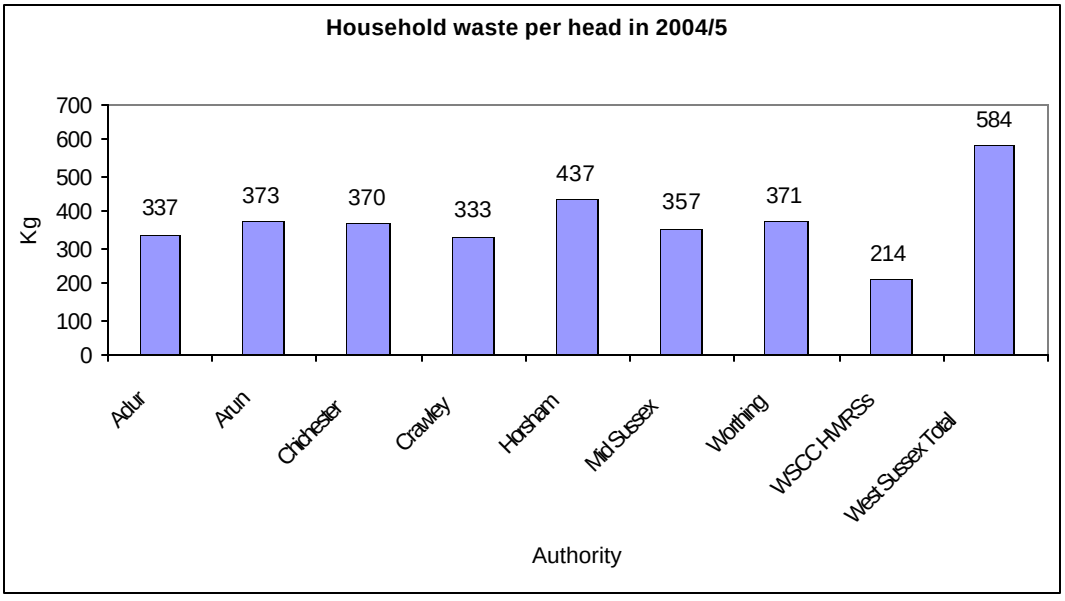
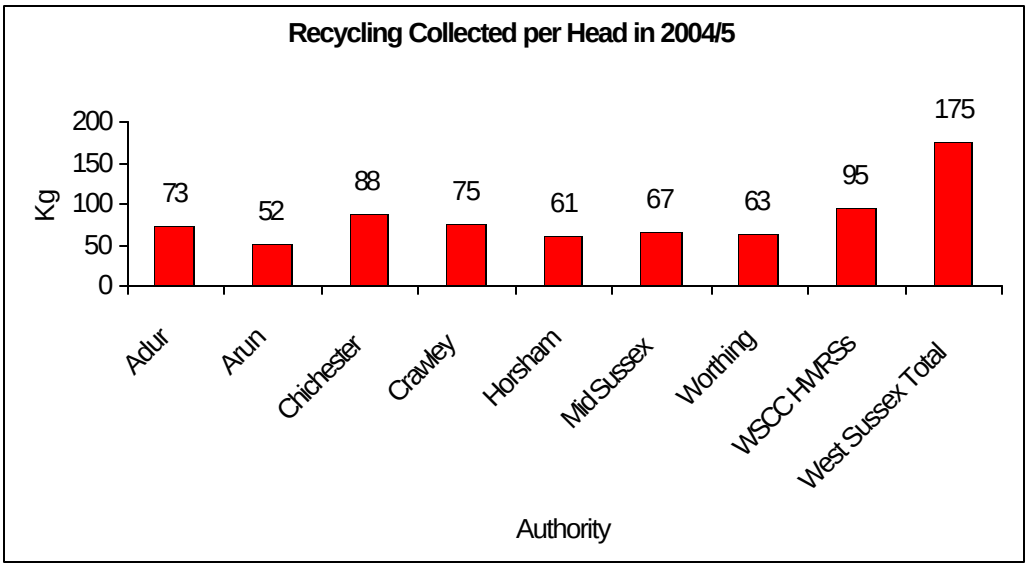


Figure 8 shows the amount of recycling collected per person in West Sussex in 2004/5

Figure 8: Recycling collected per person



2.5.5 Industrial and Commercial Waste Management in West Sussex

The Councils are keen to support businesses wishing to minimise their waste. There are also targets set for industrial and commercial waste by the Regional Waste Strategy. (Commercial and industrial waste represents about 30% of controlled waste arisings (about 750,000 tonnes), but the Councils only collect a very small proportion of this. See Figure 3 on page 30.

Commercial waste collected by the Waste Collection Authorities is classified as part of the municipal waste stream. The tonnages of commercial waste collected by WCAs across the County are shown in table 11.

Table 11: Commercial waste collected in 2004/05

Authority:	Adur	Arun	Chichester	Crawley	Horsham	Mid Sussex	Worthing
Total tonnage of Commercial waste collected 2004/5	2675	No Service	4769	No Service	3094	No Service	3314

The partner authorities have been working together for many years to support businesses that wish to reduce their waste and other impacts on the environment. Most recently through The Business Excellence Through Resource Efficiency (BETRE) programme which was a partnership project undertaken by the County, District and Borough authorities alongside the Environment Agency and a local environmental consultancy (Ecosys).

The programme aimed to increase awareness of the benefits of waste minimisation and achieve reductions in waste arisings for Small to Medium Enterprises (SMEs) in West Sussex. BETRE provided a range of free support and advice over an 18 month period from January 2001 to June 2002 including: workshops, newsletters, environmental audits, grants and a technical helpline.

As a result of the programme an environmental management system user group now meet every two months to support each other and share good practice. In addition to the BETRE programme, businesses in West Sussex have access to the "e-generation" facility www.egeneration.co.uk – a web based one-stop-shop for businesses including a waste exchange, environmental performance bench marking, waste reduction case studies and best practice guides to waste minimisation.

This work has now been taken over by the West Sussex Sustainable Business Partnership (WSSBP). The Partnership currently offers a variety of resource efficiency schemes for SMEs to engage in.

In a recent development, the WSSBP commissioned research from the University of Brighton to establish the potential of utilising the County Council's 'Waste Transfer Station' infrastructure for SME materials recycling.

Section 3.0: Where do we want to get to?

3.1 Setting the course

All of the residual waste in West Sussex has historically been disposed of by landfilling. However, due to changes in legislation originating from Europe, especially the Landfill Directive and national targets for recycling and this can no longer be seen as the most sustainable solution.

Further sustainable waste management alternatives need to be implemented, including the proved recycling, composting and energy recovery that make better use of resources and decrease the risks of pollution.

3.1.1 Meeting National Objectives

"Waste Strategy 2000"

The Government's '*Waste Strategy 2000'* embodies the steps required to bring about this change and West Sussex is required to play its part in this. There is a need to improve on existing and implement new waste recycling and minimisation initiatives to help meet strict Government targets.

The Government targets mean that West Sussex County Council must reduce the amount of biodegradable municipal waste (BMW) going to landfill to approximately 35% of 1995 levels by 2020. The Strategy Unit report "Waste not want not" notes that waste production is rising by 3% a year, and is coupled with an increase in the number of households. If these levels of growth continue there will be more than a doubling of the amount of waste the County Council and the District and Borough Councils have to deal with over the next 20 years. Recent evidence published by Defra shows that over the past three years household waste grew by an average of only 1.4% per annum and municipal wastes by 2.2%. Targets have also been set by the Government for waste recovery and recycling which must be met by 2015.

To ensure that future waste decisions take into account the factors fundamental to sustainable waste management, the Government has advised that the following guiding principles are taken into account when developing a waste management strategy.

The Waste Management Hierarchy

This theoretical framework ranks waste management options in order of sustainability. If waste management is to become sustainable there needs to be an increased consideration of the options towards the top of the hierarchy.

REDUCE: The most effective environmental solution may often be to reduce waste generation in the first place, for example, ensuring products are not over packaged. However, it has to be acknowledged that individuals can have only some control over the amount of packaging they buy - perhaps by choosing products with the least packaging.

RE-USE: Where further reduction is not possible, some materials and products can be used again for either the same or a different purpose, eg. ice cream containers for food storage.

RECYCLE Where direct re-use is not possible, materials can be recycled or may be used in production processes as secondary raw materials.

RECOVER If reduction, re-use or recycling is not possible, the next best thing is to regain as much value from the waste as possible through energy recovery.

DISPOSE If none of the previous options offer an appropriate solution only then should the waste be disposed of.

When assessing waste management proposals the waste hierarchy should be used as a guide rather than being applied rigidly. Some pragmatic flexibility is needed to arrive at the most balanced environmental, social and economic solution.

Recycling Targets

Within the overall recycling/recovery targets the Government has specified the following statutory targets for recycling as shown in Table 12. This table also shows recycling targets as set by West Sussex County Council and partners for future years. This has placed an emphasis on recycling and composting in order to achieve the recovery targets of Waste Strategy 2000 and the early diversion requirements of the Landfill Directive. The Council is aware, from discussions with DEFRA, that more stringent recycling targets are to be set for future years and the Council is therefore seeking to move to 57% recycling by 2015/16.

Table 12: Recycling targets for West Sussex County Council

	Recycling Target		
	Waste Strategy 2000	BVPI - County	MRM Strategy for West Sussex
2003/04		24%	
2005/06	25%	30%	
2010/11	30%		40%
2015/16	33%		57%

Recovery Targets

To encourage more efficient use of resources and to obtain value from waste, the Government has set targets for waste recovery via recycling, composting, energy recovery and other methods such as anaerobic digestion.

- To recover at least 40% of household waste by 2005
- To recover at least 45% of household waste by 2010
- To recover at least 67% of household waste by 2015

It is perceived that it will be difficult to achieve the recovery targets through recycling alone and some form of energy recovery via incineration, gasification or pyrolysis will be required. A recent survey by Ernst & Young suggested that by 2015, 27% of municipal waste would be incinerated, or have energy recovered from it.

Regional Self Sufficiency

Regional Self Sufficiency requires that most waste should be treated or disposed of within the region it is produced. Each region is expected to provide sufficient facilities and services to manage the amount of waste it is expected to produce over the next 10 years. It is recognised that, as not all regions have specialist recovery, recycling or treatment facilities, the BPEO for some waste may be to transport it to another region where it can be dealt with more effectively.

Studies performed on behalf of the County Council in relation to the WLP have considered all waste streams, and not just MSW. Scenario solutions have been constructed for MSW, commercial and industrial, and construction and demolition wastes.

The Proximity Principle

New Government guidelines propose that communities should take more responsibility for their own waste (self-sufficiency), and that waste should be disposed of in one of the nearest appropriate installations (proximity).

The Precautionary Principle

When dealing with issues of environmental protection the Government has stated that regard must be given to the Precautionary Principle. This means “where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost effective measures to prevent environmental degradation”. Essentially, the principle states that if the

consequences of an action are not known but are judged to have some potential negative consequence then it is better to avoid that action.

3.1.2 Meeting West Sussex Objectives

This Strategy aims to meet the above national objectives as well as taking into account wider sustainable development issues important to West Sussex. Fundamentally, it aims to develop a sustainable and cost effective waste management approach. In developing this approach, the waste authorities in West Sussex have identified a number of key themes and principles that have guided the development of this Strategy and follow the principles developed in the JMWMS (2004-2009).

3.1.2.1 Theme 1 – Waste Awareness

Principles:

- Drive a cultural change to consider waste as a resource
- Encourage West Sussex residents to take personal responsibility for the waste they generate
- Encourage organisations to consider natural resource management in their processes and products
- All partner authorities to promote social responsibility and sustainability in waste management, to include:
    - Waste minimisation
    - The problems and penalties associated with litter, fly tipping and abandoned vehicles.

3.1.2.2 Theme 2 – Household Waste Minimisation

Principle:

- Reduce the amount of household waste generated in West Sussex

3.1.2.3 Theme 3 – Maximising Performance

Principle:

- Maximise the amount and range of materials recovered and recycled
- Maximise participation levels in reduction, recycling and recovery schemes
- Make continuous improvement, where practicable, against Best Value Performance Indicators

3.1.2.4 Theme 4 – Access to Services

Principle:

- Provide fair, reliable access to convenient, regular waste services for all West Sussex residents
- All residents to have access to a regular property collection of a range of

recyclables
- To be transparent, free and open with information on waste management services

3.1.2.5 Theme 5 – Leading by Example

Principle:

- Demonstrate good waste minimisation practice and sustainable waste management by the partner authorities
- Planning authorities to require developers to include recycling facilities in new developments and buildings
- Work together as partners to identify best practice and, where practicable, work with other agencies to influence future developments in waste management

3.1.2.6 Theme 6 – Protecting the Environment

Principle:

- Improve the environment of West Sussex by providing responsive waste management services
- Ensure the safe management, handling and disposal of municipal waste in West Sussex
- Manage special and hazardous waste separately from other wastes
- Identify opportunities to reduce vehicle movements associated with the transport of municipal waste in accordance with the proximity principle

3.1.2.7 Theme 7 – Providing Facilities

Principle:

- Provide facilities which maximise the opportunities to reduce, reuse, compost and recycle waste
- Improve the range and quality of waste management facilities in West Sussex
- Maximise the recovery or recyclables and green waste at Household Waste Recycling Sites
- Provide facilities for the processing and separation of recyclable materials collected in West Sussex
- Work with adjacent authorities and the business and community sector to increase the capacity for reusing, recycling and recovering waste

3.1.2.8 Theme 8 - Supporting Businesses

Principle:

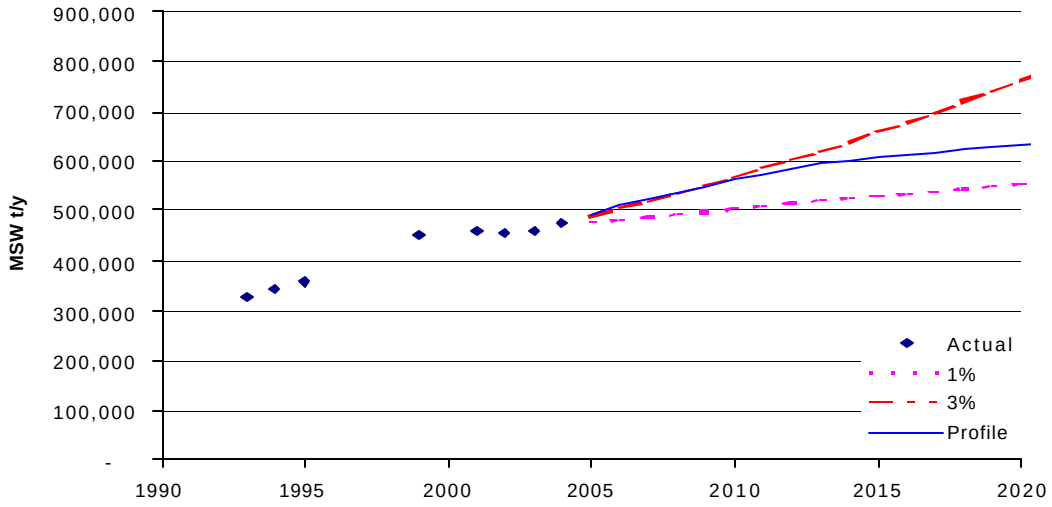
- Assist businesses in West Sussex to reduce, reuse and recycle their waste
- Encourage the development of local markets for recyclable materials

3.2 Growth projections

Approximately 463,000 tonnes of municipal waste is generated in West Sussex annually, a figure which has been increasing for many years. The rate of increase has averaged 3.4% since 1993, which is similar to the national increase of approximately 3% each year. If this growth rate continues, the amount of waste that the Council has to manage will double in less than 20 years. This is not sustainable, and action to curb this increase is an immediate need. In more recent years, controls on growth in waste arisings have been achieved through restricting trade waste abuse of HWRSs and other waste awareness / prevention activities. It is impossible to tell at this stage if these reductions in growth rate will be sustained or if the waste has been removed from the MSW stream, but the underlying growth will return once the initiatives have had their impact. This can only be maintained by ensuring continued promotional awareness raising.

Figure 9 shows the impact of various growth rates on the potential waste arisings. The Councils of West Sussex are committed to the promotion of waste prevention and have assumed, for analysis later in this Strategy, that the growth of waste arising per household is contained by 2015. That is, waste growth is systematically reduced year on year until 2015 when arisings per household will be zero, with growth only being provided by growth in household numbers.

Figure 9: Waste growth forecasts



This reducing profile of growth assumes a degree of waste prevention being achieved through a combination of local activities, national programmes (e.g. Waste & Resources Action Programme (WRAP) initiatives, variable waste charging, producer responsibility schemes such as for packaging, Waste Electrical and Electronic Equipment Directive (WEEE)) and the increasing trend of decoupling of waste growth from economic growth. The region is also anticipating high levels of household growth driven by reducing household size and the Government's predictions of housing requirements. This household growth is estimated to be approximately 0.9% pa, which is additional to the waste growth per household.

The growth rates per household for different scenarios modelled later in the Strategy (see section 4.5) are shown in Table 13. This growth rate includes only the changes in waste per household in order to show when waste minimisation activities are considered to come into account. The model then accounts for the growth in the number of households to determine overall waste quantities.

Table 13: Waste growth rate

Year	Base case, Scenario 1, 2 , 3, 6a, 6b	Scenario 4	Scenario 5 & 5a
2002/03	3.4%	3.4%	3.4%
2003/04*	1.9%	1.9%	1.9%
2004/05*	4.2%	4.2%	4.2%
2005/06*	5.2%	5.2%	5.2%
2006/07	2.4%	2.4%	1.1%
2007/08	2.2%	2.1%	0.8%
2008/09	1.9%	1.7%	0.6%
2009/10	1.7%	1.4%	0.4%
2010/11	1.4%	1.0%	0.1%
2011/12	1.2%	0.7%	-0.1%
2012/13	1.0%	0.4%	-0.4%
2013/14	0.7%	0.0%	-0.6%
2014/15	0.5%	-0.3%	-0.8%
2015/16	0.2%	-0.7%	-1.1%
2016/17	0.0%**	-1.0%**	0.0%**

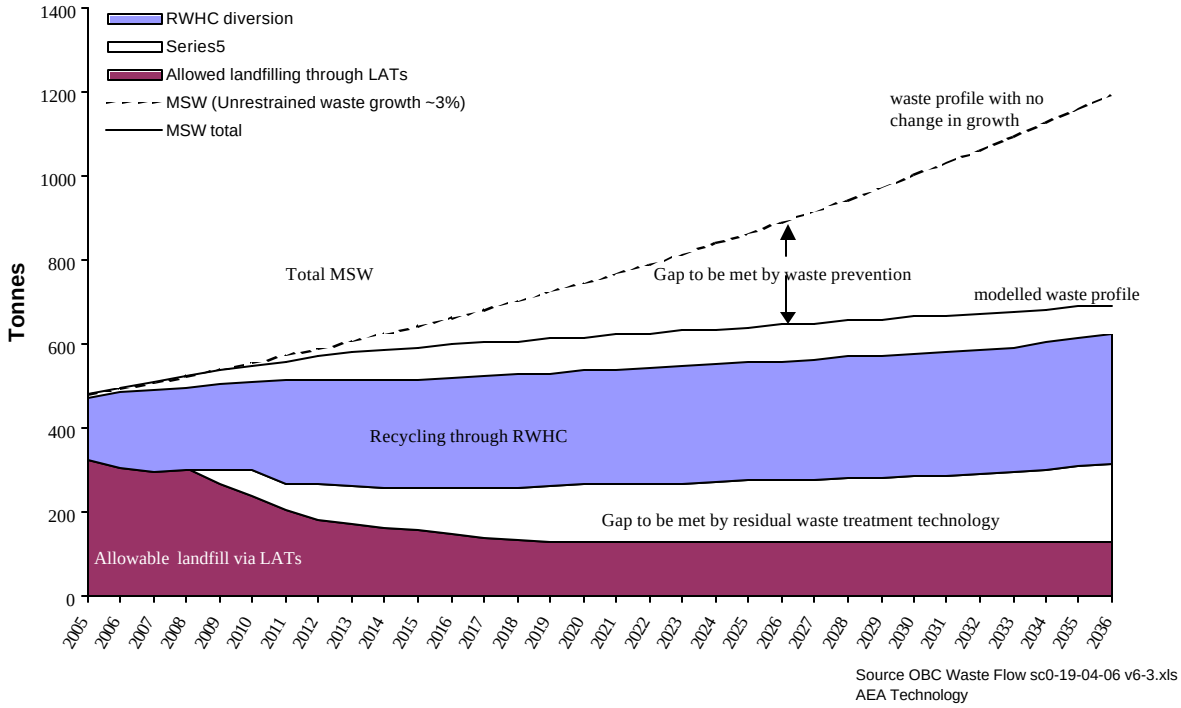
Note: ** These growth rates remain for the duration of the model period.
Scenarios are described in section 4.5

3.3 Gap analysis

The landfill allowances provided by the Government will allow West Sussex to landfill a set tonnage of biodegradable waste without penalty. These allowances are listed in Table 5. Diversion from landfill will be delivered through a variety of means including the existing and developing RWHC, WCA recycling plans, and waste prevention activities. Figure 10 shows the contribution of these routes to the meeting of the LATs targets. This graph shows two lines for the MSW arisings based on 3% growth and the baseline profiled growth that assumes the stabilisation of waste growth by 2015. The gap between these two is the challenge of waste prevention. The graph shows the LATs allowance as being used, but however, if these allowances are not used, they have the potential to be sold to provide additional revenue to the County Council.

Approximately 200 ktpa of diversion of residual waste will be needed in the longer term in addition to the ambitious waste prevention challenges of achieving waste stabilisation by 2015. This will require substantial changes in householder behaviour that is beyond the influence of the Councils alone.

Figure 10: Gap analysis of landfill allowance compliance



Source OBC Waste Flow sc0-19-04-06 v6-3.xls
AEA Technology

Section 4.0: What things do we need to do to get there?

4.1 Initiatives Aimed at Waste Prevention

Using a variety of waste prevention initiatives that include food waste digesters, home composters, and real nappies, the local authorities in West Sussex County Council are committed to working in partnership to reduce the amount of household waste sent to landfill.

By the end of 2004/05, 13,217 tonnes of waste was diverted from landfill through the three main waste prevention initiatives (see Table 14).

Table 14: Tonnage diversion and estimated potential savings for all waste prevention initiatives

	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07
Disposal Cost/tonne to landfill	£30.26	£32.65	£32.83	£36.17	£37.84	£39.60	£43.39	£47.26
Food Waste Digesters				389	572	3281	3294	3419
Home Composting	1404	3810	4605	5760	6764	9042	13456	19059
Real Nappies	180	356	422	382	392	482	562	692
Total tonnes diverted	1584	4166	5027	6531	7668	12805	17312	23170
Estimated Saving/year (£)	47,931	136,019	165,036	236,226	290,157	507,078	751,167	1,095,014

Committed funding, both from central government and West Sussex County Council should enable nearly 24,000 tonnes of waste to be diverted away from landfill by the end of 2006/07.

The diversion target of 80,000 tonnes per annum, by 2015, can be achieved if the following objectives are reached:

- 50% of households with gardens using food waste digesters;
- 60% of households with gardens using home composters; and
- 40% of the birth rate in West Sussex using real nappies.

Specific requirements, and diversions to 2006/07 are provided in tables 15 a, b and c.

In order to realise these objectives funding must be injected into waste prevention initiatives at a rate of approximately £1.0 million a year from 2006 to 2015. This will allow the County Council and District and Borough Councils to deliver the required infrastructure, and necessary communication strategy to ensure continued participation in the initiatives.

Table 15a: Food waste digesters

	02/03	03/04	04/05	05/06	06/07
Number of food waste digesters in use					
	2100	2060	2020	1980	1940
		710	696	682	668
			15018	14700	14400
				445	435
					1000
Total in use	2100	2770	17734	17807	18483
Tonnes saved / year	389	512	3281	3294	3419
Penetration (%)	1%	1%	7%	7%	7%

Table 15b: Home composters

	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07
Number of home composters in use								
	4500	4410	4320	4230	4230	4230	4230	4230
		7800	7640	7490	7340	7340	7340	7340
			2800	2740	2690	2640	2640	2640
				4000	3920	3840	3770	3700
					3500	3430	3362	3295
						7500	7350	7200
							14436	15680
								17000
Total in use	4500	12210	14760	18460	21680	28980	43128	61085
Tonnes saved / year	1404	3810	4605	5760	6764	9042	13456	19059
Penetration (%)	2%	5%	6%	7%	8%	11%	17%	23%

Table 15c: Real Nappies

	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07
Number of babies using real nappies								
	450	440	430					
		450	440	430				
			400	390	380			
				350	340	330		
					450	440	430	
						600	590	580
							600	640
								700
Total babies	450	890	1270	1170	1170	1370	1620	1920
Tonnes saved / year	180	356	422	382	392	482	562	692
Penetration (%)	6%	6%	6%	5%	6%	9%	9%	10%

4.1.1 West Sussex Real Nappy Initiative

The Real Nappy Initiative started in West Sussex in 1999.

Disposable nappies make up approximately 4% of the household waste generated in West Sussex each year.

This Initiative pulls together partners from all sectors, including the health authority, district and borough councils, local nappy laundering services, childcare nurseries, and the retail industry.

The scheme was given the top award for Public/Private Partnership at the 2001 LGC Awards and received the Crystal and Gold Green Apple Awards in 2001. Furthermore, the scheme was highlighted by the Strategy Unit 'Waste Not, Want Not' publication as a priority recommendation to encourage households to reduce their waste output.

In 2005/06, the County Council received funding from the Waste & Resources Action Programme (WRAP) to further develop the real nappy initiative. The money was used to promote the scheme through advertisments in local press and employed a person to work in the community, especially with lower socio-economic groups, to develop links with Sure Start and Family learning.

The County Council also established a best practice partnership agreement with St. Richard's Hospital for using the Stork Eco Nappy on their maternity unit.

The County Council in partnership with the district and borough councils, offers residents up to £30 cash back for each baby in cotton nappies. In addition, a cotton nappy starter pack is available to parents eight weeks before the baby's due date and up to four months after birth. The starter pack includes: 10 cotton nappies, 3 wraps and 2 night-time booster pads.

Education and awareness talks are performed throughout the County at ante-natal/parent craft classes and Sure Start Groups to ensure all new parents can

make an informed choice about which nappy system to use.

4.1.2 Home Composting Initiative

Each year approximately 21% of household waste produced in West Sussex is green waste. Several campaigns have therefore been implemented over the last decade to promote home composting across the County.

West Sussex County Council won a bid for a subsidised Home Composting Scheme through WRAP. This grant was awarded for the years 2004/05, 2005/06 and 2006 (ending 31 December 2006).

West Sussex residents can receive heavily subsidised compost bins from the supplier. WRAP implemented a media campaign for West Sussex, which is supported by additional promotions delivered in partnership by the County Council and the District and Borough Councils. A WRAP Home Composting Advisor was assigned to West Sussex in 2004 to promote the scheme and offer advice to residents at various shows, markets and events across the County.

The combined promotional activity between WRAP and West Sussex local authorities greatly increased the number of composting units purchased by householders during 2005/06.

4.1.3 Food Waste Digester Initiative

A food waste digester trial was launched in 2002 and was established County-wide in 2004 using DEFRA funding.

In November 2003 the County Council won an award for "National Champions in Waste Management" at the annual Green Apple Awards for the initiative and diversion rates achieved.

Approximately 15,000 food waste digesters were given to residents free-of-charge over this time period.

In 2005/06, the initiative was funded by WRAP with both Green Cone food waste digesters and Green Johanna composters offered to residents at a cost of £20 each. Approximately 700 were sold for this financial year and funding ended 31st March 2006.

4.1.4 Re-use Initiatives

There are a variety of local re-use schemes across West Sussex, many working in partnership with local authorities providing bring-bank facilities for re-use, scrap store services, and furniture re-use and restoration.

The partner authorities and Environment Agency have also worked with local social enterprises to prepare and submit two successful bids to the New Opportunities

'Transforming Waste' fund.

Hove YMCA were awarded funding for a project that involves establishing a household electrical goods re-use and recycling scheme in the Worthing area. Funding for which will pay for a workshop, van, retail unit and a number of employees.

Guild Care was awarded funding for the "Green House" project which involves the refurbishment of furniture and electrical goods. These projects will reduce the amount of household white goods, electrical products and furniture going to landfill, and will create a number of employment and training opportunities for disadvantaged residents.

It is estimated that these projects alone will divert 300 tonnes per annum of waste from landfill.

4.1.5 Education and Awareness

The local authorities in West Sussex are working in partnership with Viridor Waste Management to deliver the West Sussex Waste Awareness Strategy.

The Strategy has the following aims:

- Encourage resource conservation through implementation of the waste hierarchy;
- Raise public awareness and understanding of future and current waste management issues and services;
- Encourage people to take ownership and responsibility for their waste; and
- Develop an understanding of sustainable waste management practices, both internally and externally.

There are several strands to the implementation of this Waste Awareness Strategy.

A comprehensive guide detailing the waste prevention initiatives in West Sussex has been created by West Sussex County Council. Produced annually 'for better tomorrows' is the principal education and awareness tool for waste prevention. The booklet is distributed directly to most households throughout the County and is available through libraries, help points, District and Borough Council offices and at education and awareness events held during the year. There is also a website www.bettertomorrows.org.uk that includes all the information available in the booklet.

'Reclaim' is the branding for the recycling partnership between the County Council, Viridor and the District and Borough Councils. The partnership is responsible for raising education and awareness levels across the County in relation to waste and recycling.

Each District and Borough Council is responsible for promoting waste prevention as

well as their specific recycling scheme. A variety of methods are used to achieve higher recycling rates, which include: community and school talks, leaflet publications, newsletters and news articles. Recently there has been a DEFRA supported household incentive scheme running in Adur, Worthing, Arun, Horsham and Mid Sussex aimed at increasing recycling participation rates. WRAP funded intensive door-stepping campaigns in 2004/05 in order to monitor and evaluate participation rates in Crawley, Horsham, Mid Sussex and Worthing. The bi-annual 'Reclaim West Sussex Recycling Guide' is a comprehensive a-z of materials and associated companies that enable residents to fully participate in recycling a variety of items. It also lists kerbside collections, HWRSs and bring-banks across the County.

Junk Mail

An information leaflet was produced in 2004 advising residents on ways to reduce unwanted mail, both direct mailings and Royal Mail Door-to-Door opt outs.

This information is now covered in the 'for better tomorrows' booklet and website.

EMR Re-Load Fund

A successful bid for £15,000 was awarded by the EMR Reload Fund to design and produce an education pack for secondary schools. Titled "Metal Headz", the education pack focuses on mining metals, metal packaging and the recycling process of steel and aluminium. It has been distributed to every secondary school in West Sussex. The £15,000 includes competition money for schools to win a grant of up to £500 to carry out a project that encourages people to recycle more metal packaging. A total of six grants of £500 and six grants of £250 are available over the academic years 2005/06 and 2006/07. Schools must submit a project plan and judging will take place at the end of each school term.

Eco-Schools

Eco-Schools is an international award programme run by the environmental charity ENCAMS. It is designed to promote environmental awareness and sustainable development through learning and action. Over 35% of schools in West Sussex have signed up to the programme. Pupils are encouraged to take an active role in practical steps to reduce waste, energy and water consumption, improve their school environment and tackle litter.

Reclaim West Sussex - Promotions Bus

A purpose built mobile education vehicle has been designed to take recycling and waste awareness education to schools, shows and events across the county. The Reclaim Recycling Wizard, Eco Eddie, will make appearances with the Promotions bus to engage with the younger members of the audience.

Reclaim West Sussex – Education Centre

The existing facility at Sompting will be replaced with a purpose built education centre at a new MRF at Ford, West Sussex. The MRF and education centre is due to open in the summer of 2007 and will provide schools and community groups the chance to see the recycling process.

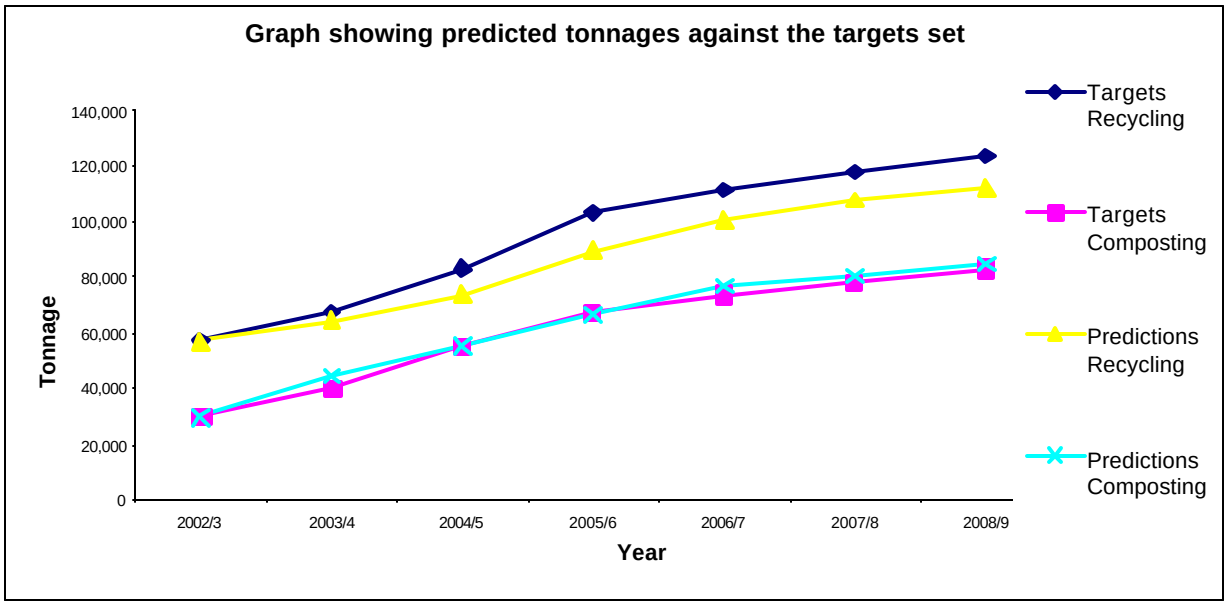
Reclaim West Sussex – Waste Wizard

The Reclaim West Sussex Waste Wizard, recently named Eco Eddie, will accompany the Promotions Bus around the County. The Waste Wizard will also be used at recycling events across the County to engage with the younger members of the audience.

4.2 Projections

Projections of the recycling performance from 2005 to 2009 are illustrated in figure 11, and based on the plans of the WCAs and predicted HWRSs performance.

Figure 11: Predicted recycling and composting performance to 2009



The predictions beyond this are shown in Figure 12, which indicates the targets of 40% recycling by 2010 and 45% by 2015 as required by the RWHC.

Figure 12: Longer-term recycling prediction and targets

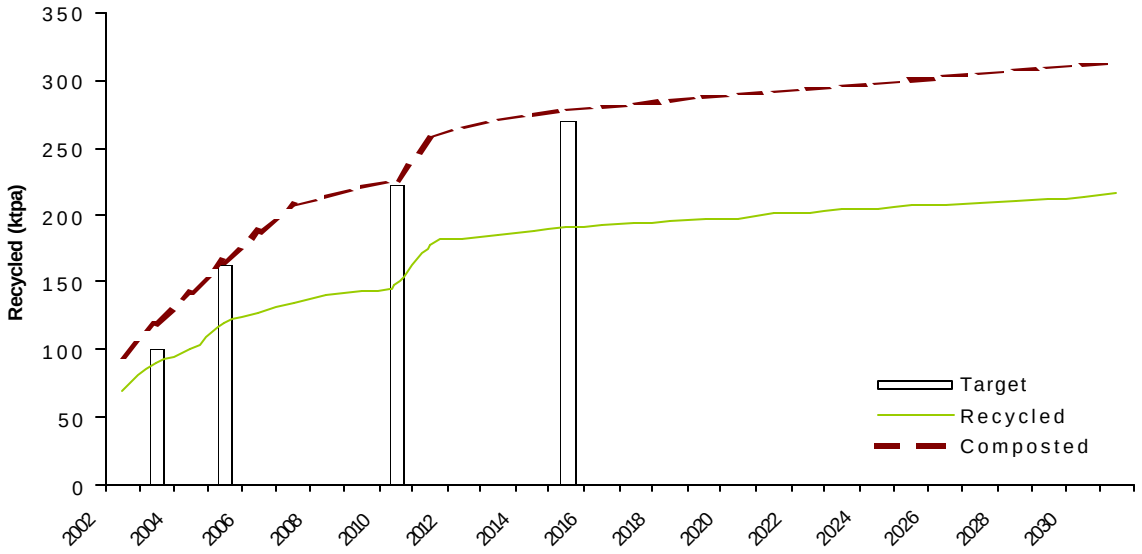


Figure 12 shows that in order to reach the objectives of this Strategy there will have to be a further increase in recycling above the currently predicted levels, in addition to a cut in the amounts of municipal waste generated in the County. The partner authorities will therefore be developing new initiatives over the next five years to achieve this.

4.3 Requirements for new capacity

These increases in recycling will still leave a residual waste that will require disposal. The volume of this residual waste is dependent on the level to which waste prevention activities are successful. However, assuming that the stabilisation of waste growth is achieved, the residual waste requiring diversion from landfill as shown in figure 10 is approximately 300 ktpa (kilo tonnes per annum), some of which can be landfilled, if landfill allowances are to be used rather than sold.

The requirements for processing the collected recyclables will require a network of transfer and bulking facilities to be built in addition to the existing network, as well as composting and MRF plants to extend and replace the current infrastructure. The RWHC has the requirement to deliver a MRF capacity of up to 100 ktpa. Planning approval has been received and actual plans for these facilities are currently being developed.

Even with intensive waste prevention, recycling and composting efforts, West Sussex will require new infrastructure to deal with residual waste in order to meet landfill diversion targets. The options for addressing the residual waste processing requirement are discussed in section 4.4.

The County Council and the District and Borough Councils are currently exploring

the option of extending existing landfill capacity and potential 'out of County' energy recovery capacity until 2015. Furthermore, the County Council and the District and Borough Councils are also examining the possibility of securing land where future facilities may be constructed.

4.4 Approach to choosing treatments for residual waste

There is a range of technologies available to treat residual wastes, and these are summarised below.

Composting

Composting options for the County's collected garden wastes include 'open windrow' and 'in-vessel'. Here the term 'in-vessel' composting also encompasses anaerobic digestion technologies that recover energy via biogas in addition to producing high quality compost.

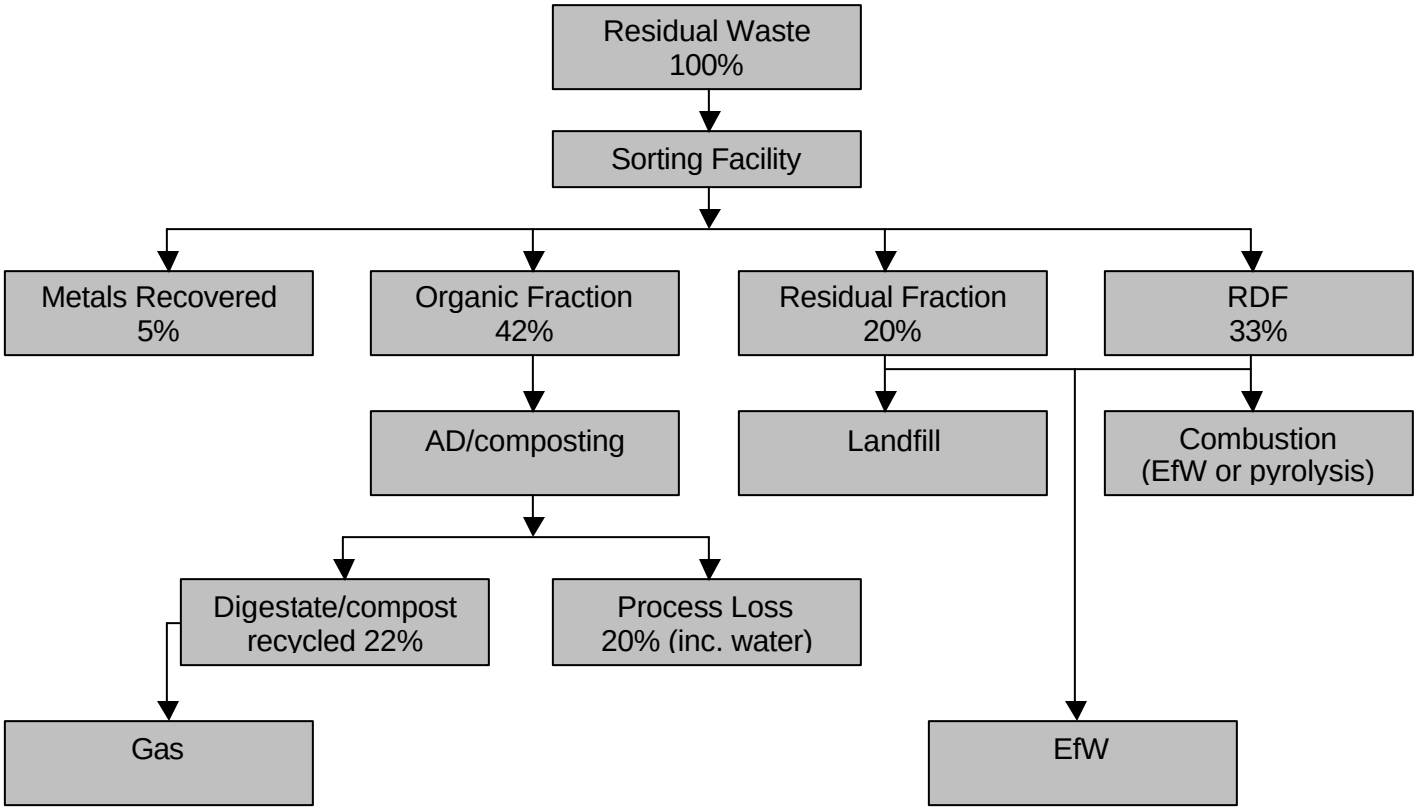
Mechanical Biological Treatment (MBT) / Biological Mechanical Treatment (BMT)

MBT is a group of proprietary technologies that utilise a combination of mechanical and manual sorting and/or biological treatment in various arrangements. The process essentially generates a range of products including metals, plastics, and mineral fractions for recycling, soil improvers or growing media, refuse derived fuel (RDF), and a residual reject fraction for landfill. There are many different processes that fulfil these requirements, and the proportions of products vary from those that generate a high proportion of RDF to those that produce a greater proportion of soil improver.

MBT systems are a combination of mechanical sorting and composting or anaerobic digestion processes used to treat mixed waste, reducing its pollution potential prior to landfill. The biology of the processes is the same as that for source separated composting and digestion, but due to the scale and the content of non-biodegradable materials in the feedstock, the engineering is larger and more robust.

BMT systems are a variant of the MBT "family" and are a combination of composting or anaerobic digestion processes, and subsequent mechanical sorting used to treat mixed waste. The processes on the market currently involve sorting of the waste after the biological process to separate the recyclables from a fuel fraction. The fuel fraction is sent for combustion in an off-site combustion process, or sent to landfill if no market is available for the RDF product. Figure 14 outlines the mass flow of the MBT process which shows that 22% of the digestate/compost has the potential to be recycled if markets can be found.

Figure 13: Schematic of MBT – process

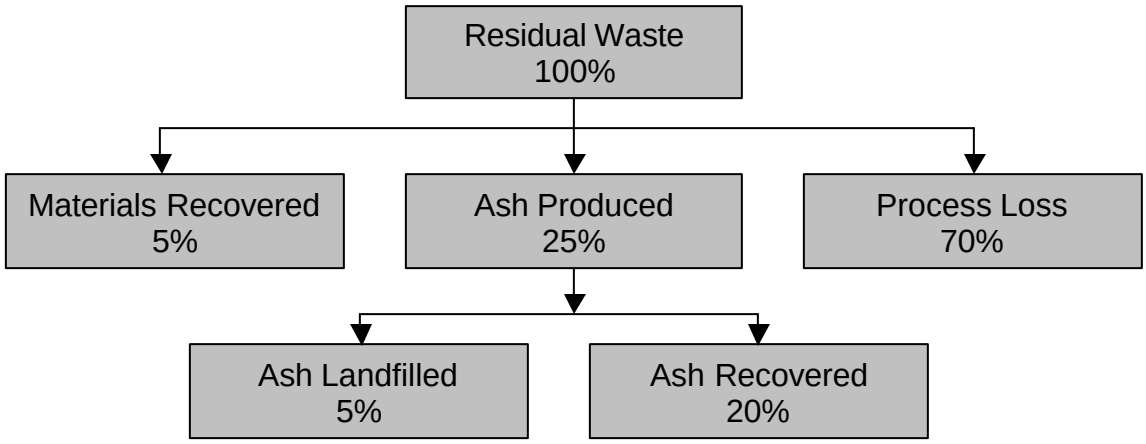


Energy from waste (EfW)/Energy Recovery Facilities (ERF)

EfW/ERF technologies have become controversial with public concern centred on emissions. Modern plants emit low levels of pollutants and the current public perception and concern is largely based on an historical perception of old, poorly operated plants that have ceased to operate. There is a range of new technologies that have been introduced for treating residual wastes, such as fluidised bed combustion, autoclaving, and gasification and pyrolysis, and these may offer operational and environmental benefits.

Figure 14 outlines a mass flow for a thermal treatment recovery process.

Figure 14: Schematic of thermal treatment process



There are two basic options for the utilisation of the RDF product (RDF). It can either be used on-site in EfW plants (combustion, gasification or pyrolysis) or it can be transported off-site to a third party user where there is combustion capacity available, such as a cement kiln, power station, or dedicated waste treatment facility. At present, none of these facilities exist either in West Sussex or neighbouring counties.

4.5 Approach to appraising options

The consideration of various options for the treatment of waste has been evaluated through the BPEO procedure described previously and in the development of this Strategy. The principle conclusions from these studies are that a solution would maximise the following elements:

- Waste minimisation;
- Diversion of waste away from landfill;
- Options that are centralised and use less sites are favoured so long as the transfer station network is in place to optimise transport of waste;
- Utilisation of waste in a beneficial manner (i.e. recycling or recovery of materials); and
- Energy recovery through thermal treatment, and to a lesser extent anaerobic digestion.

However, it was noted that some of the scenarios tested through the BPEO/SEA assessments had significant overlap, and thus several solutions could provide a 'solution'.

These scenarios are:

Base case - Landfill –
Continuation of the current landfilling of waste with purchase of landfill allowances to comply with the Landfill Directive.

Scenario 1 Centralised EfW –
Provision of a single 270 ktpa (250 ktpa direct waste and 20 ktpa RDF) EfW facility in 2015/16, plus a 60 ktpa MBT facility to treat residual waste (2009/10). Both treatment facilities located at one site.

Scenario 2 Decentralised EfW –
Provision of a MBT facility to treat 140 ktpa of residual waste (2009/10) plus three smaller 75 ktpa (60 ktpa waste plus 15 ktpa RDF) EfW facilities in 2015/16.

Scenario 3 New technologies -
Provision of alternative EfW technology gasification/ pyrolysis (2015) and MBT with anaerobic digestion (2009). Both treatment facilities located at one site.

Scenario 4 Waste prevention and new technologies –
Waste prevention of 12% plus new technologies as in Scenario 3.

Scenario 5 Extra waste prevention with centralised MBT and EfW –
A waste prevention programme to ensure the diversion of 80 ktpa by 2015, a smaller 166 ktpa (120 ktpa 46 ktpa RDF) EfW facility operational in 2015 and a MBT facility processing 140 ktpa operational from 2009. Both treatment facilities located at one site.

Scenario 5a Extra waste prevention plus decentralised MBT and EfW-
A waste prevention programme, a MBT plant, plus three smaller EfW facilities.

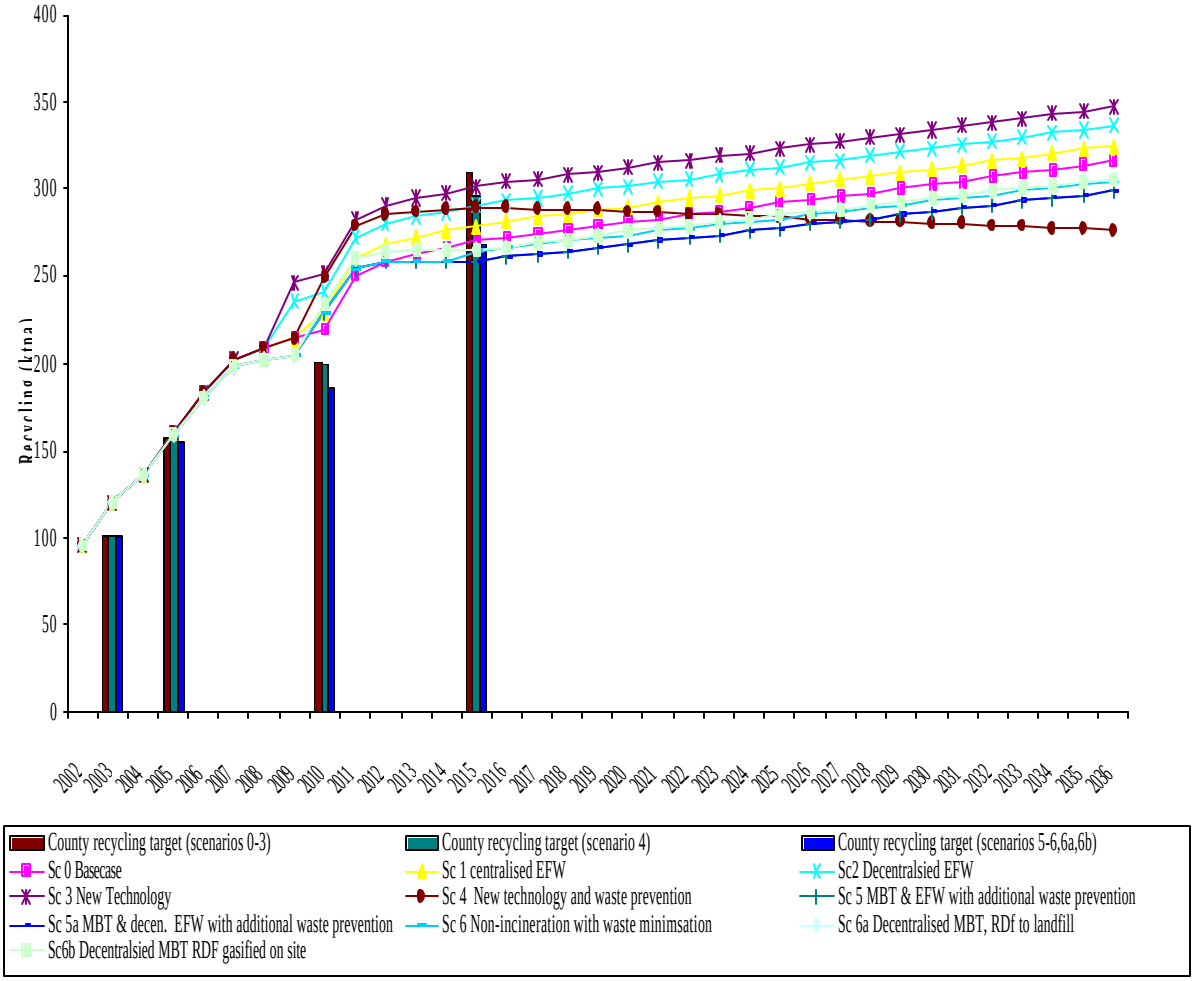
Scenario 6 a- Decentralised MBT with Anaerobic Digestion (AD), RDF to landfill -
A waste prevention programme, plus three MBT plants within the County, all with AD facilities, with the RDF sent to landfill.

Scenario 6 b- Decentralised MBT with AD, RDF to gasifier -
A waste prevention programme, plus three MBT plants within the County, all with AD facilities, with the RDF sent to an on-site gasifier.

The flows of waste for these scenarios are provided in Appendix 7.

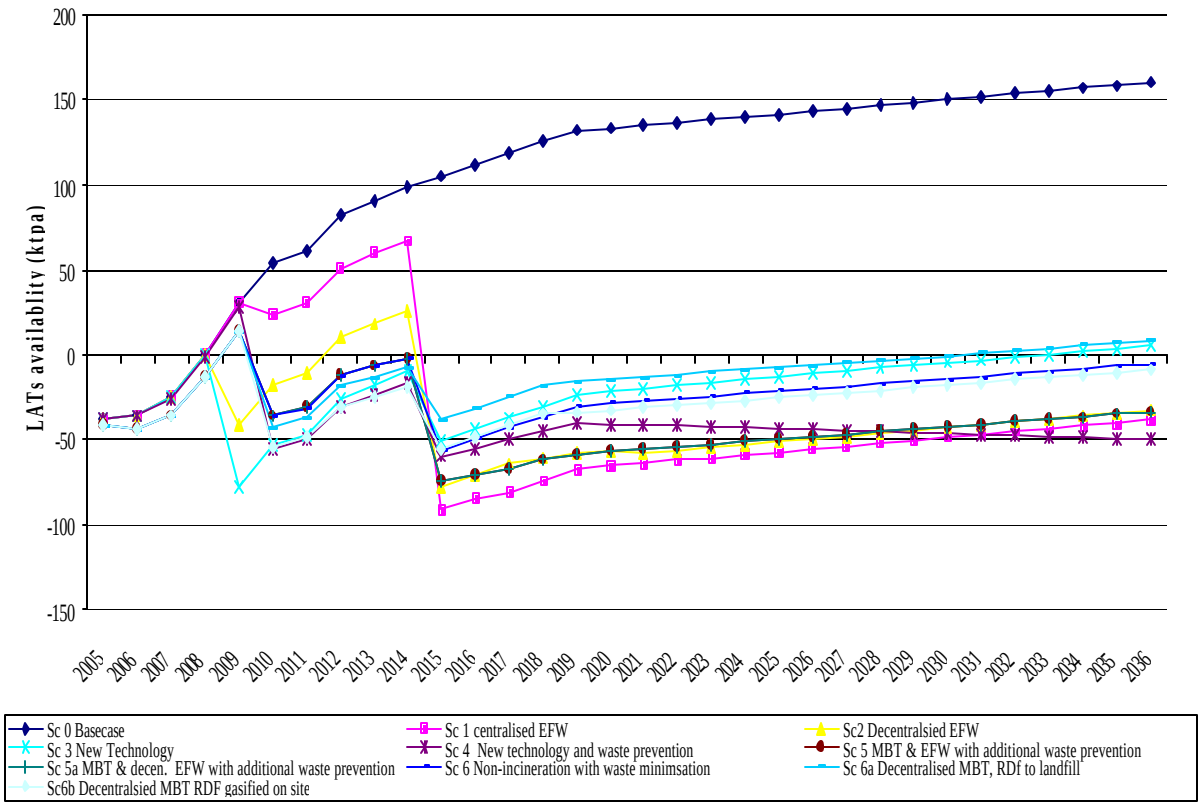
These modelled scenarios include residual treatment options that provide additional recycling over and above the recycling generated in the RWHC. Figure 15 shows the amount of waste that is, or is anticipated to be, recycled from the waste arising in West Sussex. This clearly shows the increasing recycling from the three main elements of the RWHC up to 2015, the introduction of the MBT facility in 2009, and the recycling generated by the ash and additional metals recycling provided by the EfW facility from 2015.

Figure 15: Total recycling



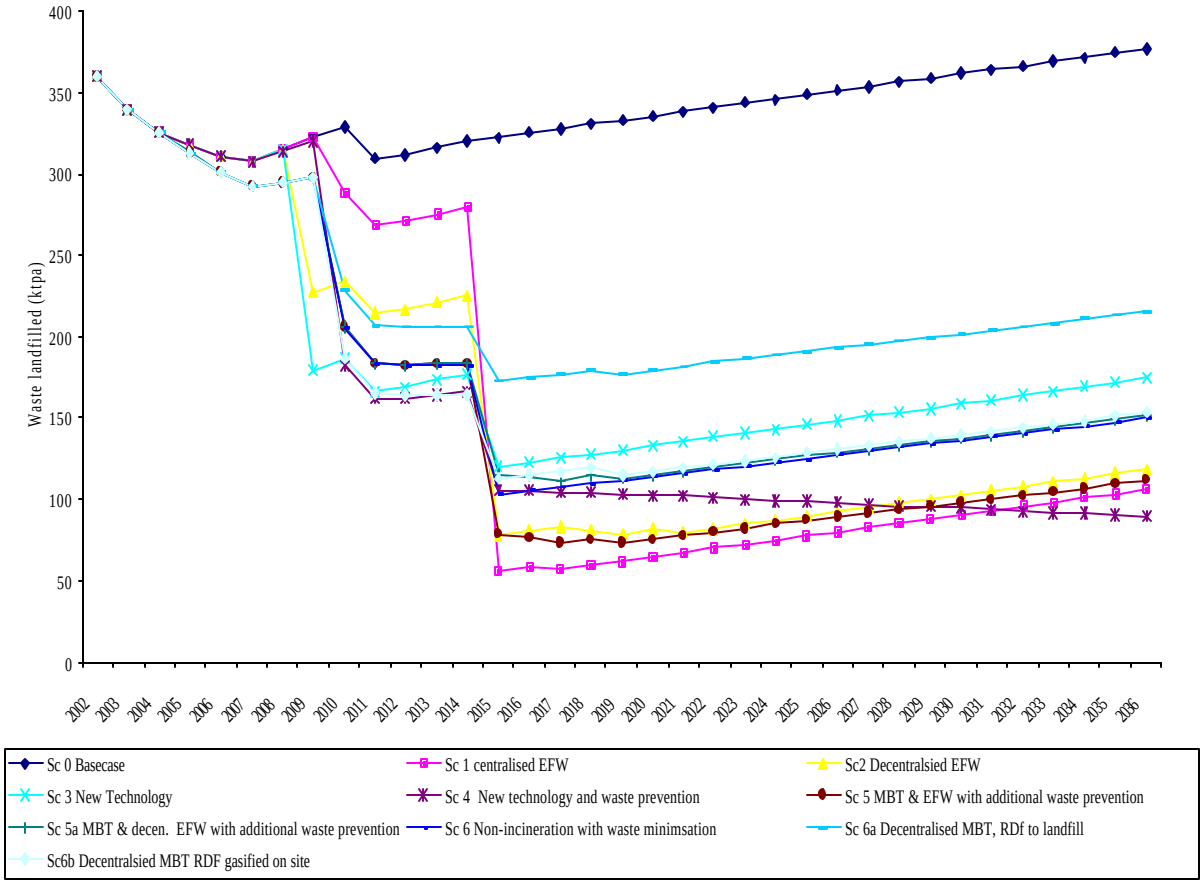
All these options provide the necessary diversion of biodegradable waste such that after 2015 sufficient processing capacity is installed. However, prior to this, the delay in EfW installation does result in a LATs exposure between 2009 and 2015 depending on the capacity of MBT that is envisaged. This is shown in figure 16 and identifies that the base case has the largest exposure to LATs requiring very large numbers of allowances to be purchased to avoid fines to be paid by the County Council. For scenario 1 the delay in implementing the EfW and the relatively small MBT facility result in allowances being required from 2009 to 2015. In the worst case, one option could be to bring forward the delivery of the MBT facilities but the construction timetable for such facilities, given the anticipated planning difficulties, is unlikely to be possible to be online before 2013 given a contract start during 2008.

Figure 16 : LATs exposure



The treatment of waste will divert waste away from landfill and figure 17 shows the amount of total waste that is expected to be landfilled under the scenarios modelled. There is still a requirement for landfill in the County as the processes all generate residues, although the EfW facility generates the least as the bottom ash from combustion can potentially be recycled as aggregate in road construction, if the market is available.

Figure 17: Total waste landfilled



Section 5: Implementing the necessary actions

5.1 Programme summary

	Programme objectives	Waste Authority Actions	EU Directives & UK Regulations
2005	• Reach a combined composting and recycling rate of 30% by 2006 • Landfill under 257 000 tonnes per year of BMW by 2006	• Arun District Council let new Refuse and Recycling Contract and increase green waste collections • Arun DC introduction of kerbside co-mingled household collection of mixed papers, cans and plastics. • Adur District Council and Worthing Borough Council introduce joint refuse and recycling service through PAWS project • Chichester District Council complete introduction of two wheeled bin, alternate week kerbside waste and recycling service to all properties in the District • Application to extend permission for Warnham landfill • Phasing out of Lidsey Landfill, subject to planning enquiry	• EU members should ensure that 2% of bio fuels and other renewable fuels are placed on their markets (2003/30/EC) • To recycle 85% of all End of Life Vehicles (2000/53/EC)

2006	• Provide additional and/or replacement local materials recovery reprocessing, household waste recycling sites and composting facilities by 2007	• Completion of RWHC Phase No1& 2, Open Windrow composting facility and remaining facilities • Closing of Sompting MRF • Start of RWHC Phase No3 review of procedures & operation requirements • Horsham District Council to establish a Scrap Store • Issue of tenders for the Materials Resource Management Contract (MRMC)	
2007	• Provide separate recycling facilities at mobile household waste services by 2008	• Phasing out of Small Dole landfill • Appointment of preferred bidder for MRMC • Commissioning of new MRF at Ford	
2008	• Reach a combined composting and recycling rate of 40% by 2009 • All WCAs to achieve a 75% participation rate in property recycling services by 2009 • Aim to recover value from 44% of municipal waste by 2009 through composting, recycling and energy recovery • Aim to meet the Landfill Directive by landfilling under 290,000 tonnes per year of municipal waste by 2009 • 98% of households to be served by a recycling service by 2009	• Phasing out of Warnham landfill • Materials Resource Management Contract Awarded	• 60% minimum recovery of materials (94/62/EC) • Recycling: 60% paper and board, 60% glass, 50% metals, 22.5% plastics, 15% wood. (94/62/EC)
2009		• Commission transfer facility to accept Horsham and Crawley waste	

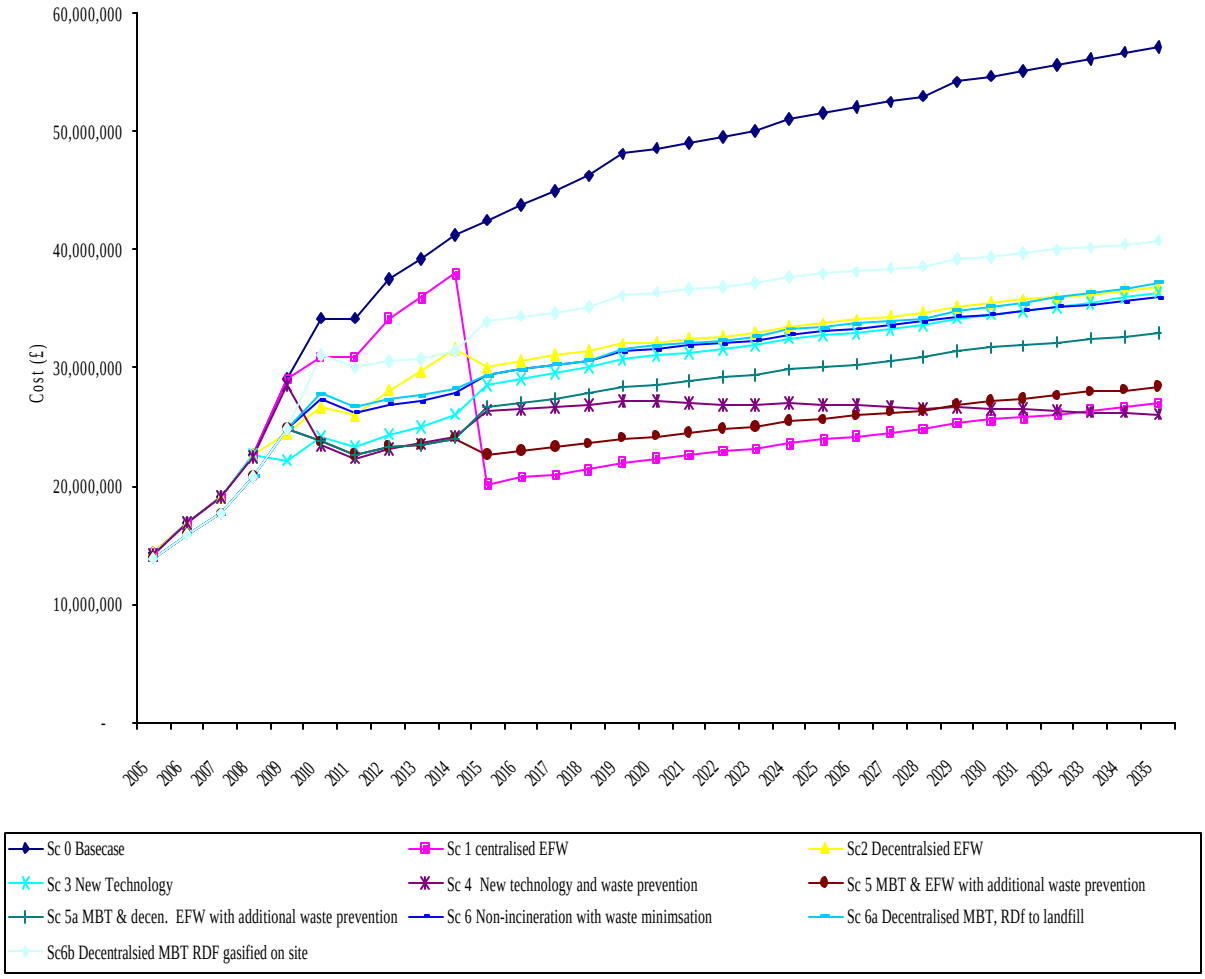
2010			• Landfill Directive Target year achieve 25% reduction of BMW on 1995 level
2013			• Landfill Directive Target year achieve 50% reduction of BMW on 1995 level
2015	• Achieve 45% recycling from the RWHC • Achieve 12% additional recycling through MRMC • Achieve 80 ktpa waste minimisation below profiled growth rate	• Commissioning MRMC EfW facility	
April 2020	• Decrease rate of growth to 0%		• Landfill Directive Target year achieve 65% reduction of BMW on 1995 level

5.2 Business Case

The costs of the six scenarios identified in 4.5 have been estimated based on a common basis using a discounted cash flow approach. These costs are presented in figure 18 and Table 16. This illustrates that the period up to the completion of the infrastructure in 2015 is crucial, as under some scenarios LATS allowances need to be purchased. The importance of delivering the waste prevention objectives must not be underestimated, as this provides direct cost savings through not having to treat waste, as well as easing the LATs position. However, no costs have been applied to waste prevention as most of this is anticipated to be derived through national programmes and initiatives, such as variable charging for waste collection and producer responsibility.

Table 16 illustrates the impact of different costs of obtaining the landfill allowances and are presented showing the sensitivity of this factor, especially on the differential between scenarios 1 and 6.

Figure 18: Total waste management cost



These costs do not assume any risk costings or the potentials for risks associated with the sales of products. These issues are discussed in section 6.2.

The key message is that doing nothing and continuing with landfill will be excessively expensive, and that any form of treatment technology will be more cost effective.

Scenario 1 is most heavily affected by the delay in implementing EfW, and this increases the County Council's exposure to LATs in the target years of 2010 and 2013, when the smaller MBT capacity is insufficient to meet the needs of the County on its own.

Table 16: Cost of MRMC (£million)

Scenario	Price of purchased allowances*			
	£40	£50	£100	£150
Scn. 0	803	889	1033	1171
Scn. 1	618	626	639	652
Scn. 2	780	782	784	787
Scn. 3	746	746	746	746
Scn. 4	656	656	658	659
Scn. 5	648	649	649	650
Scn 5a	727	727	728	729
Scn 6	798	798	799	800
Scn 6a	805	806	807	808
Scn 6b	901	902	903	903

*allowances in excess of allocation are assumed to be sold at £40/tonne

Section 6.0: Keeping the programme on track

6.1 Risk assessment

The delivery of a sustainable and cost effective waste management service for West Sussex will require the adoption of technologies and techniques not seen in the County before. This will, therefore, involve risks that certain elements of the service may not be delivered, or delivered in a different way than currently anticipated. An understanding of these risks is essential to ensure that the costs and impacts are mitigated appropriately.

The principle risks come from three key areas:

- Public acceptability of the solution;
- Technical operation of the facilities; and
- Market issues.

Public acceptability of the solution

The combustion of the generated fuel fractions and potential direct EfW facilities will be required to meet the diversion of BMW. The public have been opposed to such facilities and gaining planning permission will be a challenge. If facilities are delayed then there will be significant financial implications for the residents of the County, as well as missing the statutory targets set for recycling/ recovery and BMW diversion.

This can be mitigated to an extent by good promotional information and informing the public on the need for residual waste treatment facilities, as well as providing high quality designs that are visually acceptable.

The anticipated recycling rates will require the public to be active in separating their waste and changing their lifestyles to reduce the amount of waste they generate. If this change in behaviour does not occur, then recycling rates will not be achieved, and residual waste treatment facilities will be undersized to accommodate the greater amount of mixed waste.

To mitigate this risk, prudent sizing of facilities will be necessary as well as intensive programmes to ensure that recycling and waste prevention rates are achieved.

Landfills will be required for the foreseeable future to take the stabilised residues. Landfill capacity is limited, and gaining planning permission for new landfills is difficult, with the public needing to be convinced of the need to accept these facilities. Also, the County Council will face fines if they continue to landfill at the present rate.

This will have to be mitigated by appropriate planning policies and education provided to the public.

Technical operation of the facilities

Newer technologies such as Fluidised Bed Combustion (FBC) are being examined in West Sussex. However, FBC systems are relatively novel in the UK market (although more common in Europe) and there may be technical difficulties related to the waste composition or methods of delivery. Gasification or pyrolysis have even greater uncertainties as there are few facilities operating successfully worldwide.

All the solutions proposed include MBT. This is still a relatively new technology and whilst using traditional technology components, they are arranged in ways that are new, and the product expectations are beyond those of other installations in Europe. Thus, there is a risk that the technology will not be able to provide the BMW diversion or additional recycling. This will result in additional landfill requirement and therefore LATS. These uncertainties may also lead to delays in delivery of the facility, which could have significant cost and target impacts.

Both risks can be mitigated by careful procurement and evaluation of the systems during the tendering process.

Marketing of the products

The objectives of this Strategy are dependent on the ability to provide products that are acceptable to the market. If the products are not of sufficient quality they will need to be disposed of. The products from an EfW facility will be energy in the form of electricity and /or heat as steam or hot water, and ash which may be sent for recycling as road base. The potential for the ash not finding markets exists, but if landfilled it is stable and only occupies 10% of the volume of the original waste.

Electricity sales are a secure market, but the potential for heat sales are opportunistic and depend on location. Whilst these will improve the economics of a facility they are unlikely to be instrumental to the viability of an EfW facility.

The RDF fraction from the MBT process will require an appropriate combustion facility, and there is a risk that suitable combustion facilities will not be available or cost effective for this fraction. This will result in BMW being landfilled and potential for being fined by the Government through LATS.

The EfW facility will be configured to accept the RDF as well as additional waste, and thus the required market for the RDF will be secured within West Sussex in line with the proximity principle. There will only be a need to identify markets for the fuel for the period up to 2015 where it is believed that excess capacity will be available in neighbouring facilities.

The compost from the MBT process will need to meet market standards and currently there are few, if any MBT plants, that generate compost of sufficient quality for sale, and so the use of this compost will be dependent on low quality applications. This situation is currently the subject of a high-level EU debate on the

revitalisation of soil, and the use of bio-wastes derived products. Given that many Councils are considering MBT, this may result in high levels of supply and possibly low levels of demand, potentially resulting in unused compost which will need to be landfilled, incurring high costs and LATs penalties.

The recyclates generated from MBT will have been contaminated to some extent by contact with food wastes, oils and other materials, and will always be of a lower quality than recyclates generated by source separation. In a similar way to compost, the increases in recycling demanded by statutory targets will put pressure on markets, and MBT recyclates will be susceptible to market fluctuations.

The MBT facilities will generate a range of recyclable materials as well as compost and an RDF fraction for combustion. By developing a MBT process for only part of the waste in West Sussex, the risks of the markets for the compost and recyclates will be spread and minimised. Options that wholly adopted MBT would expose the authority to significant uncertainty in delivering the recycling and BMW diversion required and consequently the costs.

6.2 Monitoring and review

As illustrated in figure 1 in section 1.2, the Strategy will be subject to continuous monitoring and review throughout its implementation. Specific monitoring against programme objectives, established by the Strategy, will be incorporated into the on-going review process.

This structure will ensure the continuous input of all relevant stakeholders during the development and implementation of the Strategy. Regular and on-going reviews of the Strategy will be maintained to ensure that it responds to cultural, and statutory and regulatory changes.

Glossary

Best Value	The duty for Local Authorities to deliver quality, cost effective services in an efficient way
Best Value Performance Indicators	Criteria by which the government assess the performance of local authorities against their duty of Best Value
Biodegradable Municipal Waste	The organic components of municipal waste which break down within 30 years and can release harmful green house gases
BPEO	Best Practicable Environmental Option – the BPEO procedure establishes, for a given set of objectives, the option that provides the most benefits or least damage to the environment as a whole, at acceptable cost, in the long term as well as in the short term
Household Waste Recycling Sites (HWRSs)	Facilities provided by the County Council, for residents to bring items for disposal, including bulky items, green waste, recyclables and general refuse. Sometimes called Household Waste Sites, Household Waste and Recycling Centres or simply the "Tip"
Commercial Waste	Waste from individual traders, wholesalers, catering establishments, shops and offices
Composting	Processing of organic materials to allow their nutrients to be put back onto the land as a soil improver. This process can prevent the problems associated with the generation of methane from biodegradable waste in landfill sites.
DEFRA	The Department for the Environment, Food and Rural Affairs, who have responsibility for national waste policy
EfW	Energy from Waste – recover the maximum value from materials which would otherwise be consigned to landfill and wasted.
ERF	Energy Recovery Facility – a facility that recovers energy from waste
Household Waste	All waste from household collection rounds, including bulky waste collections, and separated materials for recycling and composting, waste from street sweeping, schools waste, waste from litter and dog fouling bins,

	waste brought to recycling points and waste deposited at Household Waste Recycling Sites
Industrial Waste	Waste arising from factories and industrial plants
Landfill	Burying waste, usually in disused quarries.
LATS	Landfill Allowance Trading Scheme – the mechanism by which central Government meets its Landfill Directive targets. The Government have issued landfill allowances which allow West Sussex to landfill a set tonnage of biodegradable waste without penalty.
MBT	Mechanical Biological Treatment
MIRC	Mini Recycling Centre
MOU	Memorandum Of Understanding
Municipal Solid Waste (MSW)	All household wastes plus hazardous household waste; parks and garden wastes, street sweepings, beach waste and the waste from institutions and commercial premises collected by the local authority.
Natural Resource Management	A holistic concept which looks at the reduction of wastes and reuse or recycling of any materials, considering waste as a resource.
ODPM	Office of the Deputy Prime Minister
PFI	Private Finance Initiative
Pre-Treatment	The prior sorting, chemical or biological processing of waste to reduce volume or make the waste material safer
Real Nappies	Re-usable nappies – either the traditional terry towel nappies or the modern reusable wrap style nappies
Recovery	Recovery of energy from waste, through incineration, anaerobic digestion or other end treatment technologies to allow some of the energy value to be retrieved from the material through the generation of heat and power.
Recycling	Creating new products from waste materials. It has three elements, the collection and processing of the materials, making the materials into a new product and the purchase of products with recycled material contents.

Reduction	Not creating waste in the first place
RDF	Refuse Derived Fuel – Combustible residue from a treatment process that can be burnt directly or transported as a fuel for use elsewhere.
Reuse	Using materials again, or many times, particularly in the location they were generated.
SEA	Strategic Environmental Assessment – the SEA ensures that local, environmental, social and economic issues are considered in the drafting of any new Strategy.
SEERA	South East England Regional Assembly
Stakeholder	Anyone who has an interest or involvement in waste management in West Sussex
Sustainability	Meeting the needs of the present without damaging the ability of future generations to meet their needs
WCAs	Waste Collection Authorities
WDA	Waste Disposal Authority
Waste Local Plan (WLP)	The West Sussex Waste Local Plan Revised Deposit Draft provides the framework for land use planning relating to waste management in West Sussex. The WLP identifies sites and criteria for use in identifying other sites suitable in principle for waste management facilities. It also contains policies against which planning applications for waste management facilities will be assessed.
WRAP	Waste & Resources Action Programme

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Appendices

Appendix 1

County-level stakeholder involvement

Date	Title of Consultation	Method of consultation i.e. Conference, Seminar, Plant visit, Mailshot	Stakeholders / Consultees consulted	Purpose of consultation
"A Way with Waste" June 1999 A Strategy for West Sussex				
Dec 1997	"Towards a County Strategy"	Conference	All sectors of the community	To introduce the process for the development of the Strategy, "A Way with Waste"
Jan 1998 to May 1998	As above	Community Involvement Groups/seminars	Key interest sectors of the community	Qualitative information to inform the draft strategy development
Nov – Dec 1998	As above	Exhibitions with public questionnaires	Residents of West Sussex	Quantitative input to inform the final strategy adopted in June 1999
Jan – Dec 1998	"Waste Matters" 4 issues throughout process	Newsletters	Residents of West Sussex	Feedback and outreach programme for the strategy development
Civic Amenity Site Satisfaction Questionnaire				
Aug 2000	Civic Amenity Site Users Survey	Questionnaires issued on sites	Residents of West Sussex	To provide baseline information on customer satisfaction
Recycling and Waste Handling Contract				
Jan 2001	Introduction to the Recycling and Waste Handling Contract	Community Involvement Groups/seminars	Key interest sectors of the community	Qualitative information to inform development of the RWHC

Date	Title of Consultation	Method of consultation i.e. Conference, Seminar, Plant visit, Mailshot	Stakeholders / Consultees consulted	Purpose of consultation
	(RWHC)			
Feb 2001	Options for consideration in the RWHC	Community Involvement Groups/seminars	Key interest sectors of the community	Qualitative information to inform content of the RWHC
March 2001	"Waste Matters" 1 issue	Newsletters	Residents of West Sussex	Feedback and outreach programme for the RWHC development
Best Value Review of the Wastes Management Services Unit				
April 2001 – Dec 2002	Best Value Review – Wastes Management Services	Letters/ Project Team	Waste Collection Authorities	Input in to the BV Review process
As above	As above	Questionnaire	500 representative groups in West Sussex	Quantitative information to inform the BV Review
As above	As above	Community Involvement Groups/seminars	Key interest sectors of the community	Qualitative information to inform the BV Review
As above	As above	Questionnaire	Members of the County Council	Quantitative information to inform the BV Review
As above	As above	Workshops	Staff of the Wastes Management Unit	To inform the BV Review
As above	As above	Questionnaire	Other departments of the County Council	To inform the BV Review
Municipal Wastes Management Strategy (2004-2009)				
July / Aug 2003	Municipal Waste Management Strategy (2004-2009)	Questionnaire	Residents of West Sussex	To inform the development of the draft targets and priorities of the MWMS
As above	As above	Web Site	Residents of West Sussex	To inform the development

Date	Title of Consultation	Method of consultation i.e. Conference, Seminar, Plant visit, Mailshot	Stakeholders / Consultees consulted	Purpose of consultation
				of the draft targets and priorities of the MWMS
Materials Resource Management Contract (MRMC)				
June 2004	Introduction to the development of the Materials Resource Management Contract (MRMC)	Community Involvement Groups/seminars	Key interest sectors of the community	To introduce the development of the MRMC
July 2004	Key issues for the MRMC	Community Involvement Groups/seminars	Key interest sectors of the community	Qualitative information to inform the development of the MRMC
July 2004	The "Democs Game"	Community Involvement Groups/seminars	Key interest sectors of the community	Qualitative policy making tool to inform the development of the MRMC
July 2004	Materials Resource Management Contract	Telephone questionnaire	Residents of West Sussex	Quantitative information to inform MRMC development
July 2004-Dec 2004	"Rubbish to Resource" newsletters 4 issues throughout process	Newsletters and web site	Residents of West Sussex	Feedback and outreach programme for the MRMC
Materials Resource Management Strategy (2009 – 2035)				
April 2005	Materials Resource Management Strategy	Questionnaire	Key interest sectors of the community	Qualitative input to inform the development of the MRM Strategy
As above	As above	Web Site	Residents of West Sussex	To inform the development of the Strategy

Date	Title of Consultation	Method of consultation i.e. Conference, Seminar, Plant visit, Mailshot	Stakeholders / Consultees consulted	Purpose of consultation
Household Waste and Recycling Sites Questionnaire				
April / May 2005	Reclaim West Sussex Customer Research Report	Questionnaires issued on all Household Waste Recycling Sites	Residents of West Sussex	To compare with the baseline customer satisfaction survey carried out in Aug 2000
Strategic Environmental Assessment and Materials Resource Management Strategy (2009 – 2035)				
June 2005	Strategic Environmental Assessment (SEA) and Strategy development	Community Involvement Groups/seminars	Key interest sectors of the community	Provide qualitative input to the development of the SEA process
Sept 2005	As above	Community Involvement Groups/seminars	Key interest sectors of the community	Provide qualitative input to the development of the SEA process
Nov 2005	As above	Questionnaire – personal interviews with MORI	Residents of West Sussex (Statistically representative sample)	Provide quantitative input to the development of the SEA and Strategy
Jan 2006	As above	Self Completion Questionnaire	Residents of West Sussex	Provide quantitative input to the development of the SEA and Strategy

Appendix 2

MORI Quantitative Research, November 2005 – January 2006

Mori interviewed 1,011 residents aged 16+ throughout the County. The interviews were conducted face-to-face in respondents' homes between 28th November 2005 and 10th January 2006.

In addition a self-completion questionnaire was designed. The 3,000 questionnaires were uniquely numbered and sent to our Community Involvement groups, libraries, help points, local council offices. A letter was sent to all parish councils and a flier was handed out at Household Waste Recycling centres highlighting the existence of the survey and where it could be obtained. 500 questionnaires were completed and returned.

Executive Summary

- Most West Sussex residents claim they are making some effort to minimise the amount of rubbish they produce, and even more claim to recycle. Recycling is seem to be "the norm" in West Sussex: more households are thought to recycle than do not. The main barriers to waste minimisation and recycling are practical issues concerning the availability and accessibility of local recycling services

- West Sussex residents generally feel they are well informed about the various ways of dealing with waste, particularly recycling. However, they feel far less informed about the Council's *long-term* plans for waste and the impact of these plans on both themselves and their local area.

- The majority of residents place the main responsibility for tackling waste with the District or Borough Council. However, this is by no means universal, with some groups, such as younger residents and those living in Adur, placing greater emphasis than others on the role of local residents. The importance of residents' role is reflected in the view of one in five (21%) that West Sussex County Council should encourage householders to reduce the amount of waste they produce in the first place.

- Reactions to a new waste treatment facility will be negative among some residents. Approaching half would not want a new waste treatment facility being built in their local area (48%) and would definitely make their views on the new facility known by taking part in the consultation (45%). However, one in four say they would not mind and a further one in five are undecided as yet.

- Almost a quarter (23%) do not think there are any benefits to building a new waste treatment facility in their local area. Where residents do think there are benefits, the most frequently mentioned is that local waste and recycling services would improve (20%).

- The most commonly mentioned drawbacks of a new waste treatment plant concern air quality, with the smell or odour and that it will reduce air quality or release polluting chemicals, smoke or toxins into the air mentioned most frequently. These also emerge as residents' biggest concern or worry.

- The environment emerges as the issue at the forefront of residents' minds when considering waste management, with air pollution a particular concern. This is particularly the case for those who filled in the paper version of the questionnaire.

- Residents identify Scenario 5 as their most preferred, while Scenario 6a is the least preferred.

- A combination of factors are important to residents in choosing their most and least preferred scenarios. While we find that a number of aspects of waste management are thought important, it is these in conjunction with other factors that allow some scenarios to emerge as preferred over others. Hence, while one in three (31%) mention waste minimisations as the reason for their first choice, Scenario 6a is consistently least popular despite including an element of waste minimisation. Residents would therefore prefer to combine waste minimisation with other elements. The same applies to facilities being based at the same site.

- Factors that appeal to residents include:

    - Scenarios that produce energy, electricity or fuel, and particularly the Energy from Waste (EfW) scenarios
    - The scenarios that involve an element of waste minimisation among residents
    - Scenarios in which the different elements are based at the same site

- Factors that residents dislike include:

    - Scenarios that don't seem to have any end result or where they think the outcome defeats the object (aimed mainly at Scenario 6a)
    - The scenarios that involve Anaerobic Digestion (AD), largely it seems on the basis of the appearance of the buildings
    - Any scenarios that imply an increase in pollution levels

Statistical analysis does not find any correlations between the scenarios respondents chose, their demographic profile and the various attitudinal and behavioural questions asked in the survey. Respondents' choices may actually be rather fluid and amenable to change.

Communications about any new waste treatment facility will be crucial and the results of the survey can be used to focus that communication. Whatever scenario is finally chosen, the Council needs to emphasise that there is a solid end result and

that less waste is going to landfill. If the scenario does involve the production of energy, electricity or fuel, then likewise this should be emphasised, demonstrating to residents where this energy, electricity or fuel is used and the benefits of it. In addition, a concern for residents is an increase in pollution as a result of the waste treatment facility: the Council can therefore aim to inform residents about the pollution levels that will result and eradicate any misconceptions.

Separate in-depth research in other areas suggests that local residents' views of new waste facilities can be extremely alarmist – if effective communication are not undertaken in advance to correct rumour, misperception and alarm with specifically-targeted messages and case-studies.

Self-Completion Respondents

- Residents who completed the paper version of the survey tend to have a higher awareness of the different ways of dealing with waste. A higher proportion say they are *very* well informed about each of the various methods.

- They agree with the face-to-face respondents that the District or Borough Council is mainly responsible for dealing with waste, but are less likely to cite both that and residents as mainly responsible. In contrast, they are more likely to cite packaging manufacturers and local companies and businesses, although these remain secondary to the District or Borough Council.

- These residents are also more likely to say they will take part in consultation about a new waste treatment facility, and more *would* mind a new waste treatment being built near them.

- Self-completion respondents are consistently more likely to mention traffic, which is a far bigger concern with a new waste treatment facility than was the case among face-to-face respondents.

- Scenario 6b is the most preferred among those who filled in the paper version of questionnaire, unlike those in the main survey who preferred Scenario 5. Scenario 6a remains their least preferred.

- The end product, production of energy or electricity and pollution are less important to self-completion respondents than they are to face-to-face respondents. In contrast, waste minimisation and the amount of waste diverted from landfill are more important.

Adur

- Residents living in Adur are least likely to feel informed about the Council's long-term plans for dealing with waste and more likely to think that the Council needs to raise awareness of waste and related problems.

- They are more likely than in the other districts and boroughs to say that local residents should be mainly responsible for tackling waste and are the most likely to take part in consultation about a new waste facility.

- They are less likely to say they would mind a new waste treatment facility being built in their local area.

- Residents living in Adur are particularly likely to prefer Scenario 5, and to prefer it because it produces electricity, energy or fuel, but are also more likely to cite the waste minimisation element. The amount of energy created is more important to these residents than the usefulness of the end product.

- They are also more likely to say Scenario 6a is their least preferred scenario, and this is because it still involves landfill, there is no end result or it defeats the object. They are least likely to say it is their most preferred scenario because the buildings are an eyesore, ugly, obtrusive or imposing.

- In judging the environmental impact of the scenarios, those living in Adur are more likely than those living in other areas to say pollution is the most important factor and appearance is the least important.

Arun

- Residents living in Arun are more likely to say they are informed about the Council's long-term plans for dealing with waste, but are least likely to say they will take part in consultation.

- Minimal disruption in building a new waste treatment facility is more important to residents living in Arun than to those living in the other districts and boroughs.

- They are less likely to say they would mind a new waste treatment facility being built in their local area.

- Arun residents prefer Scenario 5 above the others, largely because it produces electricity, energy or fuel.

- They are least likely to prefer Scenario 6a, largely because it still involves landfill, that there is no end result or it defeats the object.

- These residents tend to be more concerned about the odour or smell than is the case in other districts and boroughs.

Chichester

- These residents tend to be particularly satisfied with their local area, and are more likely to define that area as their district.

- These residents are most likely to say they feel informed about recycling, and also report high levels of recycling.

- They are more likely than in the other districts and boroughs to say the local council should be mainly responsible for tackling waste.

- Residents living in Chichester most prefer Scenario 5, and prefer it because it produces electricity, energy or fuel. They are also more likely than those living in some other areas to cite waste minimisation as a reason for their preference.

- They least prefer Scenario 6a, and more so than those in the other districts and boroughs, because it still involves landfill, there is no end result or that the end result defeats the object. They are more likely to cite this than those living in the other districts and boroughs.

- In judging the end result of the scenarios, they treat the amount of waste diverted from landfill as the most important factor.

Crawley

- These residents are most likely to say they feel informed about recycling, and also report high levels of recycling. They are also more likely to say they feel informed about recovering energy from waste and the Council's long-term plans for dealing with waste.

- Residents living in Crawley are more likely than in other areas to think that the Council needs to raise awareness of waste and related problems, and to think the Council should consider helping businesses when deciding how to dispose of waste.

- They are more likely than residents in the other districts and boroughs to say that local residents should be mainly responsible for tackling waste.

- They are also more likely to mention the health hazard as a drawback of a new waste treatment facility compared those in other areas, and think minimal disruption to residents should be a key consideration.

- Crawley residents most prefer Scenario 1, and the reason most commonly given for this is that it produces electricity, energy or fuel.

- They least prefer Scenario 6a, with the reason most commonly given being that the buildings are an eyesore, ugly, obtrusive or imposing.

Horsham

- These residents tend to be particularly satisfied with their local area, and are more likely to define that area as their district.

- Residents living in Horsham are more likely than in the other districts and boroughs to say the local Council should be mainly responsible for tackling waste, although they are also more likely to think a benefit of a new waste facility is that it would put more emphasis on recycling and encourage people to recycle more.

- Those living in Horsham are the most likely to say they would not like a new waste treatment facility to be built in their local area.

- They are also more likely than in other areas to think that the Council should consider cost, odour/smell and minimising the disruption to residents when deciding how to dispose of waste.

- Residents living in Horsham seem more concerned than other residents about air pollution and the need for the most environmentally-friendly option possible.

- Their most preferred scenario is Scenario 5, on the grounds that it produces electricity, energy or fuel. They are least concerned about the buildings being based at one site.

- Horsham residents' least preferred scenario is Scenario 6a, and the reason most commonly given – as elsewhere – is that it still involves landfill or there is no/net end result.

- Traffic and transport movements are far more likely to be treated as the least important end result factor taken into account when rating scenarios by residents living in Horsham.

<u>Mid Sussex</u>

- Residents living in Mid Sussex are less satisfied with their local area.

- However, they are most likely to say they feel informed about the Council's long-term plans for dealing with waste.

- They have a lower level of reported recycling than those living in other areas, and cite a lack of recycling facilities as a key barrier to further recycling and waste minimization.

- Those living in Mid Sussex tend to be more concerned about the cost of waste management than are those living in other areas.

- They are also more likely to say they would not like a new waste treatment facility to be built in their local area.

- They are also more likely than in other areas to think that the Council needs

to raise awareness of waste and related problems.

- Mid Sussex residents are most likely to prefer Scenario 5a, largely because it produces electricity, energy or fuel.

- They are least likely to prefer Scenario 6a largely because it still involves landfill or there is no/net end result.

- They are more likely than those living in other districts and boroughs to say that a new waste treatment facility would bring environmental benefits, and to mention noise as a drawback. They are also more likely to say they treated noise as most important in rating the scenarios, as well as traffic and transport movements.

Worthing

- Residents living in Worthing are least likely to feel informed about the Council's long-term plans for dealing with waste.

- They report lower levels of recycling than do those living in other districts and boroughs, saying that they don't have enough information about recycling and waste minimisation, and that they are too lazy / it is too much effort.

- Scenario 5a is their most preferred scenario, as it produces electricity, energy or fuel. These residents are also more likely than others to mention waste minimisation.

- Their least preferred scenario is 6a because it still involves landfill or there is no apparent end result.

- In judging the environmental impact of the scenarios, those living in Worthing are more likely than those elsewhere to say pollution is the most important factor and appearance is the least important.

Appendix 3

Strategic Environmental Assessment

Environmental Report

Non-Technical Summary

Introduction

Terence O'Rourke has been appointed by West Sussex County Council, on behalf of all the other West Sussex councils and the Environment Agency, to undertake a Strategic Environmental Assessment (SEA) of the councils' draft Joint Materials Resource Management Strategy (JMRMS) (2005). This Non-Technical Summary sets out the key findings of the Environmental Report that has been prepared to document the findings of the SEA.

Strategic Environmental Assessment (SEA)

SEA is a systematic process for evaluating the environmental and sustainability consequences of a proposed plan or programme, such as the JMRMS. It is now a statutory requirement under the SEA Regulations (2004) for Municipal Waste Management Strategies to undergo SEA. The aim of the SEA is to make the JMRMS more sustainable by ensuring that environmental and sustainability issues are considered and potential negative impacts are minimised.

The JMRMS

The JMRMS reviews and follows on from the councils' adopted Joint Municipal Waste Management Strategy (2004-2009). It focuses mainly on the management of the residual municipal waste left after recyclables have been taken out. The JMRMS sets out a framework for the management of West Sussex's residual waste over the next few decades.

The JMRMS consists primarily of objectives, background data, initiatives for waste minimisation and nine options for the treatment of residual waste (including the 'base case' of continuing to landfill).

The SEA has assessed the following elements of the strategy:

- the overall sustainability of the JMRMS objectives
- the sustainability of the various options for the management of residual waste
- the sustainability of the waste minimisation initiatives.

The SEA methodology

SEA is divided into several key stages, the first two of which are documented in the main Environmental Report. The first stage was to

establish the existing baseline environment and any existing environmental problems, identify any other relevant documents that the JMRMS should take account of, and develop a framework of objectives, indicators and targets to use in the assessment. In accordance with the SEA Regulations (2004), a report was prepared at the end of this stage setting out the scope of the SEA. This report was circulated to four statutory bodies (English Nature, English Heritage, Environment Agency and Countryside Agency), to establish whether all the relevant information had been collected and whether the framework was appropriate.

The second stage was the assessment of the elements of the JMRMS. Mitigation measures were also proposed at this stage to minimise negative impacts, and a framework was designed for monitoring the impacts of the JMRMS.

In addition to the statutory consultation with the four technical bodies at the scoping stage, further consultations were carried out with the West Sussex County Council Community Involvement Groups (CIGs) at various stages within the SEA process. The CIGs were developed by West Sussex County Council in 1997 to provide feedback on municipal waste management issues and provide input into the development of the waste strategies. Four workshops were held with these groups to help refine the SEA objectives and provide input into the development of mitigation measures.

Setting the context and objectives, establishing the baseline and deciding on the scope

Other plans and programmes were analysed for objectives that are relevant to the JMRMS. The key themes that emerged were that the JMRMS should aim to:

- encourage waste minimisation and enable movement up the waste hierarchy by facilitating re-use, recycling and recovery
- ensure waste can be managed and disposed of without harm to human health or the environment
- enable waste to be disposed of as close as practicable to its source and consider the use of rail and water-borne transport
- consider ways to reduce waste by breaking the link between economic growth and waste production
- enable West Sussex to be self-sufficient in waste management
- encourage the use of previously developed land for waste management facilities where possible.

A SEA Framework has been designed to provide a tool for the assessment of the JMRMS's economic, social and environmental impacts. The framework consists of a series of broad objectives, which are expressed in the form of targets where possible. Indicators are defined to allow measurement of progress. The SEA Framework is set out in detail in table 5 of the main Environmental Report.

Baseline data has been collected for West Sussex in order to establish the current state of the environment in the county. The key characteristics of the

baseline environment of West Sussex relevant to the SEA objectives can be summarised as follows:

- municipal waste production is above the national average but decreasing.
- the percentage of waste sent to landfill is above the regional average but decreasing.
- recycling and composting are increasing
- municipal waste is all transported by road
- the county includes over 80 nationally and internationally designated sites of nature conservation importance
- the air quality in the county is generally good, with no Air Quality Management Areas declared. However, there are some potential issues, particularly with regard to the potential for particulates levels in urban areas to exceed thresholds after 2010
- river quality is generally good, with more than two-thirds of rivers meeting their River Quality Objective between 2002 and 2005. Several areas of the county are vulnerable to flooding
- a large area of the county is designated as an Area of Outstanding Natural Beauty
- proposed South Downs National Park, and the proportion of the landscape classed as tranquil is above the national average
- the county has a varied historic environment, with large numbers of listed buildings, Conservation Areas, Scheduled Ancient Monuments and registered Historic Parks and Gardens. Very few of the listed buildings are on the English Heritage risk register
- the health of the population is similar to the national average
- unemployment is below the regional average.

The baseline data are presented in full in Appendix 3 of the main Environmental Report.

The key existing environmental problems of relevance to the SEA Identified during the collection of baseline information include:

- the amount of waste generated per household
- the current dependence on landfill to dispose of residual waste
- loss of natural resources through landfilling of waste
- incidences of poor air quality
- the contribution of waste management and disposal to climate change
- adverse effects on the landscape and countryside from waste management
- adverse effects on nature conservation from waste management.

The existing environmental problems identified at this stage were used to refine the SEA Framework to ensure that the SEA objectives covered all relevant environmental issues.

Developing and refining alternatives and assessing effects

The objectives of the JMRMS were tested against the objectives set out in The SEA framework, to look for potential areas of conflict between the two. This effectively tested the sustainability of the JMRMS objectives, and provided an indication as to the sustainability of the strategy itself. The majority of the JMRMS objectives performed very well in this analysis, with only two possible conflicts found. Both of these related to the objective for access to services, and mainly result from government policy and legislative requirements.

The waste minimisation measures performed very well against the SEA objectives, with no potential negative impacts and several positive impacts identified.

Potential impacts were assessed for all the nine options set out in the JMRMS, including the 'base case'. The options are summarised in table NTS1. The full results of this analysis are shown in table 10 and appendix 4 of the main Environmental Report. All the options except the base case generally performed well against the SEA objectives. The base case would have negative impacts on 11 of the 16 SEA objectives and would only have a slightly positive impact on one objective.

Table NTS1: MRMS options

Base case – continuation of the current landfilling of waste, with purchases of landfill allowances to comply with the Landfill Directive
Scenario 1 – centralised EfW – provision of a single 270 ktpa energy from waste (EfW) facility in 2015/16, plus a 60 ktpa mechanical biological treatment (MBT) facility to treat residual waste (2009/10). Both facilities located at one site
Scenario 2 – decentralised EfW – provision of a MBT facility to treat 140 ktpa of residual waste (2009/10) plus three smaller 75 ktpa EfW facilities in 2015/16
Scenario 3 – new technologies – provision of alternative EfW technology (gasification/pyrolysis) in 2015 and MBT with anaerobic digestion in 2009. Both facilities located at one site
Scenario 4 – waste minimisation and new technologies – waste minimisation of 12% plus new technologies as in scenario 3
Scenario 5 – extra waste minimisation with centralised MBT and EfW – a waste minimisation programme to ensure the diversion of 80 ktpa by 2015, a smaller 166 ktpa EfW facility operational in 2015 and a MBT facility processing 140 ktpa operational from 2009. Both facilities located on one site
Scenario 5a – extra waste minimisation plus decentralised MBT and EfW – a waste minimisation programme, a MBT plant and three smaller EfW facilities
Scenario 6a – decentralised MBT with anaerobic digestion and the Refuse Derived Fuel (RDF) sent to landfill – a waste minimisation programme, plus three MBT plants, all with anaerobic digestion facilities. RDF sent to landfill
Scenario 6b – decentralised MBT with anaerobic digestion and the RDF sent to a gasifier – a waste minimisation programme, plus three MBT plants, all with anaerobic digestion facilities. RDF sent to an on-site gasifier.

A number of impacts, both positive and negative, were found to be common to all or many of the remaining options (i.e. excluding the base case). These impacts include:

- increased recovery of energy and resources
- reduced percentage of waste landfilled
- increased waste minimisation
- enabling West Sussex to achieve net self-sufficiency in waste management
- reduced fossil fuel consumption due to the production of energy from waste
- reduced loss of natural resources through waste minimisation
- reduced leachate from landfill
- reduced landfill gas emissions
- reduced potential for vermin, litter and odour associated with landfill
- provision of employment, training and educational facilities
- potential to reduce awareness of the need to minimise waste if there is a perception that a solution has been found to waste management
- loss of potentially recyclable resources to combustion
- increased leachate from composting
- emissions from combustion
- emissions from transport
- potential impact on property values and investment due to health concerns
- increased noise from plant operation and traffic.

The performance of the eight remaining options was very similar for many of the above impacts. However, differences were apparent between options in terms of reducing landfill and increasing recovery/recycling of waste. Options 2 and 1 respectively performed best against these particular objectives, while option 6a performed least well against both.

There are also several impacts that will be location-specific and are therefore uncertain at this stage. These include effects on biodiversity, land use, flood risk, the historic environment, the landscape and transport of waste by road.

A range of mitigation measures has been designed to reduce the potential negative impacts of the options for managing residual waste set out in the JMRMS (table NTS2). Measures to reduce the likelihood of the potential negative unknown impacts have also been developed. These could be implemented through the JMRMS itself, policies in the Waste Development Framework (WDF), the waste contract, or requirements at the Environmental Impact Assessment (EIA) and planning application stage.

Table NTS2: Mitigation measures

Potential negative impact	Proposed mitigation
Potential for certain options to discourage waste minimisation	Continued education drive to raise awareness, encourage and facilitate waste minimisation through JMRMS initiatives
Potential to increase road transport of waste	Policy in the WDF/JMRMS encouraging use of rail and water Requirement to consider effects of siting on road transport distance during the site selection process (e.g. the relation of the main centres of population to the site(s)) Aim to restrict waste collection and movement to West Sussex waste only, but include 'county border' waste if necessary Analysis of waste travel distances and lorry movements for site(s) and monitoring waste travel distances during contract implementation
Potential to adversely affect biodiversity through habitat loss or increased fragmentation	Requirement to avoid designated areas in site selection
Potential to increase use of greenfield land	Requirement to prioritise brownfield sites where this will not lead to other unacceptable environmental impacts
Potential for loss of natural resources	Requirement for waste processing facilities to generate heat and power for local communities
Potential for leachate from composting or anaerobic digestion plants to impact on controlled waters	Require use of Sustainable Urban Drainage Systems (SUDS) to control the quality and quantity of run-off from the site(s), including potential for measures such as reed beds to treat effluent Control inputs to control quality of leachates Regular monitoring and inspection of discharges and leachate control system. The quality of discharge is controlled by Environment Agency consents
Potential to increase flood risk	Requirement to locate plants outside the fluvial and coastal floodplains
Potential for increased emissions to air	Require use of Best Available Technology for minimising air emissions. Monitoring of emissions Require use of low-emissions vehicles
Potential for adverse impacts on setting of designated elements of the historic environment	Requirement to avoid direct impacts on designated elements of the historic landscape and to minimize indirect impacts, such as effects on settings Requirement for a high standard of design to ensure impacts on the historic environment are minimised
Potential for adverse impacts on landscape character and views	Requirement to avoid designated areas in site selection unless overriding reasons for location in sensitive areas Specify high standards of design and architecture for plants Involving the community in the design of the proposals Require comprehensive planting with native species and use of landscape bunds if appropriate to mitigate

	visual impacts Site selection to minimise visual impacts Requirement to consider sinking elements of plants underground to reduce building heights
Potential for health and amenity concerns and impacts on property values and investment	Education and communication with the community to separate facts from myths – e.g. by making easily understood information available on websites, making site visits available to interested parties, circulating information on proposals and technology and making transparent monitoring data easily available Plants to meet current health and environmental standards and to be regularly monitored Introduction of community monitors and liaison groups
Potential for increased odour, litter and dust	Enclosure of lorries and plants to minimize odours Built in treatment facilities to reduce odour Monitoring complaints about odour Efficient management of waste to reduce odour and vermin Use of nets or enclosed lorries to reduce litter, with regular cleaning of sites and routes Regular washing of lorries to reduce spread of dust
Potential for increased noise from plant operation and increased traffic	Restrict traffic routes for waste deliveries and designate routes in consultation with local community (e.g. Parish Councils) Restrict working hours and traffic movements to reduce disturbance in the evening and at weekends and provide capacity for storage of lorries and waste overnight Movements to be staggered to avoid queues and peak traffic hours Technology and building design and landscape scheme to address the need to minimise noise Boundary noise limits for plants and regular monitoring to ensure sensitive receptors are not affected Use of alternatives to conventional reversing alarms on site/restrictions on use
All potential impacts	Contract specification to address environmental issues, with potential for enforcement built in Regular review of contract to ensure objectives are being met, take account of changes in environmental standards and address any unforeseen impacts Regular monitoring and collection of baseline data (e.g. as part of the EIA process) to identify potentially unknown impacts Involving the local community in scooping EIA(s) and monitoring impacts once plants are operational

A framework has been developed to monitor the effects of the JMRMS, based around existing monitoring arrangements. The full framework is set out in table 14 of the main Environmental Report, and includes the following measures:

- collation of data on recycling, recovery and landfilling rates in West Sussex

- monitoring of emissions and reporting to the Environment Agency by operators
- existing monitoring of active landfills against the contract conditions and the state of the sites
- site inspections by the Environment Agency to ensure licence conditions are complied with
- roving inspectors and community liaison groups to monitor operations
- distribution of monitoring data to the community (see table NTS2).

Conclusion

A SEA of the West Sussex JMRMS has been carried out. The JMRMS sets the framework for residual waste management in the county, and a number of potential impacts have been identified. The objectives of the JMRMS appear to perform very well against the SEA objectives. The SEA has concluded that all the waste management options, with the exception of the base case of continuing landfilling, generally performed well in the assessment and several impacts were found to be common to all or many options. Mitigation measures have been devised to minimise many of the potential negative impacts, and a framework has been designed to monitor the effects of the JMRMS.

Appendix 4

Other legislation involved in the drive towards sustainable wastes management

The Environmental Protection Act 1990 and Controlled Waste Regulations 1992.

This legislation implements the requirements of the EC Waste Framework Directive (75/442/EEC). It defines the different categories of waste, and how waste should be managed and controlled. It also defines the duties of Waste Collection and Waste Disposal Authorities, and sets out the Duty of Care applicable to all those handling and disposing of waste.

Animal by-products Regulations 2003 SI1482

As a result of the foot and mouth crisis in the UK, the Government introduced legislation, which provides requirements on the treatment and processing of wastes that come under the definition of catering waste. This definition includes kitchen wastes from households and thus applies to processing of household waste unless it can be demonstrated to be uncontaminated by kitchen waste. The regulations impose strict handling and processing conditions as well as requirements for the testing and logging of operations. The regulations also place restrictions on the use of compost material (that has been produced by material which has or may have contained meat products) on land where animals (including wild birds) may have access.

This regulation will principally apply to composting and anaerobic digestion processes including MBT systems.

Producer Responsibility Obligations (Packaging Waste) Regulations 1997 and Packaging (Essential Requirements) Regulations 1998.

This legislation implements the EC Directive on packaging and packaging waste (94/62/EEC). It sets targets for those involved in the packaging chain, from raw material production and retailer selling, to recovery and recycling of packaging waste. The European Commission regularly increases the amounts of packaging which need to be recycled. The current target is to recover 60% of all packaging waste by December 31 2008, and meet recycling targets for specific materials, which include a 60% recycling target for both glass and paper/board. Although these targets do not apply to local authorities directly, the industry may be encouraged to form strategic partnerships to facilitate the collection and recycling or recovery of packaging waste from the household waste stream.

Waste Electrical and Electronic Equipment Directive (WEEE).

The aims of this Directive are to require hazardous components to be removed from waste electrical and electronic equipment (WEEE), and to reduce the amount sent to

landfill by introducing recovery and recycling targets. Some types of WEEE items, such as washing machines, are already being recycled, but additional systems for recycling items such as televisions and computers will need to be provided. Member States are required to collect 4kg of electrical and electronic equipment per head of population and per year, and local authorities may be required to provide facilities at household waste recycling sites to collect these items from householders. The recycling and recovery targets vary according to the material category.

The UK is currently implementing this legislation, and manufacturers will be required to meet the treatment and recycling costs from 2007. The Commission plans to review the existing targets set out by the WEEE Directive in 2008.

West Sussex County Council currently offers a WEEE recycling service at HWRSs, and will seek to ensure any further opportunities arising from the implementation of the Directive.

End-of-Life Vehicles (ELVs) Directive 2000/53/EC.

The End-of-Life Vehicles (ELVs) Directive will require those vehicles that reach the end of their useful life to be processed by dismantlers and shredders who are known as Authorised Treatment Facilities (ATF). This processing requires that all pollutants and fluids such as oils, brake fluid and coolant are removed from the vehicle. Whilst it was expected that this Directive would have impacts on the disposal of ELVs and cause increases the level of abandoned vehicles and the costs incurred, the high price of recycled steel has actually reduced the numbers of vehicles abandoned. The Directive was transposed into national law in two parts in November 2003 and February 2005. The first part implements new standards to existing sites, requires operators working under a registered exemption to apply for a site licence (if accepting vehicles which have not been depolluted), and sets new minimum technical standards for all sites that store or treat ELVs. The second part legislation covers car producer's responsiblities for taking vehicles back and the recycling targets required.

The European Commission plans to commence a review of the existing targets set out by the End of Life Vehicles Directive during 2006.

Batteries and Accumulators Directive.

The European Commission adopted a proposal for a new Directive on Batteries in 2004. This will set targets for the collection and recycling of spent batteries, and thus reduce the disposal of batteries through the municipal waste stream. The Directive should be finally adopted during 2006. Once it is agreed, Member States will have 24 months to bring into force the laws, regulations and administrative provisions necessary to comply with this Directive.

Facilities for recycling batteries are now located at HWRSs.

Ozone Depleting Substances (Regulation 2037/2000)

European Council Regulation No. 2037/2000 on substances that deplete the ozone layer came into effect at the end of 2001. The aim of this Regulation is to require the removal of all ozone depleting substances (ODS) (including CFCs and HCFCs) from refrigeration equipment before such appliances are recycled. Ozone depleting substances are present in both the refrigerant liquid and the insulating foam in fridges and freezers, but until this Regulation was introduced, the only requirement was to remove the refrigerant liquid before the appliance was recycled.

There is a County-wide contract for processing end-of life refrigerators and freezers.

The Financial Act 1996 and Landfill Tax Regulations 1996

Landfill Tax is a tax payable for each tonne of waste sent to landfill and was introduced by the Government in 1996 as a way of encouraging more sustainable means of waste management through recognising the hidden financial effects of the environmental impact of landfill. The landfill tax is currently £21/tonne, and it will increase by at least £3/tonne each year until the tax reaches £35/tonne by 2010. The increase in landfill tax will cause a significant increase in waste disposal costs and will provide a further incentive to move to more sustainable means of waste treatment in the near future.

Waste Minimisation Act 1998

The Waste Minimisation Act enables local authorities to implement schemes to minimise the amount of household waste which is generated. However, the Act does not place an obligation on authorities to carry out such initiatives, nor does it allow councils to impose any requirements on businesses or households in their area.

Household Waste Recycling Act 2004

The aim of the Act is to increase recycling of household waste by requiring that English waste collection authorities (WCAs) should collect at least two types of recyclable material separately from the remainder of waste. The deadline for implementation is 2010.

Appendix 5

Future Recycling Plans

Adur District Council

Current Service

Size of Authority (square miles)	16
No of properties	26464
Collection method and container	Black sack – back door
Recyclables collection method and container	Kerbside box

Service		Contractor
Materials collected from property (free/cost)	Cans and Plastic bottles Glass Newspapers, card and Magazines	Adur Direct Services
No of bring sites	144	
No of bring sites collecting:		
Glass	144	Adur Direct Services
Newspapers & Magazines	0	Adur Direct Services
Mixed paper and card	144	Adur Direct Services
Cans & Plastics	144	Adur Direct Services
Textiles	10	Salvation Army
Shoes	2	
BV 91 % of population served by kerbside collection of recyclables (2004/5)	99.8%	
BV 84 kg of waste collected per head of population (2004/5)	337 kg per head	

Expansions to Service

Planned Expansion for 2005

- Door to door canvassing campaign
- Installation of dedicated Mini Recycling Centres (MIRC) sites for flats

Planned Expansion for 2005 to 2008

Having already optimised the collections of dry recyclable materials, there can be no further substantial expansion of this operation. All that can now be done is to consolidate this position and ensure that the maximum is derived. Further educational work will be undertaken along with requirement to minimise waste in general.

Planned Expansion for 2008 to 2010

Adur and Worthing services will continue to develop best practices in line with the infrastructure created by the Recycling and Waste Handling contract (RWHC) and

the Material Resource Management contract (MRMC).

Recycling Performance

	2002/3 Actual	2003/4 Actual	2004/5 Actual	2005/6 Predicted	2006/7 Predicted	2007/8 Predicted	2008/9 Predicted
Recycling and Composting Tonnage	3,190	3,807	4,270	4,398	4,564	4,622	4,681
Household Waste Tonnage	20,198	19,496	18,565	19,122	19,843	20,096	20,352
Recycling Rate	16%	19.52%	23%	23%	23%	23%	23%

Resource Expenditure

Capital

2002/3 Actual	2003/4 Actual	2004/5 Actual	2005/6 Predicted	2006/7 Predicted	2007/8 Predicted	2008/9 Predicted
£3000	£10892	£0	£8300	£4800		

Revenue

2002/3 Actual	2003/4 Actual	2004/5 Actual	2005/6 Predicted	2006/7 Predicted	2007/8 Predicted	2008/9 Predicted
£307,000	£291,518	£386,200	£401,090	£412,620		

Arun District Council

Current Service

Size of Authority (square miles)	85
No of properties	66,495
Collection method and container	Weekly from curtilage refuse (black sack) Customer Supplied Containment
Recyclables collection method and container	Alternate week from supplied wheeled bins

Service		Contractor
Materials collected from property (free/cost)	Mixed paper and card, cans and plastic bottles (Free) Garden Waste (charged)	Verdant
No of bring sites	44	
No of bring sites collecting:		
Glass	43	Verdant
Newspapers & Magazines	37	Aylesford + Verdant
Cans & Plastics	36	Verdant
Textiles & Shoes	21	Scope
BV 91 % of population served by kerbside collection of recyclables (2004/05)	100%	
BV 84 kg of waste collected per head of population (2004/05)	373 kg per head	

Expansions to Service

Planned Expansion for 2005 to 2006

- New Refuse and Recycling Contract – 5 phase roll out (Apr-Sept) of new co-mingled household recycling collections
- Increased household green waste collections (to composting)– target of an additional 1500 tonnes.
- Increased paper tonnage target of 3000 tonnes
- Increased cans and plastics tonnage target of 300 tonnes

Planned Expansion for 2006 to 2007

- Increased paper tonnage by 2800 tonnes
- Household waste reduction programme
- Increased green waste by 1000 tonnes.
- Increased cans and plastics tonnage target of 300 tonnes

Planned Expansion for 2007 to 2008

- Increased paper tonnage target by 1800 tonnes
- Increased green waste - target of an additional 500 tonnes
- Education and promotion programme
- Increased cans and plastics tonnage target of 300 tonnes

Planned Expansion for 2008 to 2009

- Increased paper tonnage target of 300 tonnes
- Increased green waste - target of an additional 500 tonnes
- Education and promotion programme
- Increased cans and plastics tonnage target of 300 tonnes

Recycling Performance

	2002/3 Actual	2003/4 Actual	2004/5 Actual	2005/6 Predicted	2006/7 Predicted	2007/8 Predicted	2008/9 Predicted
Recycling and Composting Tonnage	6,524	6,800	7,500	14,500	17,500	19,100	20,200
Household Waste Tonnage	52,044	52,200	53,400	52,700	52,700	56,500	57,600
Recycling Rate	12%	13%	14%	28%	33%	34%	35%

Resource Expenditure

Capital

2002/3 Actual	2003/4 Actual	2004/5 Actual	2005/6 Actual	2006/7 Predicted	2007/8 Predicted	2008/9 Predicted
NIL	NIL	NIL	£1.1M	£0.1M	NIL	NIL

Revenue (net)

2002/3 Actual	2003/4 Actual	2004/5 Actual	2005/6 Predicted	2006/7 Predicted	2007/8 Predicted	2008/9 Predicted
N/A	N/A	£2,303,000	£2,800,300	£2,877,000	£2,955,000	£3,041,000

NB

- Figures include both collection / servicing expenditure and waste minimisation education and promotion expenditure.
- Income (Revenue) contribution as per MOU.

Chichester District Council

Current Service

Size of Authority (square miles)	300
No of properties (2004/05)	51,587
Collection method and container	Alternate week general waste collection from 140/240 litre wheeled bin from front of property
Recyclables collection method and container	Alternate week general waste collection from 140/240 litre wheeled bin from front of property

Service		Contractor
No of bring sites	155	Chichester District Council Contract Services
No of bring sites collecting:		
Glass	135	Chichester District Council Contract Services
Newspapers / Magazines	40	Cheshire Recycling supplying CDC and St Wilfrids. Contractor is RJ Harris
Mixed Materials (Card, papers, cans, plastic bottles)	88	Chichester District Council Contract Services
Textiles	12	Salvation Army & TRAID
Books	4	Oxfam
Shoes	18	European Recycling
BV 91 % of population served by kerbside collection of recyclables (2004/5	93.2%	
BV 84 kg of waste collected per head of population (2001/2)	373 kg per head	
BV 84 kg of waste collected per head of population (2004/5)	370kg per head	

Planned Expansion for 2005

In 2006 the Council approved its new Waste Minimisation Strategy 2006-2010 which will achieve a combined recycling and composting rate expected to exceed 40% by 2009/10. This will be achieved primarily by offering residents in main settlement areas a chargeable green garden waste collection service using wheeled bins emptied fortnightly all year round.

Recycling Performance

	2002/3 Actual	2003/4 Actual	2004/5 Actual	2005/6 Predicted	2006/7 Predicted	2007/8 Predicted	2008/9 Predicted	2009/10 Predicted
Recycling and Composting Tonnage	5,871	7,530	9,234	12,167	13,311	15,143	16,911	17,786
Household Waste Tonnage	41,431	41,547	41,490	41,136	41,006	42,256	43,481	43,916
Recycling Rate	14%	18 %	22 %	29.6 %	32.5%	35.8%	38.9%	40.5%

Resource Expenditure

Capital

2002/3 Actual	2003/4 Actual	2004/5 Actual	2005/6 Predicted	2006/7 Predicted	2007/8 Predicted	2008/9 Predicted
£377,000	£21,625	£783,225	£392,720	£174,620	£210,140	£35,520

Revenue

2002/3 Actual	2003/4 Actual	2004/5 Actual	2005/6 Predicted	2006/7 Predicted	2007/8 Predicted	2008/9 Predicted
£2,409,000	£2,339,000	£2,339,000	£2,594,420	£2,624,556	£2,611,490	2,£676,777

Crawley Borough Council

Current Service

Size of Authority (square miles)	17.02
No of properties (2004/05)	40,170
Collection method and container	Edge of curtilage from any container
Recyclables collection method and container	Boxes, edge of curtilage

Service		Contractor
Materials collected from property (free/cost)	Mixed paper and card	Cleanaway
No of bring sites	51	
No of bring sites collecting:		
Glass	51	Cleanaway
Mixed paper and card	23	Cleanaway
Cans & Plastics	51	Cleanaway
Textiles	16	Salvation Army, TRAID, Scope
Books	4	Oxfam
Foil	11	Furni-aid
Shoes	11	European Shoe Recycling Company
BV 91 % of population served by kerbside collection of recyclables (2004/5)	99.8%	
BV 84 kg of waste collected per head of population (2004/5)	333Kg	

Expansions to Service

Planned Expansion for 2005/06 RED top recycling bins, replacing boxes. Service will include paper, card, cans, plastic bottles and foil.

Recycling Performance

	2002/3 Actual	2003/4 Actual	2004/5 Actual	2005/6 Predicted	2006/7 Predicted	2007/8 Predicted	2008/9 Predicted
Recycling and Composting Tonnage	6,417	6,800	7,769	8,539	10,648	10,958	11,272
Household Waste Tonnage	33,220	33,600	33,041	33,822	34,600	34,900	35,300
Recycling Rate	19%	22%	23%	25%	30%	30%	30%

Resource Expenditure

Capital

2002/3 Actual	2003/4 Actual	2004/5 Actual	2005/6 Actual	2006/7 Predicted	2007/8 Predicted	2008/9 Predicted
none	none	none	£450,000	none	none	none

Revenue

2002/3 Actual	2003/4 Actual	2004/5 Actual	2005/6 Actual	2006/7 Predicted	2007/8 Predicted	2008/9 Predicted
£1.62m.	£1.87m.	£1.74m	£2m	£2.1m	£2.2m	£2.3m

Horsham District Council

Current Service

Size of Authority (square miles)	205
No of properties	52,315
Collection method and container	140 litre wheeled bins for refuse (weekly)
Recyclables collection method and container	Kerbside. 2 x 36 baskets for dry recyclables (alternate weekly) 240 litre wheeled bin for green waste (fortnightly)

Service		Contractor
Materials collected from property	Newspapers & Magazines Cans & Plastic bottles Green Garden waste Mixed Glass (500 properties trial)	Environmental Operational Services Environmental Operational Services Environmental Operational Services Environmental Operational Services Environmental Operational Services
No of bring sites	39	
No of bring sites collecting:		
Glass	39	Environmental Operational Services
Newspapers & Magazines	13	Aylesford newsprint
Mixed paper and card	0	
Cans & Plastics	28	Environmental Operational Services
Textiles	9 8	Salvation Army TRAID
Books	6	OXFAM
Foil	0	
Shoes	5	European Shoe Recycling Company
BV 91 % of population served by kerbside collection of recyclables (2004/5)	98%	
BV 84 kg of waste collected per head of population (2004/5)	437kg per head	

Expansions to Service

Planned Expansion for 2005 to 2006

- Alternate weekly collection (dependant on results of green collection over 2004/5) or expand glass recycling.
- Identify partners for a scrap store project

Planned Expansion for 2006 to 2007

- Scrap store scheme to be established
- Investigating web based swap shop

Planned Expansion for 2007 to 2008

- Implementation of swap shop
- Investigate furniture/WEEE reuse/refurbishment programme

Planned Expansion for 2008 to 2009

- Implement further scrap stores

Predicted Recycling Performance

	2002/3 Actual	2003/4 Actual	2004/5 Actual	2005/6 Predicted	2006/7 Predicted	2007/8 Predicted	2008/9 Predicted
Recycling and Composting Tonnage	6,136	10,400	18,790	19,500	19,500	19,700	19,900
Household Waste Tonnage	44,482	47,690	54,100	54,650	55,180	55,730	56,290
Recycling Rate	14%	22%	35%	36%	36%	36%	36%

Resource Expenditure

Capital

2002/3 Actual	2003/4 Actual	2004/5 Actual	2005/6 Predicted	2006/7 Predicted	2007/8 Predicted	2008/9 Predicted
£125,275	£1,125,000	£20,000	£100,000	£50,000	£50,000	£50,000

Revenue

2002/3 Actual	2003/4 Predicted	2004/5 Predicted	2005/6 Predicted	2006/7 Predicted	2007/8 Predicted	2008/9 Predicted
£2,023,000	£2,210,000	£2,320,500	£2,436,500	£2,558,300	£2,686,250	£2,820,600

Mid Sussex District Council

Current Service

Table 46

Size of Authority (square miles)	130
No of properties	53,601
Collection method and container	Back door, any container
Recyclables collection method and container	Blue box from edge of curtilage

Service		Contractor
Materials collected from property (free/cost)	Newspapers and Magazines Cans and plastic bottles Mixed paper and card	Sita
No of bring sites	30	
No of bring sites collecting:		
Glass	30	Sita
Newspapers & Magazines	15	Aylesford
Mixed paper and card	1	Sita
Cans & Plastics	7	Sita
Textiles	25	Salvation Army
Books	6	Oxfam
Foil	7	
Shoes	17	European Shoe Recycling Company
BV 91 % of population served by kerbside collection of recyclables (2002/3)	100%	
BV 84 kg of waste collected per head of population (2004/5)	368 kg per head	

Predicted Recycling Performance

	2002/3 Actual	2003/4 Actual	2004/5 Actual	2005/6 Predicted	2006/7 Predicted	2007/8 Predicted	2008/9 Predicted
Recycling and Composting Tonnage	8,882	8,448	9,244	14,253	14,681	17,641	18,170
Household Waste Tonnage	46,966	44,786	43,669	47,512	48,937	50,405	51,917
Recycling Rate	19%	19%	21%	30%	30%	35%	33%

Resource Expenditure

Capital

2002/3 Actual	2003/4 Predicted	2004/5 Predicted	2005/6 Predicted	2006/7 Predicted	2007/8 Predicted	2008/9 Predicted
0	0	0	0	0	0	0

Revenue

2002/3 Actual	2003/4 Actual	2004/5 Actual	2005/6 Predicted	2006/7 Predicted	2007/8 Predicted	2008/9 Predicted
£1,734,900	£1,801,726	£1,766,775	£1,935,755	£1,993,827	£2,093,518	£2,156,323

Worthing Borough Council

Current Service

Size of Authority (square miles)	3248 Hectares
No of properties (2004/2005)	46267
Collection method and container	Any container/bag
Recyclables collection method and container	Front of House

Service		Contractor
Materials collected from property	Newspapers & Magazines Cans & Plastics	Collected by Worthing BC DSO Sent to market via WSCC Sompting bulking facility Collected by Worthing BC DSO Sent to market via WSCC Sompting bulking facility
No of bring sites	29	
No of bring sites collecting:		
Glass	24	Sent to market via WSCC Sompting bulking facility
Newspapers & Magazines	10	Banks provided by Aylesford Newsprint Ltd
Cans & Plastics	2	Sent to market via WSCC Sompting bulking facility
Textiles	14	Banks provided by Scope
Books	0	Banks provided by Oxfam
BV 91 % of population served by kerbside collection of recyclables (2004/5)	91%	
BV 84 kg of waste collected per head of population (2004/5)	371kg per head	

Expansions to Service

Planned Expansion for 2005 to 2008

It is planned to merge the direct services of both Adur and Worthing in conjunction with a complete review of collection methods in order to standardise across the whole of both areas.

Planned Expansion for 2008 to 2010

Adur and Worthing Services will continue to develop best practices in line with the infrastructure created by the Recycling and Waste Handling Contract (RWHC) and the Material Resource Management Contract (MRMC).

Predicted Recycling Performance

	2002/3 Actual	2003/4 Actual	2004/5 Actual	2005/6 Predicted	2006/7 Predicted	2007/8 Predicted	2008/9 Predicted
Recycling and Composting Tonnage	3,881	4,782	6,000	6,600	7,900	9,900	10,900
Household Waste Tonnage	37,776	37,374	41,400	42,800	44,900	47,700	49,600
Recycling Rate	10%	13%	15%	15%	18%	21%	22%

Resource Expenditure

Capital

2002/3 Actual	2003/4 Actual	2004/5 Actual	2005/6 Predicted	2006/7 Predicted	2007/8 Predicted	2008/9 Predicted
£3,600	£252,000	£45,000	£30,000	£30,000	£30,000	£30,000

Revenue

2002/3 Actual	2003/4 Actual	2004/5 Actual	2005/6 Predicted	2006/7 Predicted	2007/8 Predicted	2008/9 Predicted
£1.07m	£1.184m	£1.234m	£1.572m	£1.612m	£1.652m	£1.702m

Finance and Resource Requirements

The implementation of this Strategy has finance and resource implications for all the partner authorities. The implications, as viewed by each of the authorities, are outlined in the following sections.

Adur District Council Resource Implications

Despite increasing the recycling rate from 16% to 22% over the past twelve months, Adur District Council acknowledges that it will not reach the target set for 2005/06. Although the current schemes deployed can be considered successful, fundamental changes are required to bring about any significant further increases in the recycling rate.

Adur has embarked on an ambitious plan to merge its operation with neighbours Worthing Borough Council. By creating a single collection method for both authorities for refuse and recycling, resources can be shared and will work towards achieving a reduction in the amount of waste collected and an increase in the rate of recycling.

In addition Adur District Council received funding bid from WRAP to run a communications campaign, which will incorporate:

- Door to door canvassing being carried out in areas with low participation, targeting those hard to reach socio-economic groups that have not yet been

converted by previous campaigns.

- Road shows are held every month. These include smart shopper campaigns to see whether or not packaging in the weekly shop can be reduced further etc.
- Schools, community and youth groups – an ongoing programme of visits and workshops to schools and groups – approximately one per month.
- Promotion of the West Sussex Waste Prevention Suite – "for better tomorrows" including; real nappies, composting and food waste digesters.
- Flats are being offered their own communal recycling bins, along with their own special recycling bag for storing/carrying recyclables to the bring site. There is also an ongoing separate door canvassing and leaflet campaign.
- A Newsletter & Poster Campaign is being used as a passive means of getting the message across and is being used to support the canvassing and road show work.
- Volunteers are working alongside officers helping with surveys, road shows and office work.
- In-house waste prevention and recycling activities have been promoted with a re-launch and staff awareness campaign.
- CD and mobile phone recycling has been introduced in all Adur District Council offices.
- A reward scheme for householders who have increased their recycling activity has been introduced.

Arun District Council Resource Implications

Arun District Council let a new (7+5 years) combined cleansing and waste services contract in Feb 2005. The contract took advantage of the planned infrastructure to be provided by Viridor under the terms of the WSCC Recycling and Waste Handling Contract, let from April 2004. This new contract includes for a range of enhanced household recycling collections and waste diversion options. The roll out of these services will be completed by October 2005. Principal amongst these enhancements are :

1. Alternate week co-mingled cans, plastics and mixed paper collections to all suitable individual households with bulk recyclable collection arrangements offered to flats and facilitated by the supply of wheeled bins.
2. Green waste collection via an annual service subscription, supplying a wheeled bin, with the collected waste diverted to a central composting site
3. Limits placed on amounts of residual waste collected

The contract includes for the collection of the targeted recyclables in volumes / tonnages that seek to exceed Arun's statutory recycling target of 30% over the life of the contract. It also includes for the provision of additional recycling education and promotion support (over and above that already provided by Arun direct). Early indications are extremely positive, despite the service roll out only being three fifths complete, with the second calendar quarter of 2005 seeing the district wide recycling rate rising to 21% (up from 14% in the first quarter) and service participation rates averaging 80%

Developments looking forward will see an increase in the number of schools which are offered recyclable materials collection, building on the long established partnerships Arun has with all of its schools. Arun has been working with schools, and has provided an annual education and support programme, since the early 1990's.
The Council has committed to increase the amount spent on recycling by over £250,000 per year with an additional £1.1M capital spend in 2005/06 on wheeled bins. The Council has confirmed recycling as one of its top priorities in its latest 4 year strategy (2005-2009) and has committed the necessary revenue expenditure as part of its medium term financial strategy.

Chichester District Council Resource Implications

Chichester District covers 300 square miles of mixed rural and urban settlements with a population of approximately 107,000 people in 51,000 households. It is the largest local authority in West Sussex and one of the largest in the country. A district of such a size presents particular difficulties and high costs in delivering both property recycling and general waste collections. Despite this Chichester District Council has in recent years maintained its position in the top quartile of District Council's in terms of recycling performance and also importantly in limiting the amount of waste sent for disposal.

The Council approved a Waste Minimisation Strategy covering the period 2001-2006 based upon the introduction of alternate week collection of waste and recycling from all properties. Initially the recycling service was based upon residents using two recycling boxes but with the availability of new recycling processing facilities from 1st April 2004 in Hampshire residents were issued with a wheeled bin to contain all recyclable materials and a wheeled bin for general waste. The recycling materials collected include packaging card and cardboard, all paper products, plastic bottles/containers and metal containers. The entire District was provided with the two bin service by September 2005 enabling the Council to achieve a recycling rate around 29% in 2006, making Chichester District Council one of the highest achievers for recycling dry recyclate materials in the country.

The Council recognises it must do more to reach the 30% recycling rate imposed by government. During 2004 and 2005 the Council targeted non-domestic premises such as schools, hospitals, colleges, caravan sites to introduce recycling services. In addition it will consult with residents on support and commitment to garden green waste collections for composting.

In 2006 the Council approved its new Waste Minimisation Strategy 2006-2010 which will achieve a combined recycling and composting rate expected to exceed 40% by 2009/10. The strategy main objectives are as follows:

1. To take action and introduce initiatives to limit the generation of waste and litter. A sum of £25,000 has been allocated in both 2006/07 and 2007/08.
2. To maximise recycling by improving household recycling facilities and increasing the range of recyclable materials collected. An additional annual

sum of £13,900 has been allocated to enable improvements to mini-recycling centres to be carried out.

3. To provide property green waste collections to main settlement areas for conversion to compost. The Council has allocated £362,000 capital expenditure for vehicles and wheeled bins and initial £40,000 revenue expenditure to implement this service.
4. To provide waste minimisation guidance and a cardboard recycling service to businesses in the district. The Council have received funding of £43,000 from SEEDA to introduce this service in 2006/07 with the aim of the service being self financing from 1st April 2007.

The Council will continue to promote the use of home composters and food waste digesters and will use a variety of means to promote waste minimisation and recycling by its residents.

Chichester District Council will continue to explore and develop opportunities to work more closely in partnership with County and other Councils and also national/regional organisations on waste minimisation initiatives. The Council received government funding in 2002/3 and 2003/4 to support its waste minimisation and recycling strategy and it will continue to explore funding opportunities from government and other organisations to implement new projects and services. The Council is committed to reaching the targets in this Strategy.

The Council's achievements have been recognised with a National Gold Green Apple award in 2002 for its Waste Minimisation Strategy and a National Champion Green Apple award in 2003 for the "Sort it!" waste minimisation and recycling project.

Crawley Borough Council Resource Implications

A new contract started in February 2005 for refuse collection and recycling, this includes a fortnightly collection of mixed dry recyclables that collects paper and board, foil, and cans and plastic bottles in wheeled bins from all properties. The contract includes provision for expansion into other materials such as organics/green waste when treatment facilities become available. Although potential costs have been investigated, Member approval has not been sought to implement further proposals.

Horsham District Council Resource Implications

Horsham District Council anticipates the implementation of its Acorn scheme will fulfil the majority of the requirements of this Strategy. The following additional resources will be allocated to reach certain targets:

- £5,000 for measuring performance against the 2009 participation rates target.
- £4,000 for the use of recycled paper
- £3,000 annual contribution to Operation Crackdown

Mid Sussex District Council Resource Implications

Mid Sussex District Council has consistently performed in the top 25% of local authorities for recycling services and is committed to providing high quality relevant recycling services to its residents. Additional staff resources have recently been taken on to promulgate the recycling message and ensure our contractor delivers the service standards Mid Sussex residents expect and are entitled to.

Although Mid Sussex District Council has been set one of the highest statutory recycling target level by Government the Council intends to meet the targets for 2005/06. This will be achieved in two ways:

- Rationalising the existing kerbside service, resource implications of which can be met through existing budget systems.

- Targeting additional materials such as green waste – the Council will look to DEFRA to provide additional funding for such schemes.

Worthing Borough Council Resource Implications

Worthing Borough Council has an established track record in recycling having started kerbside recycling in 1993. This was the first scheme to be provided for under £5 per household and reached national and international recognition. Unfortunately, the authority has suffered in recent years with a decline in public support for recycling and has experienced a falling recycling rate up to 2002/3. However, elected members are committed to maximising recycling as part of an integrated waste management system at a reasonable cost. In June 2003 a new improved refuse/recycling service, including the composting of green household waste in partnership with a private local company, was launched with additional funds of £230,000 being made available. In April 2004, mixed paper was added to the kerbside service and has resulted in greater tonnages of material collected.

This is set to produce an increase of approx. 50% in the weight of recovered materials. However, due to continuing increases in total waste this will only add some 4% to the overall recycling rate making it around 17%. Worthing Borough Council is now focussing on increasing participation in the service and as part of this work is adding blocks of flats for the first time. Flats account for almost a quarter of all properties in the town. This work is projected to add a further 3% to the recycling rate, taking it to over 20%. It recognises that this will fall short of its statutory recycling target for 2005/6.

In considering the targets set, the Council has a good base from which to work towards these aspiration achievements. However to totally fulfil the requirements of the strategy, additional resources, both human and financial will be required. Bids have been made for funds from the various Government strategies, but to date none have been allocated. This means that the Council needs to fund all improvements from local Council Tax, at a time when that is being put under great pressure to restrict increases.

In attempting to reach the stated recycling aspirations, a major project is underway to combine services with Adur District Council to create a more efficient operation in the future under the Partnering Adur and Worthing Services (PAWS) project. This is part of the Strategic Pathfinder Taskforce Initiatives.

West Sussex County Council Resource Implications

The County Council endorses the Government's principles and objectives in delivering sustainable waste management services. The Government firmly subscribes to the principles of the waste management hierarchy and that all waste prevention and recycling/composting routes should be explored first before any decision is taken with respect to seeking to recover value from the waste stream.

The Government has also acknowledged that costs of waste management will have to increase if Waste Strategy 2000 is to be delivered and the performance targets set for local authorities are to be met.

The resources and procurement strategy outlined indicates the commitment made by the County Council to deliver the Government's vision.

Waste Prevention Initiatives

The County Council's commitment to waste prevention has been and will continue to be reflected in the budget provision for driving the levels of waste arisings down. The budget provision for 2003/04 was set at £174,000 to be utilised on waste prevention initiatives such as: home composting, real nappies, waste awareness, community re-use and a food waste digester initiative.

The authority continues to explore and deliver additional funding from external sources to supplement initiatives.

If financial restrictions are placed on the service, it is proposed that during the annual business planning, consideration should be given to addressing actions in priority order.

To deliver additional diversion of 80,000 tonnes per year by 2015 considerably more funding will be required.

Waste handling, recycling and composting

In April 2004, West Sussex County Council let a £200 million R&WH contract under a design, build, fund, operate process with £25 million PFI funding to deliver investment in Household Waste Recycling Sites and increase recycling in West Sussex. The outcome of this work is an innovative solution which has recycling and composting at its heart and which seeks to:

- Exceed the local performance standards for recycling set under Best Value;

- Contribute to longer-term national targets for recycling in Waste Strategy 2000; and
- Support the plans for recycling set out in this Strategy

The project involves the management and operation of Household Waste Recycling Sites, transfer stations and MRFs and focuses on maximising recycling and composting opportunities. It excludes collection services and end disposal although the interfaces have been designed to deliver a fully integrated waste management service.

Landfill

The ongoing management of contracted services for the disposal of 355,000 tonnes of household and commercial wastes handled by the County Council as the Waste Disposal Authority. The budget is currently £16million. Landfill Tax has increased by £3 per tonne and by at least £3 per tonne in the years thereafter, on the way to a medium to long term rate of £35 per tonne.

Materials Resource Management Contract Development

The precise nature of the final end disposal and treatment technologies has yet to be decided and will ultimately be the subject of a full tender process and public engagement.

Appendix 6

Tonnages of materials recycled in West Sussex 2004/05 (excluding composting)

Authority	Adur	Arun	Chichester	Crawley	Horsham	Mid Sussex	Worthing	West Sussex	
								HWRSs	Total
Mixed Paper 2002/3	0	0	0	4,447	0	1,319	0	3,509	9,275
Mixed Paper 2003/4	2,447	3,492	1,367	5,340	0	1,394	0	3,727	17,767
Mixed Paper 2004/5	2,849	3,947	5,136	6,021	0	1,656	2,743	4,048	26,400
Newspapers and Magazines 2002/3	1,654	4,360	3,518	0	3,508	4,562	2,233	N/a	19,835
Newspapers and Magazines 2003/4	0	949	2,895	0	3,681	4,099	2,403	N/a	14,027
Newspapers and Magazines 2004/5	0	877	530	0	4,562	3,960	450	N/a	10,379
Cans and Plastic Bottles2002/3	619	319	319	299	606	563	741	178	3,644
Cans and Plastic Bottles 2003/4	376	364	681	247	862	551	833	149	4,063
Cans and Plastic Bottles 2004/5	394	381	201	258	890	593	1,175	129	4,021
Glass 2002/3	874	1,703	1,858	1,317	1,754	2,125	826	1,349	11,806
Glass 2003/4	941	1,804	2,508	1213	2,234	2,152	862	1,341	13,055
Glass 2004/5	1,096	1,984	2,544	1024	2,464	2,208	932	1,713	13,965
Textiles and Shoes* 2002/3	21	142	123	224	143	188	81	286	1,208
Textiles and Shoes* 2003/4	34	169	135	213	122	112	78	296	1,159
Textiles and Shoes* 2004/5	73	227	163	112	146	72	102	339	1,234
Metal 2002/3	0	0	0	2	0	0	0	7,797	7,799
Metal 2003/4	0	0	0	2	0	0	0	8,692	8,694
Metal 2004/5	0	0	0	2	0	0	0	9,067	9,069
Wood 2002/3	0	0	0	0	0	0	0	1,072	1,072
Wood 2003/4	0	0	0	0	0	0	0	1,250	1,250

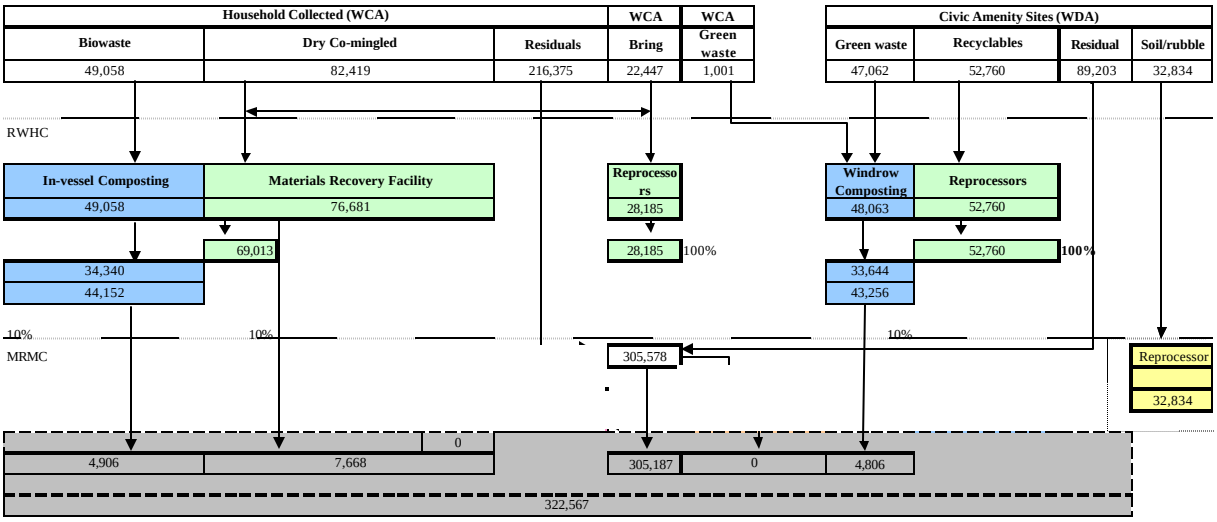
Authority	Adur	Arun	Chichester	Crawley	Horsham	Mid Sussex	Worthing	West Sussex	
								HWRSs	Total
Wood 2004/5	0	0	0	0	0	0	0	483	483
Books* 2002/3	8	0	8	4	2	14	0	36	36
Books* 2003/4	0	0	10	11	0.5	10	0	0	31.5
Books* 2004/5	0	0	4	8	0	7	0	N/A	19
Car Batteries 2002/3	0	0	0	0	0	0	0	358	358
Car Batteries 2003/4	0	0	0	0	0	0	0	336	336
Car Batteries 2004/5	0	0	0	0	0	0	0	485	485
Fridges* 2002/3	14	0	45	72	39	88	No data was recorded during this year	59	245
Fridges* 2003/4	13	0	22	51	0	29	No data was recorded during this year	1,265	1386
Fridges* 2004/5	10	0	0	71	0	19	8	1,370	1,478
Oil 2002/3	0	0	0	0	0	0	0	136	136
Oil 2003/4	0	0	0	0	0	0	0	126	126
Oil 2004/5	0	0	0	0	0	0	0	118	118
Soils and Hardcore* 2002/3	0	0	0	0	0	0	0	13,532	13,532
Soils and Hardcore* 2003/4	0	0	0	0	0	0	0	24,858	24,858
Soils and Hardcore* 2004/5	0	0	0	0	0	0	0	25,300	25,300
Total 2002/3	3,190	6,524	5,871	6,365	6,051	8,858	3,881	29,697	70,437
Total 2003/4	3,811	6,778	7614	7,077	6,899.5	8,347	4,176	42,073	86,775.5
Total 2004/5	4,222	7,416	8,517	7,496	8,062	8,515	5410	42,569	91,304

*not included in recycling rate calculation

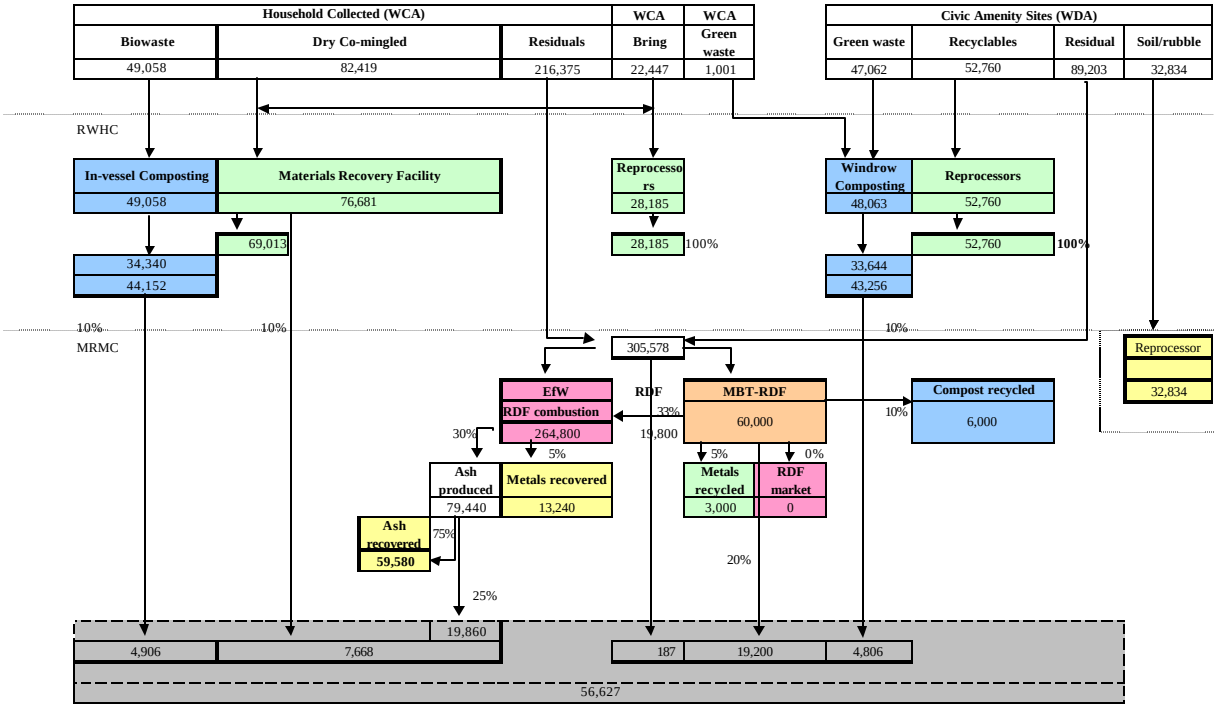
Appendix 7

Waste Flows

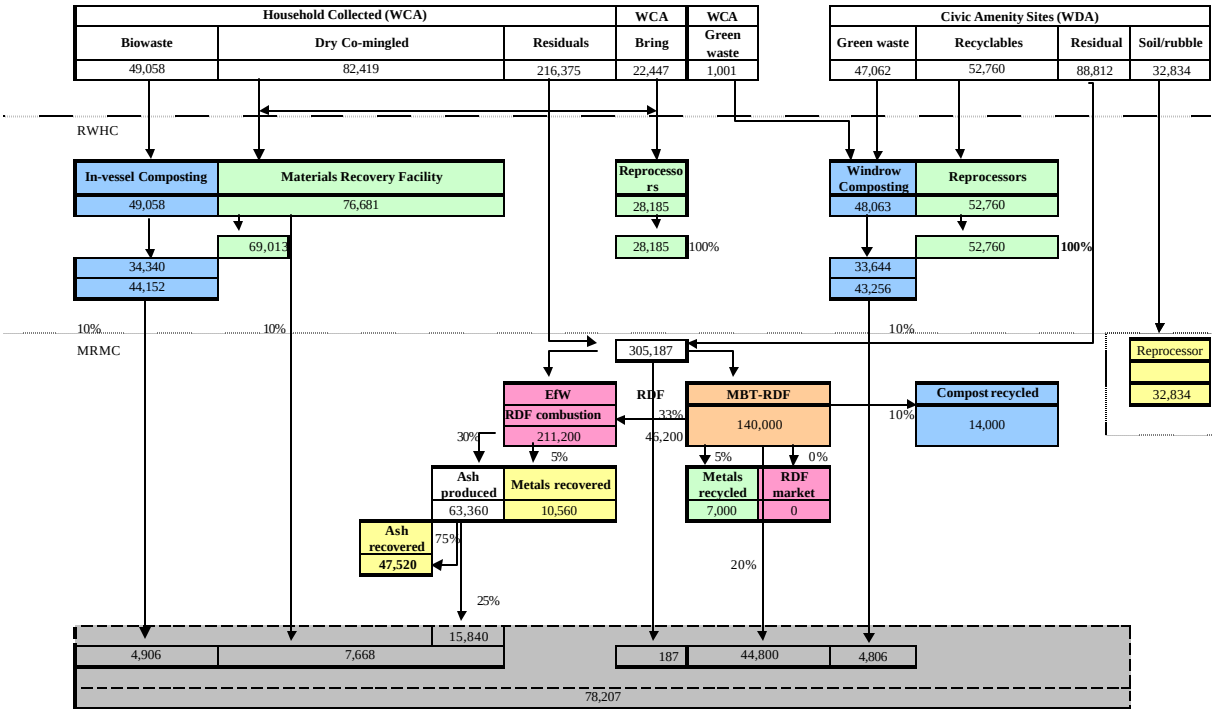
Scenario 0 base case mass flow 2015



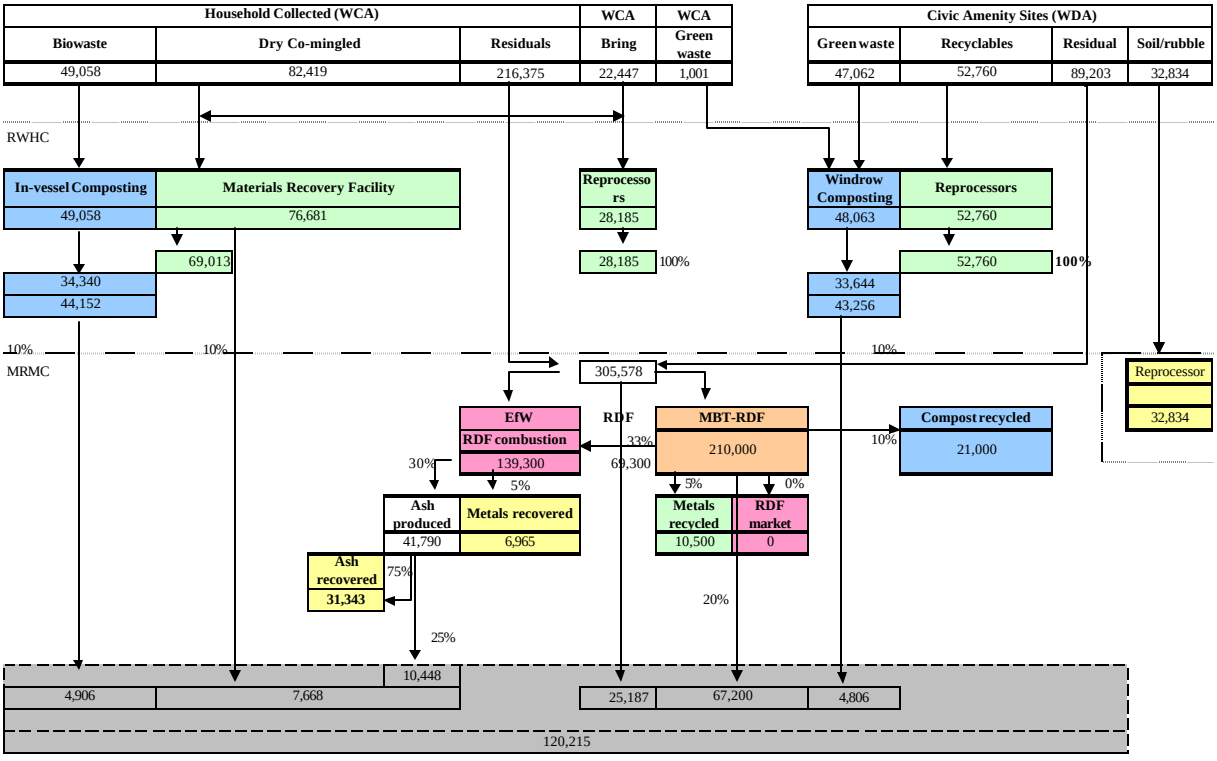
Scenario 1 EFW Mass flow 2015



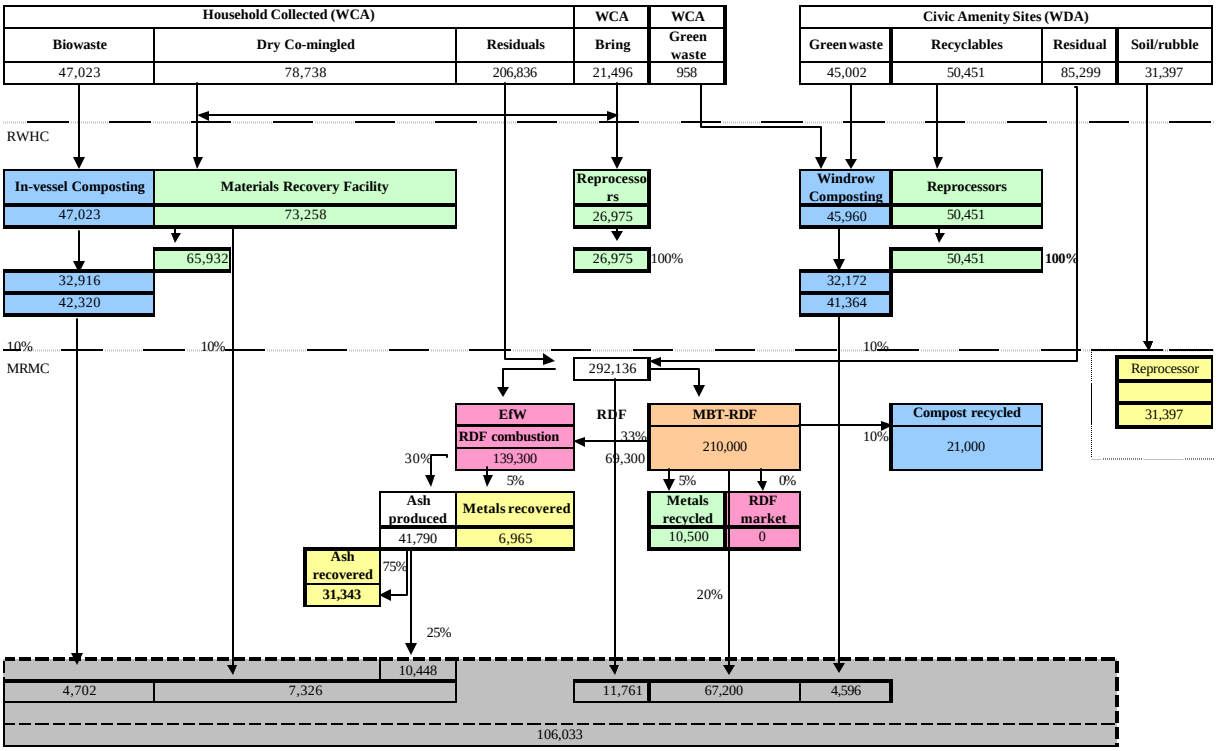
Scenario 2 Decentralised EfW Mass flow 2015



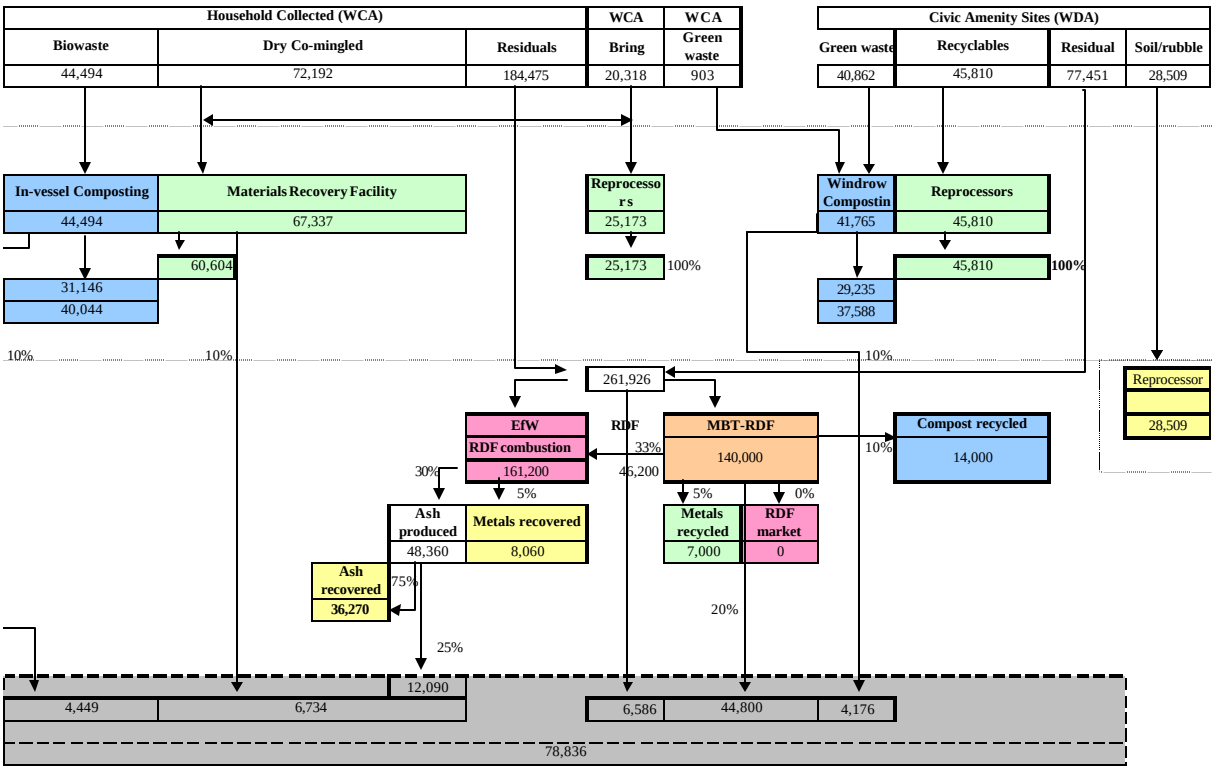
Scenario 3 New Technologies Mass flow 2015



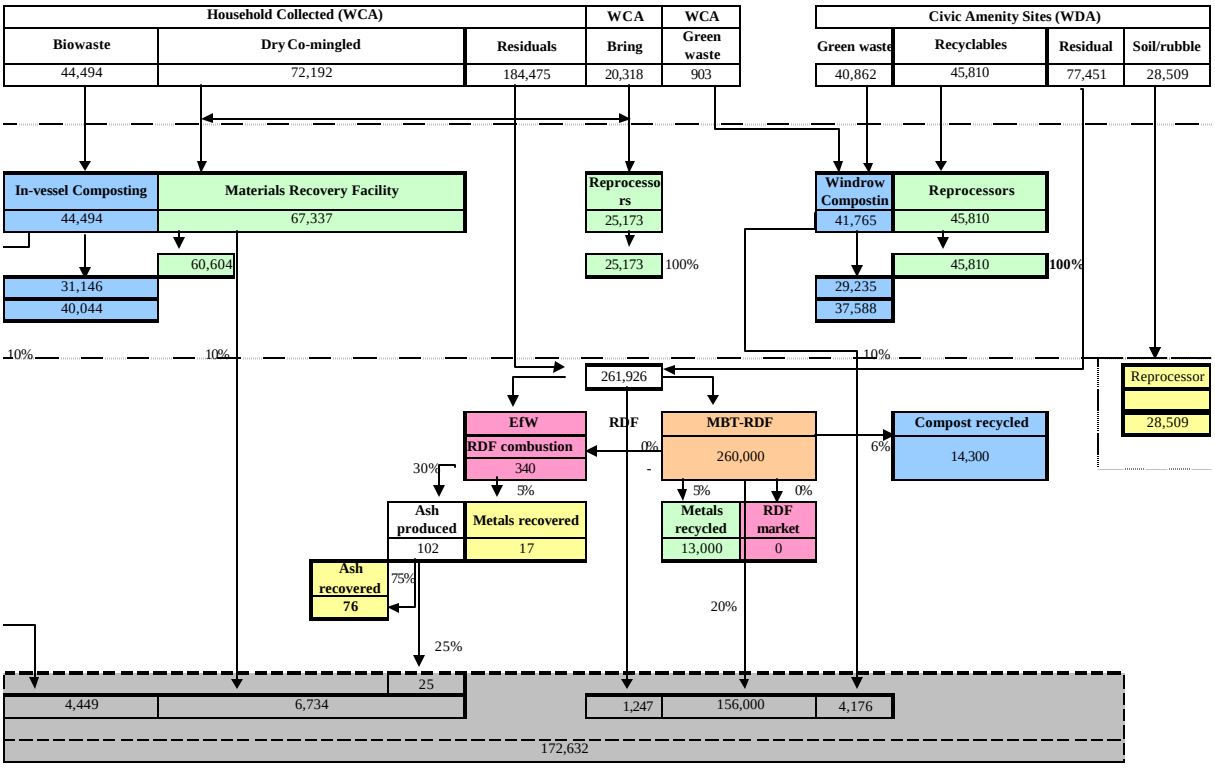
Scenario 4 New Technologies and waste prevention mass flows 2015



Scenario 5 and 5a MBT and EfW with waste prevention (5a decentralized) mass flow 2015



Scenario 6a Decentralised MBT AD with RDF to Landfill mass flows 2015



Scenario 6b Decentralised MBT AD with RDF to gasification mass flows 2015