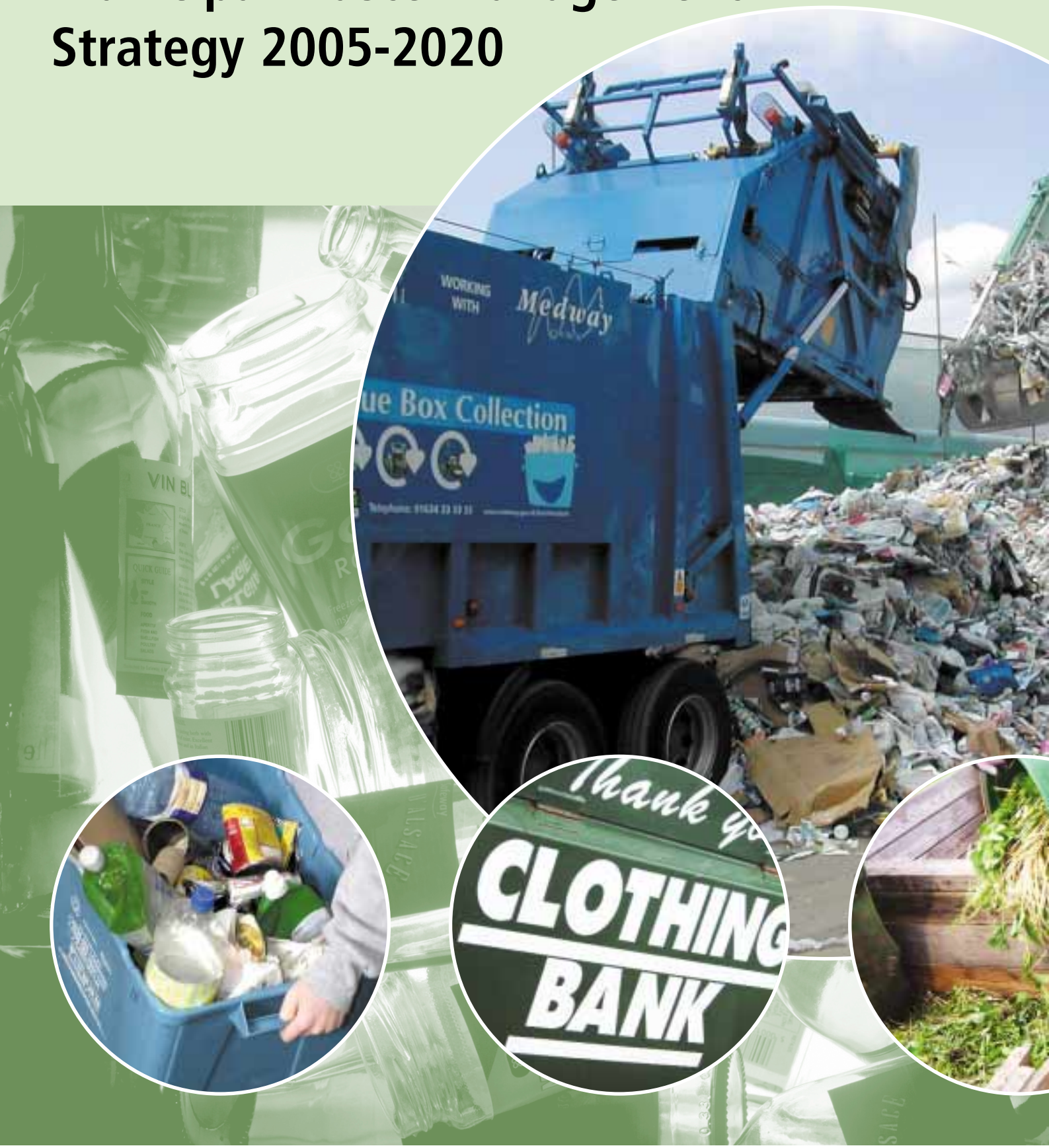
Medway Council Municipal Waste Management Strategy 2005-2020



recycle
The possibilities are endless.

Medway
COUNCIL

Medway Council

Municipal Waste Management Strategy

2005-2020

January 2006

Executive Summary

This waste strategy sets out a framework for the management of Medway's municipal waste for the next 15 years. It provides an integrated waste management action plan, focusing on waste minimisation, recycling and composting. The strategy gives guidance for future waste management collection and disposal contracts, providing an alternative to using landfill sites to dispose of Medway's waste.

The strategy has been produced following a public consultation exercise, held in August 2004, as well as public and stakeholder workshops in March and June 2005. Public consultation will continue throughout the strategy development and implementation.

Medway produces more waste per household then the national average. A total of 141,237 tonnes were produced in 2004/05, of this 72.5 per cent was disposed of in landfill sites in 2004, with 27.5% recycled/composted in 2004/5. Landfill is becoming a less viable option for disposing of waste due to existing locations filling up, a lack of space for new sites, environmental objections to landfill and rapidly increasing costs.

New waste legislation, the Landfill Directive, means that an alternative to landfill is required, especially for disposal of biodegradable waste. 68 per cent of municipal waste is considered to be biodegradable. Medway has to reduce the amount of biodegradable waste sent to landfill sites from the current levels to a maximum of 24,000 tonnes in 2020. This poses a considerable problem for Medway as we are currently heavily reliant on landfill and will exceed our allowances within the next 3-4 years. This would mean the council could face large fines amounting to several million pounds each year.

Each year the amount of household waste we collect is increasing by about 3%. On top of this, Medway will experience a large increase in households over the next 15 years due to the regeneration of the Thames Gateway and government targets. This will lead to even more waste being produced within Medway.

These issues pose a serious challenge for Medway Council. Action is required if the council is going to meet statutory recovery and recycling targets and reduce the amount of biodegradable municipal waste which is disposed of in landfill sites.

How do we minimise the amount of waste we create?

The best way to deal with our waste is to reduce the amount produced in the first place and reuse items instead of buying new ones. Medway Council is working with local charities and organisations to encourage waste reduction and reuse. By 2010, the council aims to ensure the amount of household waste collected is back to the 2005 levels. This means we need to continue to provide education about waste and raise awareness of the problems of unsustainable waste growth.

The following schemes and initiatives are recommended by Medway Council to target waste minimisation.

	Initiative	Description	Timescale
WM 1	Waste growth	Slow down, stabilise rate of growth of municipal waste with the aim to maintain waste collected per head of population at 2005/6 levels of 567kg per annum.	2010
WM 2	Waste minimisation at source	Work with external agencies to encourage waste minimisation at source and improve markets for recycled materials.	On going
WM 3	Home composting campaign	Continue to provide home composting units and support the national campaign.	On going
WM 4	Reusable nappies	Continue to support the real nappy programme, working with external bodies such as Waste Resource Action Programme, Real Nappy network, local agents and health visitors.	On going
WM 5	Wood chipping	Investigate the feasibility of a home, mobile wood chipping service.	2007
WM 6	Charity reuse schemes	Increase advertising for reuse schemes, for example the Vines Centre Trust, to encourage residents to reuse furniture and white goods rather then rely on the council's bulky waste collection service.	On going
WM 7	Waste exchange	Investigate and undertake a trial waste exchange day to promote reuse of items.	2006
WM 8	Bulky waste reduction	Limit the range of bulky items collected to exclude those that could be deemed to be industrial waste, ensuring close monitoring to assess impact on fly tipping.	2007
WM 9	Think before you buy	Increase education of the public on waste minimisation to use the power and influence consumers have over manufacturers.	On going
WM 10	Enforcement	Increase fly-tipping enforcement. This would discourage fly-tipping and ultimately limit the number of incidents.	On going

WM 11	The green procurement code	Work with other sections within Medway Council to promote a green procurement code and with external agencies to pass the message on to other businesses in Medway.	On going
WM12	Household waste recycling centres	Work with KCC to ensure Medway is compensated for the waste left at household waste recycling centres by residents from outside the area or the sites' usage is restricted to Medway residents only.	2006
WM 13	Food digesters	Conduct further investigations, especially with local water authorities, to assess the impact and feasibility of the use of sink digesters for waste food, especially in flats and new builds.	2007

How do we increase the recycling level?

Following public consultation and due to the potential additional costs of the Landfill Directive, Medway Council aims to increase the recycling rate to:

- 40 per cent by 2010
- 45 per cent by 2015
- 55 per cent by 2020

To achieve these targets recycling and composting of materials collected at the kerbside, at bring sites and at household waste recycling centres will need to increase. Source segregated dry recyclables and organic materials are better quality, as they are not contaminated by residue left from residual waste, making markets easier to secure.

Additional recycling at the kerbside depends on various factors, which can affect the cost and contract arrangements for collection:

- Potential capture rate of recyclable and compostable materials.
- Actual participation rates.
- Type of materials collected.
- Type of containers used for collection of recyclable and organic material.
- How often collections are made.

To provide a focus and direction for the strategy, Medway Council has identified the following initiatives to help increase the recycling level.

	Initiative	Description	Timescale
R 1	Recycling rate	Aim to increase the recycling rate to 40 per cent by 2010; 45 per cent by 2015; 55 per cent 2020, with a recognition that Medway will revisit the Zero Waste proposal in the next review.	On going
R 2	Containers	a) Undertake a borough wide survey of all properties suitable for two (garden and residual waste) or three (all services) wheeled bins. b) Issue approximately 20,000 brown bins to those properties deemed suitable c) To investigate all suitable households being issued with a wheeled bin for the collection of residual waste via an alternate weekly collection to ensure high levels of recycling and a reduction in residual waste. d) Provide residents with the option of a third wheeled bin for dry recycling or additional reusable bags to supplement the blue boxes.	2006/7 2006/7 2009 2009
R 3	Schools recycling	Continue to work with schools and ensure waste and recycling become an everyday part of all school children's lives encouraging waste reduction, reuse and recycling.	Ongoing
R 4	Awareness campaign	Link localised activity to national and regional waste awareness campaigns, ensuring all publicity is easily accessible by all Medway residents, using a wide variety of media.	Ongoing
R 5	Targeted communication and awareness raising activities	Undertake participation surveys and capture rate analysis for the kerbside recycling services to enable a targeted message on recycling to be given and to apply resources where needed to achieve a higher recycling rate.	2006
R 6	Bulky waste	Introduce a reasonable charge for the bulky waste collection service to enable a higher level of recycling to be achieved.	2009

R 7	Glass recycling	Introduce the kerbside collections of glass for the next collection contract.	2009
R 8	Other new materials	Work with partners to enable new materials to be collected when new markets are available and it is feasible, for example with certain plastics.	2009
R 9	In-vessel composting	a) Once an in-vessel composting unit is operational expand the brown bin service to include the collection of all putrescible kitchen waste. b) Issue biodegradable bags to households unsuitable for a wheeled bin in replacement of the brown plastic sacks.	2010
R 10	Multiple occupancy dwelling recycling	Provide all multiple occupancy dwellings in the area with a recycling kerbside collection via bins suitable for each property.	On going (completion by 2010)
R 11	Bring sites and household waste recycling centres	Continue to promote the sites and utilise the national bin colour coding scheme when refurbishments are due.	On going
R12	Waste electronic and electrical equipment	Investigate the feasibility of using the household waste recycling centres for waste electronic and electrical equipment collections other than from residents.	2006

The initiatives set out in the above table highlight ways of increasing recycling with clear segregation of waste, whether this is at the kerbside, at bring sites or household waste recycling centres. For this to be achieved the collection containers have to be big enough for the increase in recycled material and to allow inclusion of both kitchen and garden waste in the brown bin scheme. How often collections are made will need to be reviewed to encourage the use of the recycling services and the reduction of residual waste.

To help achieve these targets an awareness campaign will be needed to tell people what the council hopes to do and how residents can make best use of the new facilities. This information will also be taken to schools with an education programme to show Medway's young people the importance of a responsible waste management strategy.

Waste disposal

Waste minimisation and increased levels of recycling will help to control the amount of waste that will need to be disposed of. However, these initiatives alone will not be enough to meet the landfill directive targets and to ensure Medway reduces its dependence on landfill sites.

An “in-vessel” composting facility will be needed locally to treat mixed garden and kitchen household waste for composting. A transfer station and bulking station will also be required to handle the increase in recycled waste.

The council is looking into alternative disposal treatments for the waste that cannot be recycled or composted. There are several new and emerging technologies that could be applicable for Medway’s residual waste. These have been modelled against environmental, social and economic factors (the best practicable environmental option) and the initial result from this assessment has identified the new incinerator in Allington as the favoured option. A final decision on the way Medway disposes of its residual waste will be dependent on the outcome of a procurement process commencing early in 2006.

Strategy adoption and review

During the process of formulation of the strategy, consultation work was undertaken with interested external parties, councillors and officers. The waste strategy was submitted and accepted by Cabinet in December 2005, and was ratified by Full Council in January 2006.

The strategy is not a static document. Updates on the recommendations will be presented to Overview and Scrutiny to monitor progress and ensure targets are met. The whole strategy will be reviewed every 5 years to enable the plan to adjust and be updated to reflect changes in legislation and circumstance, implementation risks and evolving waste treatment technologies. Performance against targets will be published annually.

The changes needed, as discussed within this strategy, are challenging yet action is essential. Doing nothing is not an option as there could be serious implications for Medway residents.

Contents

1. INTRODUCTION

1.1. WHAT IS THE PURPOSE OF THE WASTE STRATEGY?

This strategy sets out a framework for the management of municipal waste over the next fifteen years. It provides an action plan for 2005 to 2020, focusing on waste minimisation, recycling and composting. It paves the way for future strategies and contracts that provide an alternative to using landfill sites to dispose of Medway's waste.

This strategy follows on from and further develops Medway's previous waste strategy, published in 1998. It includes findings from studies that have been commissioned and responses to the public consultation exercise.

The waste strategy describes current arrangements, targets that Medway has to meet and how it is planned to meet these. There will be further consultation on the strategy; particularly about locations for waste treatment plants, which will be reviewed as part of the establishment of the waste development framework.

1.2. WHY HAVE A WASTE STRATEGY?

The amount of waste that we produce is increasing at a dramatic rate, both nationally and in Medway. The amount of waste produced by households in England increased by 1.8 per cent from 28.8 million tonnes in 2001/02 to 29.3 million tonnes in 2002/03. If this trend continues, by 2020 the amount that we produce will have almost doubled.

In 1999 the EU Landfill Directive (99/31/EC) set out ambitious targets for the reduction of biodegradable waste disposed of in landfill sites. In response to this directive the government produced the Waste Strategy 2000. This gave a higher priority to waste minimisation, recycling, composting and recovery and sets out targets for local authorities. In the Waste Strategy 2000 the government recognised that changing the way we manage waste and resources can make an important contribution to improving our quality of life.

Concerns about sustainable development at a global level, global warming (methane gas from landfill sites), natural resource depletion (the "throw away" society) and environmental pollution (emissions to land, water and air) have led to increasingly stringent EU-wide responses. These are then incorporated into UK legislation and regulations.

There is now a recognition at international, European and national levels that relying on disposing of waste in landfill sites is unsustainable and is a waste of scarce resources. The new agenda seeks to give much higher priority to waste minimisation, recycling, composting and recovery (such as energy from waste), making disposal in landfill sites the last resort.

1.3. WHAT DOES THE WASTE STRATEGY COVER?

As a municipal waste management strategy this document details how Medway will handle and treat municipal waste, which includes:

- Recyclable items collected at the kerbside.
- Household refuse collected at the kerbside.
- Waste from street cleaning.
- Clinical waste.
- Waste from Household Waste Recycling Centres (HWRCs).
- Bulky household items.
- Recyclable items collected in recycling bring banks ("bottle banks").

In the current refuse collection contract, Medway Council specifically segregated the collection of household waste and commercial waste. The council must collect commercial waste if asked to do so, but Medway Council does this by requiring the collection contractor to provide this service as a separate entity to any other service. This minimises the potential for contamination and additional costs.

If the council collects commercial or industrial waste, even inadvertently, the weight will be recorded against household waste allowances for landfill allowance trading scheme (LAT's, section 2.3.7). This means the council needs to be vigilant to ensure household waste is not contaminated by other waste categories.

1.4. WHAT IS THE DECISION MAKING PROCESS?

The waste strategy has been agreed by cabinet and was adopted by full council in January 2006. Following this an action plan for the implementation of the various targets and recommendations will be formulated and procurement action will commence for the various disposal services.

2. LEGISLATIVE REQUIREMENTS

As the environmental impact of waste has increased and becomes better understood, much legislation and guidance has been issued at European, national and regional level. This legislation indicates how waste should be managed more sustainably and will change the way waste is dealt with in Medway. Waste management services will have to become more sophisticated, with separate collections of more materials to allow them to be treated differently. Stricter environmental standards along with increased taxation and other fiscal measures will mean dealing with waste will cost more.

2.1. SUSTAINABILITY – SUSTAINABLE DEVELOPMENT

The concept of sustainability underpins the development of this strategy and the identification of waste treatment and disposal options. Sustainable development can be described as:

'Development which meets the needs of the present without compromising the ability of future generations to meet their own needs.'

The UK has its own Strategy for Sustainable Development that identifies four key objectives.

- Social progress, which recognises the needs of everyone.
- Effective protection of the environment.
- Prudent use of natural resources.
- Maintenance of high and stable levels of economic growth and employment.

These key objectives are underpinned by ten guiding principles. These represent approaches to decision making and include principles like taking a long-term perspective, respecting environmental limits, putting people at the centre and the precautionary principle. The precautionary principle suggests that 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.

It is essential that the development of Medway's waste strategy incorporates the principles of sustainable development to ensure that decisions taken now do not have a negative impact on future generations. It is vital that long-term strategic planning is incorporated and that the social, economic and environmental impacts are considered together and not in isolation. It is also possible that decisions made will not only have an impact at a local level but also at a regional, national and even global level.

2.2. EUROPEAN REQUIREMENTS

The European Union has become the major source of environmental legislation and guidance about the management of waste. A list of relevant European Directives and their likely impact on Medway is detailed below.

2.2.1. The Framework Directive on Waste (75/442/EEC)

The directive established the fundamental principles for waste management in Europe, which must be reflected in national, regional and local strategies. The key principles are:

1. The Waste Hierarchy
The waste hierarchy provides a framework of how waste management can be made more sustainable. The aim is to move up the waste hierarchy by moving away from a reliance on disposal to increased recycling, composting, reuse, and recovery and ultimately waste reduction.

It suggests that reducing waste will normally be the best environmental option for waste management and should be considered before any other options. This principle has been employed in the development of Medway's waste strategy. However, when assessing waste management proposals, the waste hierarchy should be used as a guide rather than being applied rigidly. A certain amount of flexibility is needed to arrive at the most balanced environmental, social and economic solution. This solution is likely to involve a mix of options.

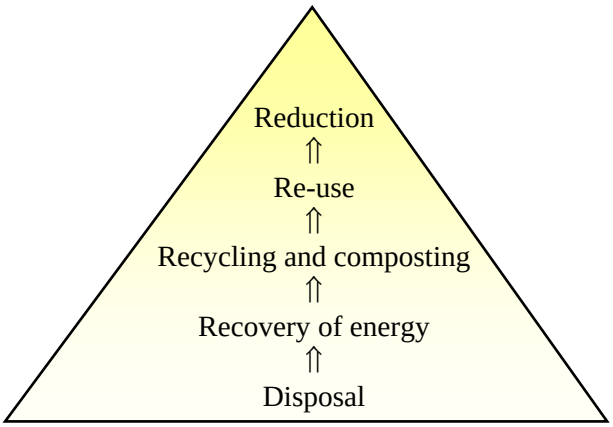


Figure 1: The Waste Hierarchy

2. Regional Self-Sufficiency
This principle states 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 the best solution for some waste may be to transport it to another region where it can be dealt with more effectively. Not all regions have specialist recovery, recycling or treatment facilities in line with the regulations and self- sufficiency principle and economies of scale might apply in such cases.

3. The Proximity Principle
Waste should generally be managed as close as possible to where it is produced. This will limit the environmental impact of transporting waste and create a more responsible approach to waste generation. This strategy has taken the proximity principle into account when considering waste treatment options.

2.2.2. The Landfill Directive (1999/31/EC)

The Landfill Directive requires improvements to landfill management and bans specified hazardous, corrosive and clinical materials from being disposed of in landfill sites alongside other waste. It also requires the pre-treatment of all waste before landfill, and sets progressively tighter limits to restrict the amount of biodegradable waste that can be sent to landfill.

The improvements required to landfill sites currently used by Medway will result in increased costs of landfill in the medium term (2 – 5 years). This will make the alternatives to landfill more cost-effective. The ban on certain types of waste being disposed of in landfill sites is likely to require changes to waste services and increased costs. For example, all tyres, whether shredded or not, will be banned from being disposed of in landfill sites from July 2006. To comply with this, arrangements will be needed to separate tyres for alternative disposal. What constitutes pre-treatment of waste is yet to be finalised. The Environment Agency, which regulates waste management, has suggested that meeting statutory targets in the Landfill Directive and Recycling and Composting Standards is likely be acceptable for municipal waste. In addition, the directive requires that the amount of biodegradable municipal waste disposed of in landfill sites is reduced to:

- 75 per cent of 1995 levels by 2010
- 50 per cent of 1995 levels by 2013
- 35 per cent of 1995 levels by 2020

The UK implemented this requirement of the directive through the Emissions Trading Act 2003.

2.2.3. The Waste Electrical and Electronic Equipment Directive (2002/96/EC)

The aim of the Waste Electrical and Electronic Equipment Directive (WEEE Directive) is to prevent the generation of electrical and electronic waste and to promote reuse, recycling and other forms of recovery. It does this by increasing the responsibilities placed on producers of electrical and electronic equipment. Restrictions on the use of hazardous substances in the manufacture of electronic equipment are also being imposed from 1 July 2006 through the Restriction of use of certain Hazardous Substances Directive (RoHS), which was written in conjunction with the WEEE Directive. Manufacturers will need to ensure that their products and their components comply in order to be sold.

The WEEE Directive sets targets for the collection, recycling and recovery of all electrical products – everything from mobile phones to washing machines. By June 2006, collection systems must be introduced to separately collect a high level of electrical appliances. By the end of 2006, 4 kg of household electrical goods per inhabitant per year must be collected for recycling. This will mean collecting about 1000 tonnes of electrical items per year in Medway.

Implications for Medway Council:
At the moment local authorities do not have to provide either a collection service for WEEE or provision for disposal at HWRCs. However HWRC sites are a logical drop-off point for WEEE, although there are concerns about the use of these sites for WEEE collection as outlined below:

- Some sites may be unable to cope with a significant increase in vehicle traffic or increased waste.
- Amendments to waste management licences may be needed for some hazardous materials (such as cathode ray tubes). This will have financial and time implications.
- Restrictive planning conditions may apply. These may need amending which will have time and cost implications.

The government is consulting on how local authorities will be involved in the collection process. The government appears to favour a combination of retailer take-back services and local authority collections from the kerbside and HWRCs. The cost of recycling is to be met by the producers of electrical goods but the cost of collecting from householders and delivery to a processor may still fall to local authorities.

2.2.4. Hazardous Waste Directive (91/689/EEC)

The Hazardous Waste Directive (1991) provides the framework for the control of hazardous or "special" waste. The aim of the directive is to provide precise and pan-European definitions of hazardous waste to ensure that it is correctly managed and regulated.

In 1994 a comprehensive list of all waste hazardous and otherwise, was produced. This is known as the European Waste Catalogue (EWC). The EWC was revised in 2002 to include a defined range of new hazardous waste types, which were not previously defined as hazardous in England. This includes everyday items such as computer monitors, televisions and fridges.

The directive was implemented in the UK through the Special Waste Regulations 1996 and has now been replaced by the Hazardous Waste Regulations 2005. These regulations determine which waste is classified as hazardous following the EWC.

Implications for Medway Council:
The Hazardous waste Regulations 2005 will increase the tonnage of hazardous waste for Medway Council although domestic waste is excluded from the regulations. However, certain household items such a fridges and items with cathode ray tubes (television and computer monitors) are now classified as hazardous. The exclusion of domestic waste does not apply to separately collected fractions of domestic waste and asbestos.

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

The End of Life Vehicles Directive (ELV) came into effect in October 2000. This will oblige manufacturers to arrange for the collection, take-back and processing of motor vehicles. Treatment of all such will have to be carried out at authorised facilities before disposal. Potentially damaging liquids such as oil, brake and antifreeze fluid will be removed before recycling.

This directive partly became national law on 3 November 2003. The implemented part of the new regulation creates new standards for existing sites. It also requires operators working under an exemption to apply for a site licence if they are accepting vehicles that have not been de-polluted. New minimum technical standards for all sites that store or treat ELVs were also set. Other parts of the directive are still under consultation with the Department of Trade and Industry and include the recycling/recovery targets and the arrangements for the take-back of ELVs.

Implications for Medway Council:
The ELV Regulations 2003 will have an impact on local authorities. However Medway Council has already let a contract for the collection and disposal of abandoned vehicles with a contractor operating a licensed Authorised Treatment Facility (ATF). It is anticipated that there may be a short-term increase in the number of vehicles abandoned which mean additional cost for the council. However, this has been minimised by introducing a free take-back scheme for residents and continuing to work with partners to remove illegal vehicles from the streets.

In 2007 manufacturers will become responsible for the cost of processing and disposing of all vehicles reaching the end of their life. This will reduce the current number of vehicles dealt with, but the council will still have to remove abandoned vehicles. Further legislative changes in the Clean Neighbourhood and Environment Act will affect vehicles reaching the end of their life before 2007. Under this act the last registered owner will be held responsible for the cost of collection, treatment and disposal of the vehicle. It is intended that a fixed penalty will be able to be served on the last owner to cover this cost.

2.2.6. Draft Directive on Batteries and Accumulators and Spent Batteries and Accumulators (2003)

The European Commission adopted a proposal for a new Batteries and Accumulators and Directive on 20 December 2004. The draft directive aims to maximise the separate collection and recycling of spent batteries and accumulators, and to reduce the disposal of batteries and accumulators in municipal waste. Unlike existing EU legislation on batteries, the proposal applies to all batteries and accumulators regardless of chemical composition (with limited exceptions). It will repeal earlier directives, which only applied to batteries containing certain quantities of lead, mercury or cadmium. The government anticipates that the directive will be adopted by mid-2006. Once agreed, member states will have 24 months to bring into force the laws, regulations and administrative provisions necessary to comply with this directive.

The key elements of the draft directive are:

- A partial ban on portable nickel-cadmium batteries (with some exceptions).
- Collection targets for spent portable batteries.
- A ban on the disposal of untreated automotive and industrial batteries in landfill sites or by incineration.

Implications for Medway Council:
This is likely to result in local authorities having to provide separate collection facilities for batteries. Vehicle battery recycling containers are already in place at HWRCs in Medway.

2.2.7. Waste Incineration Directive (2000/76/EC)

This directive incorporates and extends the requirements of the 1989 Municipal Waste Incineration Directive and the 1994 Hazardous Waste Incineration Directive into the Waste Incineration Directive (2000).

The directive ensures that incinerators continue to be tightly regulated and stringent operating conditions have been introduced. Minimum technical requirements for waste incineration and co-incineration have been set. The directive applies to all new incinerators and will apply to all existing incinerators from 28 December 2005. Implementation and monitoring by the Environment Agency in this country takes place mainly under existing Pollution Prevention and Control (PPC) regulations.

2.2.8. Ozone depleting substances (Regulation 2037/2000)

European Council Regulation No. 2037/2000 came into effect at the end of 2001 and concerns substances that deplete the ozone layer. This regulation requires the removal of all ozone depleting substances (ODS), such as chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs), from refrigeration equipment before recycling. Ozone depleting substances are present in both the refrigerant liquid and the insulating foam in fridges and freezers. Until this regulation was introduced the only requirement was to remove the refrigerant liquid before recycling the appliance.

Implication for Medway Council:
Medway Council has to provide sufficient storage for fridges and freezers collected from households or delivered to HWRCs. The council will need to store these white goods until they can be sent to facilities where ozone-depleting substances are removed before recycling.

2.2.9. Thematic Strategy on Soil Protection

In 2002 the European Union (EU) published a working document on the biological treatment of biowaste. This aimed to help the introduction of measures to meet the Landfill Directive targets. The objectives of the document were:

- To promote biological treatment of biowaste and to co-ordinate national measures to reduce negative environmental impacts.
- To protect soil and ensure the use of treated and untreated biowaste results in benefits to agriculture or ecological improvement.

- To ensure that human and plant health is not affected by the use of treated or untreated biowaste.
- To ensure that any obstacles to the trade of treated biowaste are overcome, and to encourage international trade within the EU.

In April 2004 the commission announced that it was no longer going to pursue a specific directive on biowaste. The policy on biowaste will now be included in the Thematic Strategy for Soil Protection which is due to be finalised in 2005.

2.2.10. Thematic Strategy on Waste Prevention and Recycling

In May 2003 the EU published the Thematic Strategy on Waste Prevention and Recycling. This set out priorities and polices for the EU until 2010. The report was issued in response to a mandate in the Sixth Environmental Action Plan (6EAP) to develop seven thematic strategies for priority areas of environmental policy.

The report proposes that pan-European recycling and waste prevention targets are set. It also acknowledges that setting targets for waste prevention is challenging, as waste prevention is extremely difficult to measure. It proposes creating material specific targets for recyclables, instead of blanket targets for end-of-life products. It also raises the issue of whether all member states need to achieve the same recycling rates or whether it is more important for the EU to reach an overall level of recycling. The report suggests proposals to encourage recycling and sustainable waste management such as:

- Prescriptive instruments.
- Landfill taxes.
- Producer responsibility.
- Tradable certificates.
- Pay-as-you-throw schemes.
- Incentive schemes.

It has also been proposed in a resolution to the commission that a ban on landfill should be implemented within the following timeframe:

- Untreated biodegradable waste by 2010.
- Recyclable waste by 2015.
- Recoverable waste by 2020.
- All residual waste by 2025 – except where it is “unavoidable” or hazardous.

Implications for Medway Council:
Current government recycling targets for local authorities are not specific for any particular type of material. However, the thematic strategy suggests the proposal of establishing material specific recycling targets, such as in the Packaging Regulations and the ELV Directive. These could encourage the recycling of materials like plastic, even though this may result in higher collection costs.

If the proposal to ban all but hazardous waste in landfill sites by 2025 is implemented it will have significant implications for Medway Council and the UK as a whole.

2.3. NATIONAL REQUIREMENTS

2.3.1. Environmental Protection Act 1990 and Environment Act 1995

The requirements of the Framework Directive on Waste were implemented in the UK through the Environmental Protection Act 1990 (EPA). This was then amended by the Environment Act 1995. This controls how waste is managed. It defines the different categories of waste and how they should be controlled. The EPA 1990 defines the duties of waste collection, waste disposal and unitary authorities. It also sets out the duty of care that applies to all those handling, processing and disposing of waste.

The Environment Act 1995 also implements various elements of the Framework Directive on waste and is the enabling legislation for all producer responsibility legislation. The Environment Act also enabled the creation of the UK's environmental regulator – the Environment Agency.

2.3.2. The Financial Act 1996 and Landfill Tax Regulations 1996

Landfill tax is paid for each tonne of waste sent to landfill sites. It was introduced by the government in 1996 to encourage more sustainable waste management by recognising the hidden cost of the environmental impact of landfill sites. There are two rates of tax; a lower rate for inactive waste and a higher rate for active waste. Active waste is defined as waste that has some biodegradable content.

Though the landfill tax will encourage more sustainable waste management practices, it means that local authorities will have real increases in the cost of waste management for the foreseeable future. Landfill tax will increase by at least £3/tonne each year until the tax reaches £35/tonne by 2010/11.The landfill tax is currently £18/tonne, rising to £21 in 2006/2007. This means the increase in landfill tax will cause a significant increase in waste disposal costs. It will provide a considerable incentive to move to alternative and more sustainable means of waste disposal.

2.3.3. Recycling Credits (Section 52, Environmental Protection Act 1990)

A mechanism for the waste disposal authority to pay Waste Collection Authorities (WCAs) for material recycled was established through the Environmental Protection Act 1990. The act also gives WCAs or unitary authorities the power to pay third party recycling credits to organisations involved in collecting and recycling materials. At present Medway Council pays recycling credits to 17 registered third parties. In 2004/5 approximately 320 tonnes of materials was collected.

A review and consultation was carried out, by DEFRA, in 2004 and subsequent changes to the scheme were included in section 49 of the Clean Neighbourhoods and Environment Act 2005 alongside a commitment to developing guidance on the scheme. These changes, to be commenced with effect from 3 April 2006, will:

- Increase flexibility of payments from waste disposal to waste collection authorities in two-tier areas by giving authorities the option to agree alternative arrangements.
- Give the Secretary of State powers to set the calculation of recycling credits through secondary legislation.

- Clarify that credits can be paid for re-use.

A second consultation paper was issued by government in October 2005, with closing date for comments December 2005, seeking views on:

- The method by which the value of recycling credits should be calculated, and a draft Statutory Instrument to effect this.
- Draft Government guidance on the recycling credit scheme.

Implications for Medway Council:
If the government makes the payment of recycling credits compulsory Medway Council could see an increase in costs, as it would be required to make payments to third party organisations that reuse or recycle waste materials.

2.3.4. Waste Strategy 2000

The government produced its National Waste Strategy in May 2000. This set out its vision and the actions necessary for making waste management in the UK more sustainable. It will also enable the UK to meet the requirements of the European Framework Directive on Waste.

The strategy set national targets to recycle or compost at least

- 25 per cent of household waste by 2005.
- 30 per cent by 2010.
- 33 per cent by 2015.
- and to recover value from 45 per cent of municipal waste by 2015.

The government has used the “Best Value” performance framework to set individual performance standards for all local authorities for 2003/04 and 2005/06, although further recycling targets may be set to enable the national targets to be met.

2.3.5. Local Government Act 1999 - Best Value Regime

All authorities are required by the Local Government Act 1999 to provide “Best Value” services and to secure continuous improvement by regularly reviewing the economics, efficiency and effectiveness of their work.

The development of this strategy forms part of that review process for Medway. It challenges existing services, compares performance with other authorities, reviews the overall management competitiveness of waste services, develops co-operation between partner authorities and involves consultation with stakeholders to determine opinions.

Authorities have been set Best Value Performance Indicators (BVPIs) for their services. Medway Council reports these BVPIs annually. In addition statutory BVPIs have been set for each local authority to ensure that the national WS2000 recycling targets are met. The BVPI recycling targets for Medway Council were 24 per cent by 2003/04 and 30 per cent by 2005/06.

The other BVPIs relating to waste are “amount of waste collected per head” and “cost of waste collection and disposal”. There is no performance indicator for “reuse of waste” although the government is currently consulting on adding a BVPI for reuse, and is amending the guidance on third party recycling to include reuse.

The best value indicators are:

BV82a	Total tonnage of household waste sent for recycling (per cent).
BV82b	Total tonnage of household waste sent for composting (per cent).
BV82c	Total tonnage of household waste used to recover heat, power and other energy sources (per cent).
BV82d	Total tonnage of household waste landfilled (per cent).
BV84	Number of kilograms household waste collected per head (kg/head).
BV86	Cost of waste collection per household (£/household).
BV87	Cost of waste disposal per tonne (£/tonne).
BV91	Percentage of residents served by kerbside recycling (per cent).
BV199	Local street and environmental cleanliness (per cent).

Table 1 compares Medway’s BVPIs to other local authorities with the highest recycling performance (BV82a & BV82b) within the UK in 2003/04.

This shows that Medway had a much lower overall recycling level in 2003/04 although it has increased recycling levels to 27 per cent in 2004/05. Medway does generate more household waste per head compared to the regional average and to these higher performing local authorities. This means that even more waste has to be recycled to achieve the recycling target. Ways in which the amount of waste generated can be minimised as well as the introduction of various schemes for waste prevention and re-use are discussed in Section 6.

Table 1: Best Value Performance Indicators for Medway (2003/04)

BVPI	Lichfield	Daventry	East Hamp-shire	St Edmundsbury	Isle of Wight	Medway 2003/04	Medway 2004/05	Regional Average
BV82a	22.60	15.34	32.20	12.00	13.70	12.5	16.04	16.1
BV82b	23.60	26.56	4.00	23.00	21.30	6.3	11.24	3.0
BV82c	N/A	N/A	N/A	N/A	15.00	N/A	N/A	1.5
BV82d	N/A	N/A	N/A	N/A	50.00	81.2	72.72	77.7
BV84	434.2	470.1	340.7	476.2	595.0	514.0	533	420.0
BV86	61.34	61.84	47.97	42.13	40.79	48.4	48.55	41.5
BV87	N/A	N/A	N/A	N/A	41.48	44.5	50.0.	43.9
BV 91	100.0	100.0	100.0	100.0	100.0	86.1	86.10	91.8
BV 199	33.0	29.0	22.0	34.0		30.0	24	21.8

Source: ODPM website

2.3.6. Strategy Unit Report "Waste Not, Want Not" (2002)

The Prime Minister's Strategy Unit reviewed progress towards the targets set within Waste Strategy 2000 in a report produced in November 2002. The report suggested that the Waste Strategy 2000 may not be enough to move towards sustainable waste management and gave 34 recommendations. These included raising the national recycling and composting standard to 35 per cent by 2010 and 45 per cent by 2015. This would ensure the UK complied with the requirements of the Landfill Directive. In response to the "Waste Not, Want Not" report, the government introduced the Waste Implementation Programme to address the recommendations made by the strategy unit.

A consultation paper, issued by DEFRA in October 2005, outlines a basic proposal for the extension of the existing Statutory Performance Standards to the year 2007/08. It does not propose any targets are set for the year 2006/07 as local authorities need sufficient time to plan for new targets. Consideration is also given within the proposals to increasing the Statutory Performance Standards for those local authorities with the lowest levels of recycling and composting in 2005/06 and removing the cap on the highest performers set in December 2004 at 30% for 2005/06.

Implication for Medway Council:
This could means that any future collection contract in Medway will need to achieve a recycling and composting rate over 30 per cent. The full implications will not be known until after the consultation closes, early 2006.

2.3.7. Waste and Emissions Trading Act 2003

The government has implemented the requirements of the Landfill Directive through the Waste and Emissions Trading Act 2003. This sets annual allowances limiting how much biodegradable municipal waste (BMW) can be disposed of in landfill suites in any particular year. These allowances came into effect in April 2005.

Government's Guidance on Trading, Banking and Borrowing Landfill Allowances sets out the procedure for transferring landfill allowances. Authorities can buy more allowances if they expect to landfill more than their allocations and authorities with low landfill rates can sell their surplus allowances. It will also be able to save unused allowances (banking) or bring forward part of their future allocation (borrowing). The mechanism for trading credits under this scheme is called LATS in subsequent sections of the strategy.

Medway has been given an allocation of the amount of BMW that can be disposed of in landfill sites each year from 2005/06 to 2019/20. These allocations are shown in Figure 2. The allocation for 2019/20 limits the amount of BMW to 24,191 tonnes to be disposed of landfill sites in that year. This means Medway will have to reduce the amount of waste sent to landfill sites from its current level of 107,000 tonnes per year (2003/04) to a maximum of 35,575 tonnes (based on 68 per cent biodegradable content in waste).

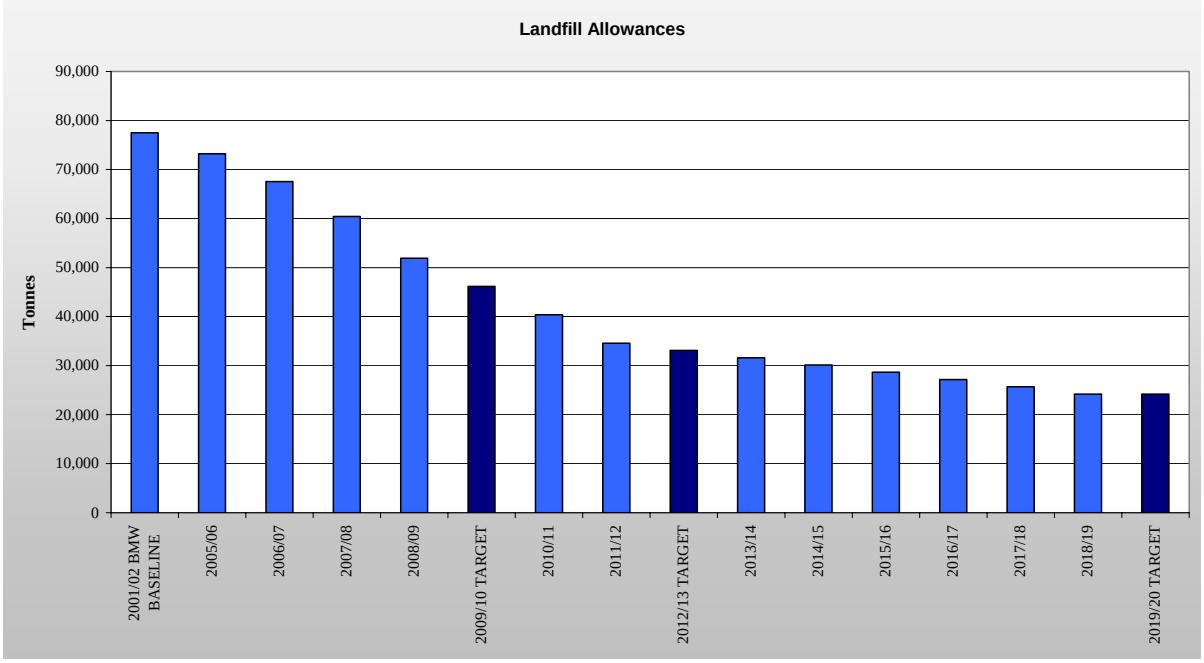


Figure 2: Landfill allowance allocation for Medway Council (DEFRA Feb 2005 figures)

Through the flexibilities of trading, banking and borrowing, authorities can develop the most cost-effective strategy for meeting their waste targets, tailored to their specific circumstances. However, disposal authorities that exceed their limit and cannot purchase any allowances will be fined £150 for every tonne they are over the limit. This means that most authorities will plan to meet these targets and trading is likely to be minimal in the longer term. However there may be potential for a market in the short term whilst the infrastructure for waste treatment is developed.

2.3.8. Animal By-Products Order and Regulations 2003

As a result of the foot and mouth crisis in the UK, the government amended the Animal By-Products Order in May 2001. This states that material that has possibly been contaminated by meat products cannot be disposed of by composting. This prevents kitchen material from being composted in open windrows, even if vegetable material only has been targeted for a collection campaign. The regulations also place restrictions on the use of compost produced by material, which has or might have contained meat products. This type of compost cannot be put on land where animals, including wild birds, may have access.

Implications for Medway Council:
Source-segregated biowaste collected by Medway Council has to be treated in an in-vessel composting system under strictly controlled conditions to ensure that adequate temperatures are reached to kill pathogens. There are currently no facilities in Medway, which could process this type of waste although there is speculative interest in a site at Ridham Dock.

2.3.9. Household Waste Recycling Act 2004

This act aims to increase the recycling of household waste. The act amends the Environment Protection Act 1990 and requires that English Waste Collection Authorities (WCAs) and unitary authorities should collect at least two types of recyclable materials separate from other waste (with some exceptions). The deadline for implementation is 2010.

An exception to this requirement can be made where the cost of separate collection is unreasonably high or where comparable alternative arrangements are available (such as providing many recycling bring banks to serve flats).

Implication for Medway Council:
Table 2 shows the housing structure of Medway in 2001. Since 2001the number of households has increased to about 105,000.

The figures show that Medway is already well on its way to meeting or exceeding the requirements of the act. By mid 2005, 85 per cent of all households in Medway had a kerbside collection of paper (all types of paper including cardboard), metals (cans and foil), plastics (all types of plastic bottles) and garden waste. The remaining households without this service are mainly flats and houses of multiple occupancy.

Table 2: Housing structure in Medway

Household type	Number of households	Percentage of total households
Detached house or bungalow	13,937	14.0*
Semi-detached house or bungalow	30,534	30.7*
Terraced house or bungalow (including end-terrace)	42,032	42.2*
In a purpose built block of flats or tenement	9,340	9.4
Part of a converted or shared house (including bed-sits)	1,885	1.9
In a commercial building	869	0.9
Caravan or other mobile or temporary structure	606	0.6
In a shared dwelling	359	0.4
TOTAL	**99,562**	**100**

* Households kerbside collection service for dry recyclables
Source: 2001 Census, Crown Copyright 2004'

Medway is rolling out the collection service to the remaining households to meet the 2010 deadline. As each block of flats has different waste collection arrangements, different solutions for waste storage are required. These include:

- kerbside boxes - mainly for houses of multiple occupancy or flats of only two storeys.
- wheeled bins - for low rise flats with limited storage capacity.
- euro bins - for high rise flats with sufficient storage space.
- small “bring sites” with containers for separate materials located at central points that can be easily accessible by all residents in the block.

2.3.10. Waste Minimisation Act

The Waste Minimisation Act enables local authorities to implement schemes to minimise the amount of controlled waste generated. The act states that the authority can:

"...*do or arrange for the doing of anything which within its opinion is necessary or expedient for the purpose of minimizing the quantities of controlled waste or controlled waste of any description, generated in its area."*

The act does not require authorities to carry out such initiatives, nor does it allow councils to impose any requirements on businesses or households in their area. However, they can determine both the form of collection and the container from which waste is collected (previously enacted in the 1990 Environment Protection Act).

2.4. REGIONAL WASTE STRATEGY

Medway's waste strategy is one of many strategies covering waste management in the southeast of England. The Regional Waste Management Strategy has been consulted on by the South East Regional Assembly (SEERA) to provide a regional and sub-regional context for Waste Local Plans and waste management strategies. It also gives guidance on the potential waste management needs of the region over the next two decades. The vision of the regional strategy is:

"A region in which natural resources are used and managed efficiently through natural resource management, so that by 2025 the amount of waste produced will be minimised, and the overwhelming majority of materials will be re-used, recycled, or have value recovered from them, and the environment will be protected and enhanced for future generations."

The targets set by the Medway's waste strategy will exceed the targets set by the regional strategy to 2009 and will therefore make a significant contribution to the regional vision.

More information about the regional waste strategy can be found at:
www.southeast-ra.gov.uk/regional_policies/planning/waste.html

2.5. PERFORMANCE PLAN 2005/06 FOR MEDWAY

Medway Council's performance plan 2005/06 outlines 10 key priority areas for at least the next three years:

1. Put our customers at the heart of everything we do.
2. Improve and maintain our local environment.
3. Develop new sustainable communities and regenerate Medway to benefit existing communities.
4. Reduce crime and anti-social behaviour.
5. Work together to protect vulnerable children.
6. Realise the potential of young people in Medway.

7. Expand and develop the culture, tourism and leisure opportunities in Medway.
8. Promote independence for vulnerable adults.
9. Make it easier to travel around Medway.
10. Promote Pride in Medway.

The key priority area that relates to waste services falls under ' Improve and maintain our environment', which includes specifically:

- Make our streets and local environment cleaner and free from fly-tipping and graffiti.
- Make our streets significantly better by improving the condition of bollards, railings, paintwork and removing unnecessary signs.
- Enable and encourage residents to recycle more of their waste.
- Protect our green spaces and improve our parks.
- Encourage residents, business and housing developers to save energy and help to protect our environment.

2.6. PLANNING AND POLICY GUIDANCE

Planning has a significant role to play in determining the future infrastructure of waste management in the UK. Planning decisions will influence whether or not the UK meet its BMW landfill diversion targets. The following policies and regulations have an impact on the planning of future waste management in Medway.

2.6.1. Planning and Compulsory Purchase Act 2004 and Planning Policy Statement 10

Significant changes have been made to the planning systems, which have been facilitated by the Planning and Compulsory Purchase Act 2004. The requirement to produce unitary, local and structure plans has been repealed and these will now be replaced by regional spatial strategies and local development documents.

Planning Policy Statements (PPS) generally set out the government's national policies on different aspects of land-use planning in England. PPS10 is a waste management plan required by the Waste Framework Directive and it replaces the Planning Policy Guidance Note 10, *Planning and Waste Management,* which was published in 1999.

The objective of PPS10 is to provide a clear statement to regional planning bodies and planning authorities of government policy on planning for sustainable waste management. It reinforces general guidance on process in PPS11 (*Regional Spatial Strategies*) and PPS12 (*Local Development Frameworks*). A collective objective of PPS10 and other relevant PPSs is to give guidance on achieving the objectives of The Planning and Compulsory Purchase Act 2004. The key planning objectives set out in PPS10 are that regional planning bodies and planning authorities should prepare and deliver planning strategies with the aim of:

- Making provision for the delivery and operation of sufficient waste management facilities in a way that protects the environment and human health.

- Engaging the community effectively in drawing up planning strategies in consultation regarding the planning for and provision of waste management facilities.

2.6.2. Strategic Environmental Assessment Directive (2001/42EC)

The EU Directive on Strategic Environmental Assessment (2001/42EC) was implemented in England and Wales in July 2004. The objective of the 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."

Strategic environmental assessment (SEA) is the formalised, systematic and comprehensive process of evaluating the environmental impacts of a policy, plan, strategy or programme. It must also assess the effects of reasonable alternatives to the plan. A written report must be prepared on the findings of the evaluation. The requirement to monitor the environmental impacts associated with the implementation of plans and programmes are another important element of an SEA. This is intended to help identify any unforeseen adverse effects at an early stage and implement action to address them.

The SEA Directive applies to plans, programmes and strategies whose formal preparation began after 21 July 2004 and also those which were already being prepared by 21 July 2004 but will not be adopted or submitted to a legislative procedure by 21 July 2006. This applies to Medway's Waste Development Framework but not the Medway's waste strategy as this was started and will be completed outside the dates specified by the Directive.

2.6.3. Waste Local Plan and Local Development Framework

The planning process in the UK is changing and Waste Local Plans are being replaced with Local Development Frameworks (LDFs). An LDF contains a series of Local Development Documents (LDDs) covering a range of different issues. The legislation introducing LDFs requires their environmental, social and economic impacts to be assessed. The Planning and Compulsory Purchase Act 2004 makes a sustainability appraisal mandatory for all LDDs, including development plan documents and supplementary planning documents.

This means Medway has to produce a LDF. Work on this is still in its early stages and will be complete in 2007. The core strategy of the framework provides overall policies on each issue (such as housing, waste, minerals, and energy), although these policies are fairly generic.

In addition to the Local Development Framework the council must produce LDDs that are specific for each issue in the LDF and which should identify specific sites in Medway. Guidance from government suggests that the preparation of these documents should be carried out over a number of years. It is therefore unlikely that the LDD covering waste, minerals and energy will be completed before 2008-09.

Medway's waste and planning officers are working together to ensure there are links between the waste section of the LDF and Municipal Waste Management Strategy.

The Initial Sustainability Appraisal Report covers the first two Development Plan Documents proposed as part of the LDF for Medway. These are:

- core strategy;
- housing & Mixed-use site specific.

Further information on the Local Development Framework for Medway can be found at: www.medway.gov.uk/index/environment/9995.html/32182.htm

3. WHERE ARE WE TODAY?

3.1. BACKGROUND - MEDWAY

Medway Council was formed in 1998 as part of the local government reorganisation in Kent. As a result it inherited the waste collection functions and contracts of Gillingham and Rochester District Councils and the disposal function from Kent County Council.

Medway occupies around 74 square miles. To the north it is bound by the River Thames and extends from the Isle of Grain peninsular in the north east, 16 miles south to Walderslade and from Strood in the west, 8 miles east to Rainham.

The main shopping centre is Chatham with district shopping centres at Gillingham, Rainham and Strood. Medway is also an attractive tourist area with the main concentration of sites of interest lying in Rochester and Chatham Maritime. The M2 motorway and A2 trunk road cross the area. The towns of Strood, Rochester, Chatham, Gillingham and Rainham are all on the London to Dover/Ramsgate rail route and from 2009 will be served by the Channel Tunnel Rail Link domestic service. The River Medway flows through the area between Strood and Rochester, with road crossings on the M2 motorway at Cuxton, at Rochester Bridge and at the Medway tunnel at Chatham Maritime.

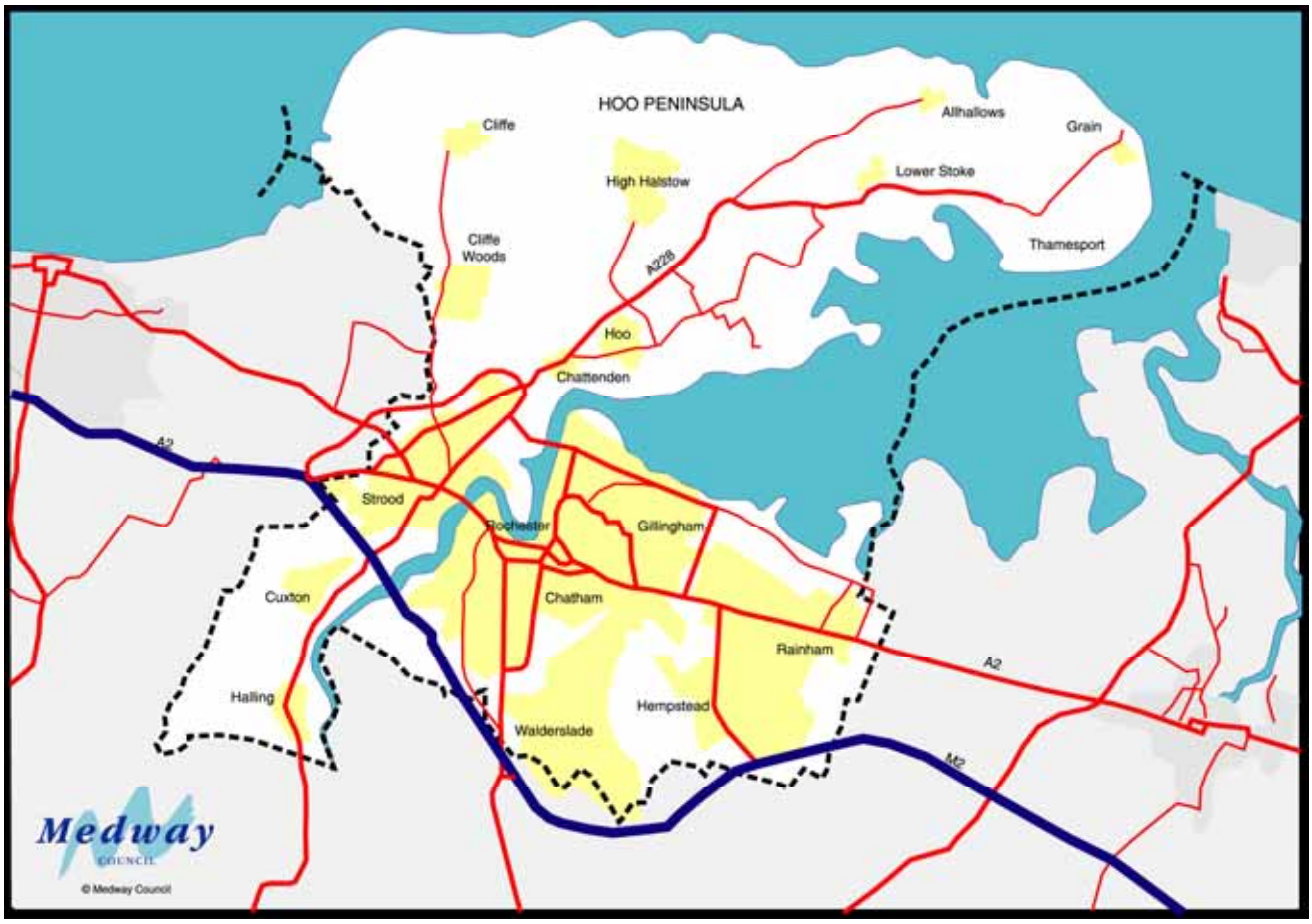


Figure 3: Map of Medway

Medway has a population of 250,000 residents and 105,000 households. The majority of these people live in the urban areas of Chatham, Gillingham/Rainham and Rochester/Strood. There is a comparatively small population of residents from minority ethnic groups at only 5.4 per cent. Figure 4 shows the ethnic groups within Medway.

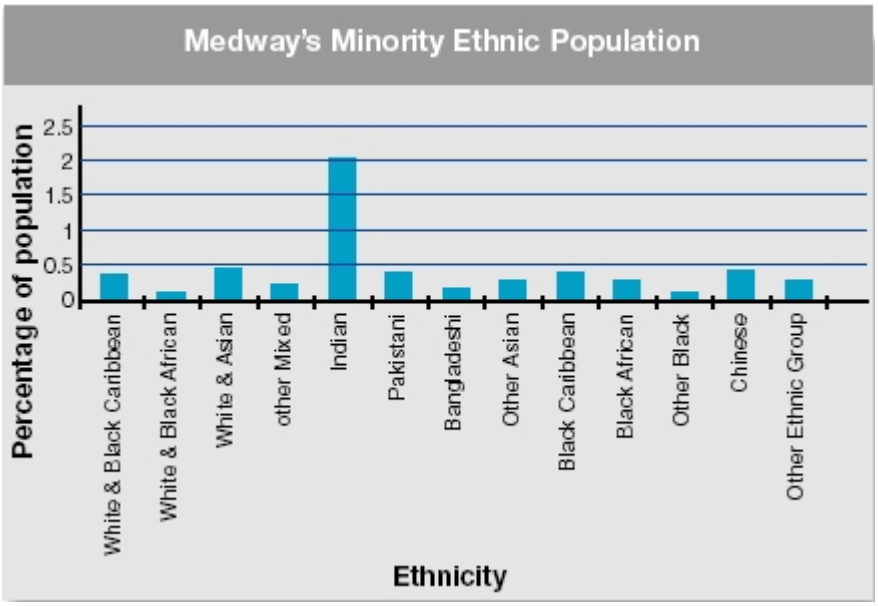


Figure 4: Distribution of ethnic groups within Medway

As part of the Thames Gateway, Medway has been identified by the government for major development and can therefore expect to see significant increases in housing over the planning period of this strategy. The population is expected to grow by 50,000 over the next twenty years. This has to be taken into account in projections of the amount of waste Medway will produce and in the planning of future waste management infrastructure (see Section 5.1).

Figure 5 below shows the socio-economic groups of people aged 16-74 within Medway, compared to the southeast region. The proportion of people educated to degree level or higher is 12 per cent. This is well below the national average of 21.75 per cent but the proportion of people with no qualifications is consistent with the national average.

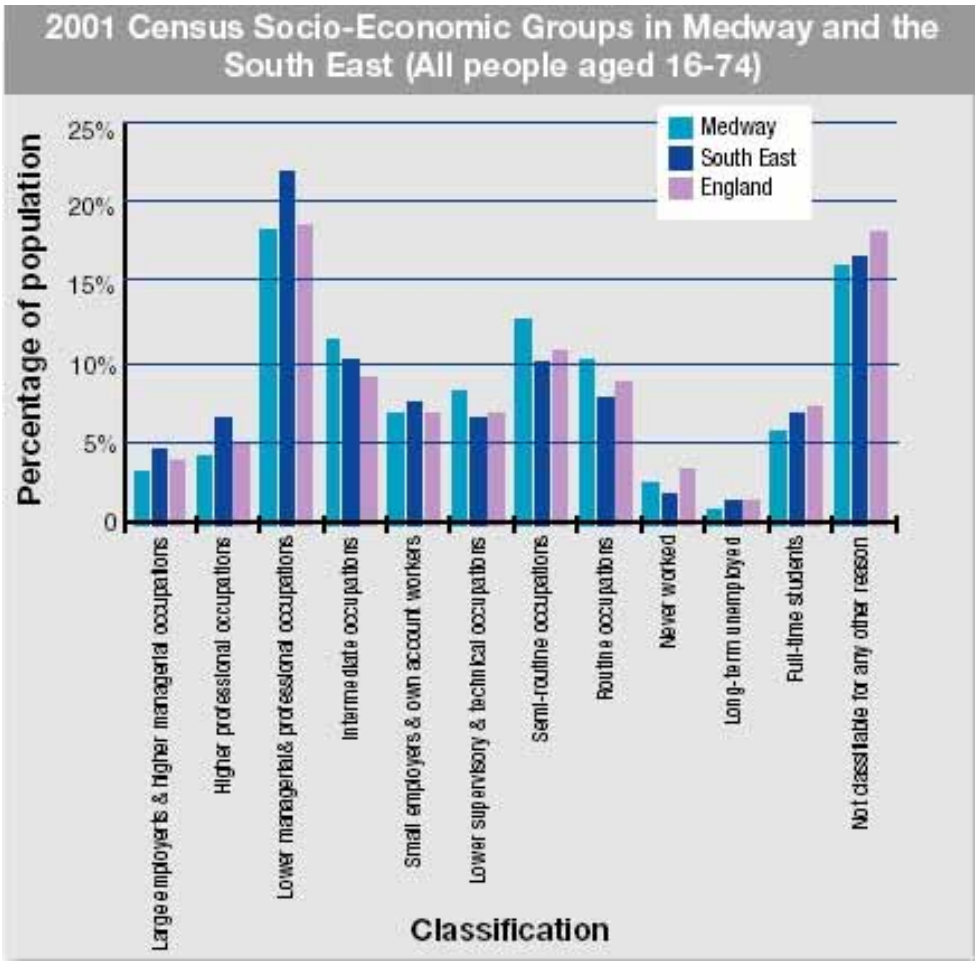


Figure 5: Socio-economic groups of people aged 16-74 within Medway

3.2. WASTE AMOUNTS

The overall amount of waste in England and Wales is estimated to be about 450 million tonnes per year, of which about 190 million tonnes per year is made up of controlled waste. Controlled waste is defined as waste from the following sources:

- Municipal solid waste (MSW).
- Waste from commercial premises.
- Waste from industrial premises.

- Waste from construction and demolition (C&D) activities.

The other main sources of waste are agricultural waste (which will become a controlled waste) and mining/mineral waste.

It is estimated that there were 29.3 million tonnes of MSW generated in England in 2002/03, which represents about 6.5 per cent of the overall waste in England and Wales.

Figure 6 shows the estimated[1] proportion of controlled waste in the southeast region.

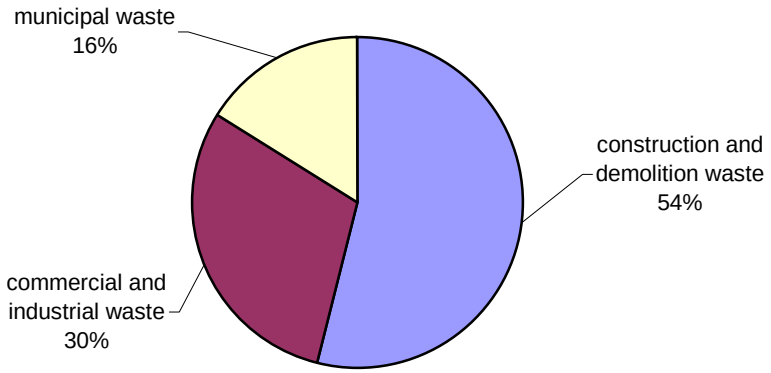


Figure 6: Estimated amount of controlled waste in the southeast region (2000/01)

Municipal solid waste (MSW) is defined as household waste and any other waste collected by a council or its agents. This includes waste from parks and gardens, trade waste (although Medway Council does not collect trade waste) and waste resulting from the clearance of flytipped materials. Household waste includes waste from kerbside collection rounds (residuals, dry recyclables and garden waste), household waste recycling centres, bring sites, bulky waste collection, hazardous waste collection and street sweeping.

Kerbside collected household waste currently accounts for 72 per cent of total municipal solid waste in Medway, whilst waste taken to household waste and recycling centres (some of which is recycled) represented another 23 per cent of municipal solid waste in Medway. The other sources of municipal solid waste such as litter, street sweepings and bulky household waste collected by Medway Council represents about 5 per cent of total municipal solid waste.

[1] Source – Government Office for the South East website - www.go-se.gov.uk/gose/environmentRural/waste/

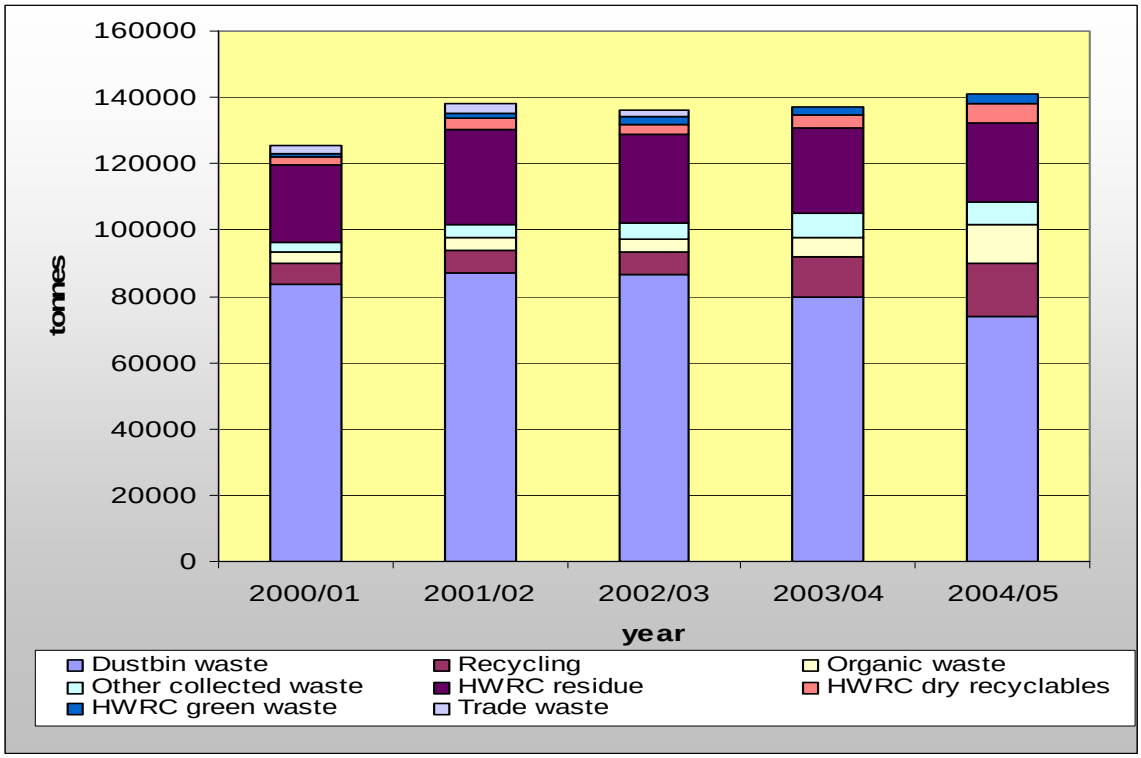


Figure 7: Sources of MSW arisings in Medway (2000/01 to 2003/04)

Table 3 shows the amounts of municipal waste collected in Medway in 2004/05 the total of which was 141,237 tonnes. This is a waste generation rate of 1.34 tonnes per household per year. This rate is higher than the national average for England in 2002/03 of 1.19 tonnes per household per year.

Table 3: Municipal waste collected in Medway in 2004/05

Waste collected	Tonnage
Kerbside collected residual waste (black sack)	73,917
Recycling collections (kerbside and bring banks)	15,836
Garden waste collections	11,808
Other collected waste (street cleansing, fly tipping & bulky waste)	6,977
Household waste recycling centres residual	23,886
Household waste recycling centres recycling	5,601
Household waste recycling centres organic waste	3,212
Total municipal solid Waste	**141,237**

3.3. WASTE COMPOSITION

In 1999/2000 Medway commissioned a project to analyse the composition of its kerbside collected waste and waste from household waste recycling centres. This data was updated in 2004 as part of the Best Practicable Environmental Option (BPEO) process, to give a better model of waste composition. Figure 8 and 9 shows the updated waste composition for waste collected at the kerbside and household waste recycling centres.

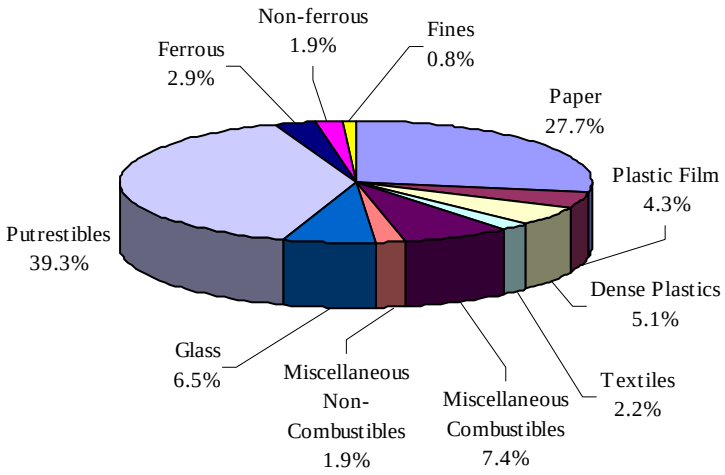


Figure 8: Reviewed composition of kerbside collected domestic waste for Medway

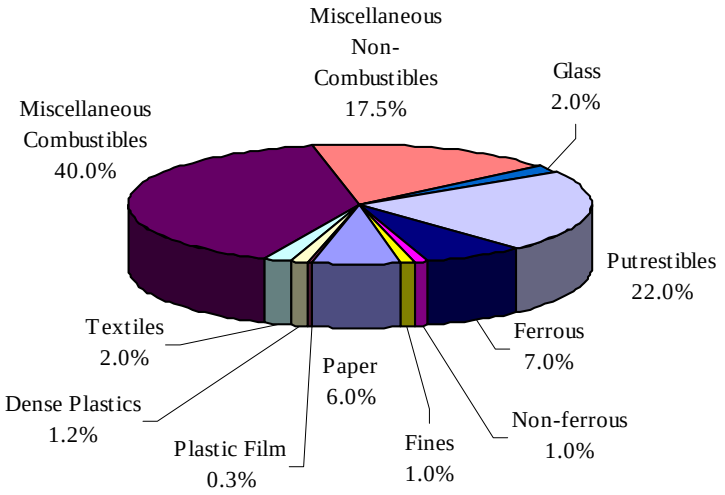


Figure 9: Reviewed composition of household waste recycling centres waste in Medway

4. CURRENT WASTE MANAGEMENT SERVICES

4.1. WASTE MINIMISATION

Waste minimisation is difficult for a local authority to tackle because it means preventing waste materials in the first place. The amount of waste produced depends on what people buy and on the type and volume of packaging of products, but there are areas of waste minimisation that the council can encourage residents to consider. Medway Council has the following existing schemes in place to encourage waste minimisation:

- Home composting
  Encouraged and promoted a home composting scheme since 1998. There have been many variations on the scheme and different compost bins issued. In 2005 the council joined the national scheme run by WRAP to encourage the use of home compost bins. This included extensive advertising, free or very cheap compost bins and the use of a compost adviser. Over 8,000 compost bins have been issued to Medway residents from April to October 2005.

  Being part of the national scheme means Medway can to provide statistics for a nationwide research project. This project aims to quantify the volume of waste that is used in home composting, hence does not have to be collected and disposed of. The scheme is supported by the "Medway Mulchers" - a group of interested residents who are passionate about composting and act as advisers working with the council to promote and encourage more home composting.

- Real Nappies
  Encouraging the use of 'real' or washable nappies instead of disposable nappies to reduce the number of nappies thrown away. A child uses nappies for between two and three years. In this time they will use around one tonne of disposable nappies, which need to be collected and disposed of. About three per cent of Medway's waste is made up of disposable nappies.

  Medway Council provides a £30 incentive scheme for families who use real nappies. In 2004/5 104 new births converted to real nappies (approx two per cent of new births in Medway). In addition, Medway Council successfully received funding from WRAP in 2005 to issue 367 trial real nappy packs to parents with children under one year of age. The council works closely with local nappy agents and health visitors to promote the schemes. Activities include providing training, leaflets and advice and attending ante- and post-natal classes.

- Education
  A range of educational activities to reduce the amount of waste is undertaken.

  These include:
  - Leaflets and posters.
  - Website updates, including a new A-Z of recycling.
  - Press releases and advertising.
  - Banners on High Streets and at the HWRCs.
  - Production of promotional materials made from recycled materials.
  - Shopping trolley adverts.
  - Bus advertising.

- Talks to resident groups and schools.
- School lessons based around waste and recycling.
- Attendance at a wide range of local events to raise awareness of various waste and recycling issues.

4.2. ELIMINATION OF WASTE

A number of steps to prevent waste being counted as household waste when it does not come from households in Medway have already been undertaken including:

- In the current waste contract commercial or trade waste is not allowed to be mixed during collection. This resulted in a reduction of around 2,000 tonnes per year being counted as household waste.
- Using height barriers and banning vans and commercial vehicles from HWRCs created a further reduction of around 1,800 tonnes per year.
- Medway Council is currently negotiating with Kent County Council to address the issue of waste from outside Medway. The council wishes to ensure that any waste from outside of Medway is either not received at Medway's HWRCs in the first place, or can be calculated with a degree of accuracy. This means that waste from outside Medway could be accounted and paid for as part of Kent's waste rather than Medway's. This may lead to a further reduction of around 4,000 tonnes of waste attributed to Medway.

Further schemes need to be investigated to achieve additional reductions as external auditors have highlighted the following issues:

- Medway Council includes items that are deemed industrial waste in its bulky waste collections. This includes items like materials from building renovation or improvements.
- Free bulky waste collections, even for genuine household waste, does not encourage residents to minimise their waste. It also discourages them from considering passing items to a third party for repair and re-use, or from taking them to a HWRC.

Some councils, like Worcestershire County Council, are investigating the installation of waste disposal units into kitchen sinks. These units are fitted under the sink and connect directly to the drainage system. They shred unwanted food items into tiny particles, which are then carried away and treated in the waste water systems.

Using these units would eliminate smelly, biodegradable food waste from rubbish bags, and reduce the overall amount of waste collected. Medway is investigating the feasibility of these schemes, including implications on the sewage treatment systems.

4.3. RE-USE OF MATERIALS

Medway Council works with local charities, in particular the Vines Centre Trust and Blythswood Care, to promote the reuse of furniture, white goods and bicycles.

In 2004, the Vines Centre Trust collected 1,565 items of furniture from residents in Medway and distributed over 1,700 items (balance from stock left from 2003), including beds, three-piece suites, armchairs, tables and chairs, wall units, sideboards, wardrobes, chests of drawers and dressing tables. These items were sold on to residents on low incomes, who cannot afford new items, for a very small fee.

A new scheme was launched in 2005 for the collection of good quality white goods, fridges, freezers, cookers following a successful bid to Community Recycling and Economic Development programme (lottery funding through transforming waste initiative). This scheme also helps to retrain unemployed people as electricians. Over 80 white goods were collected between May and July 2005. Medway Council assists the Vines Centre Trust by helping to advertise their schemes in local newspapers, leaflets, the council's website, and when calls are received via the council's helpline requesting collections of bulky items.

In 2005 a new scheme was introduced to the HWRCs for bicycle refurbishment. Blythswood Care collects any bicycles left at the Hoath Way site, refurbishes them and sends them on to developing countries.

4.4. RECYCLING SCHEMES

Medway Council operates kerbside collections of four separate dry recyclable materials as well as collecting recyclables via 58 bring bank sites and three household waste recycling centres. In 2004/5 Medway achieved a 27.5% recycling rate and is on target to exceed the 30% statutory target set by government in 2005/6.

4.4.1. Kerbside collection schemes

Before 2002 Medway Council collected paper and cans in clear sacks every two weeks. This service was available on request. As part of the new contract, which started in October 2002, the council provided 55 litre blue boxes to all residents, except those in flats, for the collection of dry recyclables. Collected materials include paper, cardboard, magazines, cans, foil, aerosols, plastic bottles and carrier bags. The collection takes place on the same day as the residual waste, but alternates with garden waste collection service. Over 90,000 properties receive this service, which represents about 85 per cent of households in Medway.

Table 4: summary of kerbside collection schemes in Medway

Waste material collected	Delivery point
Dry recyclables	
Fortnightly service for over 90,000 households. Blue box (55ltr) for cans, foil, plastic bottles, plastic bags etc, Paper separately collected.	Rainham Materials Recycling Facility (MRF) via Skipaway Transfer Station
Green waste	
Fortnightly service alternating with the collection of dry recyclables. 65,000 240 litre wheeled bins at suitable properties plus brown reusable plastic bags are issued to any other property wishing to participate. Service is suspended during Christmas and New Year weeks	Rainham composting site via Pier Approach Transfer Station or Skipaway Transfer Station.

Table 5 shows the amount of recyclables and green waste that were collected at the kerbside in Medway 2003/4 and 2004/5.

Table 5: Recyclable material collected at kerbside in 2003/04 and 2004/5 (tonnes)

Year	Paper	Blue Box	Cans	Green waste
2003/4	993	7,218	34	5,527
2004/5		12,073		11,808

Medway is introducing recycling collections from flats. Each block is different with a variety of collection methods for rubbish being used including bin stores, with or without bulk bins. This means for each block of flats a site visit is needed to assess the best collection method for recyclable materials. It is estimated this process will take at least three years to complete. Up to October 2005, over 1400 households in flats (over 15 per cent) have been added to the kerbside recycling service. The council aims to complete the introduction of this service by the end of 2007/8. This is well ahead of the target of 2010 when all households must be offered a kerbside recycling service.

Medway Council also provide a free fortnightly collection of garden waste. Around 65,000 households (62 per cent) were issued with a 240 litre wheeled bin. Additional properties were provided with two reusable sacks where bins were not suitable. Garden waste collected under this scheme is transferred to the contractor's site at Rainham in Essex and is then composted in windrows. The material is subsequently sorted, tested and bagged for sale as a soil improver.

Recovery/Capture rates of dry recyclables

Recovery/capture rates identify the amount of each type of material collected from recycling, as a percentage of the total amount of that material in overall domestic waste. These measures are important as they give an idea of how much of each type of material is being collected. This helps the council know if messages about recycling are effective and if recycling rates could be increased.

The recycling service is a mixed collection. This means that all collected dry recyclable materials are mixed together and later sorted at a Materials Recycling Facility (MRF) in Rainham, Essex. The average breakdown of different types of materials going through the MRF are shown in Table 6.

Table 6: Average breakdown of materials going the MRF

Materials	Per cent materials going through MRF
Paper	84
Card	7
Steel cans, aluminium cans and foil	2
Plastic bottles	3
Carrier bags	2
Mixed waste	2
TOTAL	**100**

This MRF accepts materials from a number of districts across London and the southeast region. This means a precise breakdown of the materials collected cannot be given.

Table 7: Capture Rates from kerbside/bring site collected materials

Material	Percentage of recyclables in waste stream+	Potential tonnages * 2004/5	Actual collected tonnages 2004/5	Capture rate 2004/5 (percent)
Mixed**	31.58	31,775	13,040	41
Textiles	2.20	2,214	40	2
Glass	6.12	6,158	1,762	29
Garden waste	16.97	17,075	11,808	69
TOTAL	**56.87**	**57,221**	**26,650**	**47**

+ This is the percentage of materials recyclable. This is not necessarily the proportion of material present in the waste stream.
* Includes residual (black bag) waste, dry recyclables (blue box scheme and bring sites) and garden waste (brown bins/bags)
** Includes paper, card, plastic bags, plastic bottles, cans

Participation Rates

Not all households who participate will put out recycling every week. The participation rate is calculated by recording the number of households taking part in the service at least once a month as a percentage of the total number of households offered the service. The participation rate can highlight any areas that are not taking part and help to target recycling messages to these specific areas. This should help increase the overall recycling rate.

The introduction of the kerbside dry recycling and the garden waste collection schemes was completed in Medway in early 2004. It is essential to wait for an extended period to assess true participation, as initial enthusiasm can create a distorted result.

A set out survey was undertaken in October – November 2005 to assesses streets for participation in the blue box scheme. Initial results show that there is a large variation in participation rates, varying greatly dependent on the area, from 60% down to as little as 5%. Too obtain a more accurate picture a more in-depth survey would need to be undertaken over a period of four to six weeks at different times of the year.

Participation surveys have not been undertaken for the garden waste collection scheme.

4.4.2. Bring banks

Medway Council operates schemes for the collection of paper, glass, cans, textiles, and shoes. There are currently 58 bring sites located across Medway. Sites include supermarkets, car parks and shopping centres.
Table 8 indicates the amount of recyclables collected at those sites.

Table 8: Tonnage of recyclables collected from Bring Schemes in Medway 2003/04 and 2004/05

	Newspaper & magazines Mixed card & paper	Glass	Mixed cans	Textiles
2003/4	937	1,628	22	38
2004/5	947	1,762	20	40.5

4.4.3. Household waste recycling centres

Waste is collected at three household waste recycling centres (HWRCs) in Medway:

- Hoath Way, Gillingham .
- Shawstead Road, Capstone, Chatham.
- Sundridge Hill, Cuxton.

Two of the sites, at Capstone and Cuxton, are split-level. This means site users can park their vehicles and dispose of their waste into containers placed at a lower level. This minimises access problems and better segregates the public from the heavy engineering operations of compaction and container exchanges.

The site at Capstone was built in 1994/5 on a section of the closed landfill site. Cuxton is relatively new, having been set up to replace the former site acquired by Union Rail for construction work.

The Hoath Way Site is on a single level and is the smallest HWRC. The site has limited flexibility for changes to deal with alternative materials. It currently needs modified drainage to comply with new waste licensing requirements.

Recycled/composted material collected at the HWRCs in 2004/05 represents about 18 per cent of Medway's total recycled waste (total of kerbside, bring schemes and HWRCs).

Table 9 shows the total tonnage of recyclable material recovered from the 3 HWRCs.

Table 9: Recycling Centre waste collected and recycled/composted 2003/04 and 2004/5 (tonnes)

Year	Paper+CB	Glass	Cans	Metals	Waste Oil	Car Batteries	Textiles	Gas Bottles	Fridges	Tyres	Mixed recycling	Soil & Rubble	Green Waste	Wood
2003/4	97	253	1	2,364	40	144	53	45	332	10	673	7,260	2,560	0
2004/5	0	285	0	2,183	56	136	70	47	304	71	860	6,894	3,212	1,577

Green waste from the HWRCs is sent to Luddesdown organic farm for composting.

Soil and hardcore represents a substantial proportion of the waste dealt with at these sites. It is transferred to a plant in Aylesford for processing into ballast or materials for land reclamation. This material cannot be included in the statistics for recycling because the government does not allow it to be and it is not considered as household waste.

Recycling rates at HWRCs

At present the HWRCs are currently recycling around 44 per cent of the waste delivered to them, excluding soil and hardcore. The national average for household waste recycling centres is 40 per cent.

During the first two years of the contract the managing contractor failed to achieve recycling targets. This led to financial deductions being made. The introduction of wood recycling is likely to mean the contract target of 48 per cent recycling at the HWRCs by 2009 will be reached. This means there are no new financial incentives for the contractor to increase the rate much above current levels.

Commercial waste entering the sites

The three HWRCs are provided and licenced to receive domestic wastes only, not commercial waste. This is in line with the council's statutory duty. Increasing attempts are made by commercial businesses to dispose of trade waste through the HWRCs. Other disposal authorities are also experiencing this trend.

Businesses are required to hold an agreement with a licenced contractor to deal with their waste. This applies whether the business is operating in commercial premises or in a domestic property. All three HWRCs have height barriers set at 1.85 metres (6 foot) to prevent high commercial vehicles from gaining access.

Capstone's HWRC has opening barriers that were often left open from Monday to Thursday during 2001/2 to prevent queues of large vehicles. However it became clear that the amount of commercial waste entering the site was increasing. This led to a ban of all vans. In the first year following the ban waste input at Capstone HWRC dropped by nearly 1,800 tonnes.

A register system has been set up to allow 4x4 and van owners living in Medway to access the Capstone HWRC. They must notify the council that they wish to visit the Capstone HWRC and are then allowed access on specific days.

The arrangement is manageable at present although commercial vans continue to gain or try to gain access. This will continue to escalate with increasing trade waste disposal cost.

Some authorities have installed closed circuit television (CCTV) to record number plates and frequency of use, whilst others have amended their licence conditions, installed weighbridges and charged owners of all trade vehicles to dispose of waste brought into the sites. If a new transfer station is created for future services, a system may be introduced to allow the disposal of small quantities of trade waste for a fee paid on entry.

Imports of waste to HWRCs

All of the HWRCs in Medway are located near to the boundary of the council area. One of the bordering district councils has no HWRCs. All three other bordering districts have a HWRC, between six and 12 miles from the Medway sites. This leads to household waste from outside Medway being disposed of at Medway Council's HWRCs, instead of being disposed of at a Kent County Council HWRC. This means Medway Council is paying for the disposal of waste from outside Medway.

In November 2004 an initial survey was carried out at the three HWRCs to investigate how much waste was coming in from outside Medway. In total 501 postal surveys were issued, with a 42 per cent response rate. This showed that about 44 per cent of HWRC waste received at the Cuxton HWRC came from outside Medway. Capstone HWRC received approx 16 per cent of its waste from outside Medway and Hoath Way HWRC around 3 per cent. This amounts to approximately 6,867 tonnes of Kent County Council waste that Medway residents are paying to dispose of. Details are shown in Table 10.

Table 10: Tonnage of imported waste to Medway's HWRC sites in 2004/05

	Total tonnes collected	Outside Residents	Tonnes from outside Medway
All Medway Sites	32,644	21per cent	6,867

A more extensive survey has been commissioned to ensure we have a more comprehensive picture of HWRC use by Medway residents and non-residents. The results and attributed tonnages will be available early 2006. This will ensure we have robust data when negotiating with Kent County Council.

If Medway only allows its residents to use the sites, a security and administration problem could occur that may exceed any financial benefits. It may also lead to increased flytipping. This has happened in other areas that have restricted access to HWRCs.

Subsidiary waste contracts

Outside the main HWRC management contract and the disposal contract a number of separate arrangements exist for the collection and disposal of specific materials. These are generally hazardous and require individual and special treatment. These arrangements were set up before the main waste contract was let or were created as a result of changes in legislation leading to the need for special arrangements (for example fridges). The materials dealt with under this type of arrangement are:

- Mineral oils - a local company collects the oil at no cost and process it into remanufactured heavy oil for use as a fuel.

- Gas bottles - collected by a company based in Kent, which removes any residual gas from the bottles. They then return or reuse named and usable bottles or scrap unusable bottles for the metal content.

- Tyres - collected at Capstone HWRC only. The collection service is combined with tyres picked up as part of street cleansing. The tyres are taken to a shredding facility at Bobbin, near Sittingbourne, Kent. The material is then transferred to plants to use the rubber for other products or as a fuel.

- Vehicle lead acid batteries - collected from all three sites and taken to a processing facility for acid and lead to be recovered. The casings are then disposed of.

- Refrigerators and freezers – the public bring fridges and freezers directly to the nearest HWRC site. Fridges collected in the bulky waste collection schemes or by street cleansing arrangements are delivered to Capstone for temporary storage before transfer. A contract was set up for collection from the HWRCs. Following transportation, treatment takes place in West London. On average 300 fridges each week are collected and disposed of.

Once the implementation and procedural guidance on the WEEE Directive is in place it is expected that fridges and freezers may need to be taken to a processor or clearing agent nominated by others. Disposal costs will be paid for by the manufacturers, but the collection and transfer responsibilities may remain with the council. There may also be the need for other electrical items to be collected separately, so the current contract for fridges will end when the UK legislation is implemented.

4.5. REFUSE COLLECTION

Table 3 shows the amount of MSW in 2004/05 (section 3.2). The overall amount of municipal waste produced per household in Medway in 2004/05 was 1.34 tonnes. Collection of household residual waste is in black sacks, with no limit per household.

Medway Council provides an assisted collection service for residents living on their own and who are unable to put out their waste or recycling at the boundary of their property with the highway. This means the contractor will remove the resident’s rubbish from a designated point within the property, but outside of any building.

Bulky waste collection

Medway Council offers free bulky waste collections to residents. However the council has been monitoring the number of collections made from individual households, with a view to restricting the number of free collections to four each year. Up to three items can be collected on each visit. Collection is made within 20 working days on the same day as refuse collection. If a householder wishes to have bulky items removed on a specified date or within 48 hours an express collection service is available at £22 per collection of up to three items.

Table 11: Tonnage of bulky items collected at the kerbside in 2003/04 and 2004/05

	Total number of bookings	Total number of Express bookings	Total number of Metal bookings*	Total number of non-metal bookings*
2003/4	32,604	552	13,898	23,094
2004/5	35,634	278	14,116	25,913

** Please note one booking can contain metal and non- metal items so total of these two is greater than the total number of bookings.*

In 2004/05 35,634 bulky waste collection bookings were made. This represents a 9 per cent increase on 2003/04. An external audit of the services in 2003/04 indicated that Medway Council is not fully committed to waste minimisation by collecting such a wide range of items on an unlimited basis free of charge. The audit suggested Medway Council would need to address this in current or future contracts.

Medway Council will continue to review the number of collections requested and ensure that when it is abused the four collections per year limit is applied. The list of items collected will be reviewed on a regular basis to ensure only household waste is collected.

Further investigations are being made to determine whether wood (e.g. wooden furniture collected as bulky waste) can be segregated and combined with the wood collected at the HWRCs. This will depend on regular availability of wood processing capacity and whether the additional recycling benefit is of interest to the collection contractor.

4.6. STREET CLEANSING

The street cleansing service covers the cleaning of approximately:

- 2700 streets; 956,932sq metres.
- 25 kilometres of shopping parades.
- 10,500sq metres of shopping precincts.
- 11,500sq metres of public building precincts.
- 25,000sq metres of cemeteries.
- 65 kilometres of alleyways.
- 2 ¼ kilometres of footbridges and subways.
- 74,000sq metres of designated open spaces.
- 128,000sq metres car parks.
- 74,000sq metres garage/parking areas.
- 58 bring sites.
- Emptying approximately 1500 litter and canine bins.

- Cleansing following 520 events per annum.

Every street, area or item has a frequency of cleansing specified which is deemed to be the minimum.

Cleansing frequencies vary according to zone, features and usage and represent the minimum standard. The Environment Protection Act (EPA) determines the response time, level and frequency of additional cleansing if any is required. The service is provided on 364 days every year.

The majority of car parks must be cleansed on a daily basis before parked vehicles limit such work. Litter bins in zone one areas, car parks and at bring sites must be emptied at least daily. All other bins are emptied at least twice weekly, whenever the street is cleansed and as often as necessary to ensure they do not overflow. Canine bins are emptied as often as litterbins but always at least three times each week.

The contractor is required to operate a response service using two teams and two vehicles. The service must be available from 8am to 8pm Monday to Friday on an overlapping shift basis with one person and vehicle available 8.30am to 5.30pm at weekends.

The response team deals with flytipping, dead animals, syringes, graffiti, flyposting, and removal of abandoned shopping trolleys etc or for any emergency work that the council considers appropriate.

A gateway team is employed comprising two vehicles. Each vehicle has a team of three people to clear the embankments and grass verges on strategic routes within Medway.

All rubbish collected as part of the street cleansing service is weighed separately before being disposed of as household waste. Where materials collected by the street cleansing service are potentially recyclable and can be retrieved they are segregated into specific containers. Materials recycled in this way include tyres, metals and white goods.

4.7. COMMERCIAL WASTE

Medway Council provides advice for businesses on how to deal with their commercial waste, including:

- Local firms that have the ability to collect different types of waste streams.
- Recycling services available by private organisations.
- Pointing business to other information source or advice bodies (e.g. Business Link) that can assist with their recycling or waste collection needs.

Waste generated within the council is commercial waste and dealt with under separate arrangements. It is also municipal waste, hence it is subject to the targets set for LATS. Funding to deal with the authority's waste exists in budgets allocated to individual departments. There is little or no information on or weight of waste collected and disposed of. A project is being undertaken as part of the councils Carbon Management Programme to determine the amount and types of waste produced by council buildings. There are different arrangements for recycling collections.

New hazardous waste laws complicate the problem further. Within 18 months the council will have to report details of its own waste as well as contend with further legislation changes. It is advisable, therefore that a co-ordinated approach is made to managing corporate waste and recycling to meet Medway Council's obligations.

4.8. OTHER WASTE STREAMS

4.8.1. Clinical Waste

Medway Council provides a household collection of clinical waste to over 30 residents being treated with Continual Ambulatory Peritoneal Dialysis (CADP) at home. It is arranged through the residents' GP or consultant. The arrangement also includes the collection of used needles and syringes from chemists who are part of the free needle exchange scheme. There are at present 15 chemists forming part of the clinical waste collection arrangement.

The frequency of collection depends on the individual resident or the location/use made of the chemist in the needle exchange scheme. All waste collected has to be disposed of under appropriate regulations and is incinerated at William Harvey Hospital in Ashford, Kent.

The council is under increasing pressure to introduce clinical waste collection arrangements for residents who inject insulin for diabetes. The chemists in the needle exchange scheme currently accept used needles, but there are some areas in Medway where the lack of chemists in the scheme is affecting residents' abilities to dispose of their clinical waste.

As a result Medway Council is obtaining details of the potential requirement and associated costs for the particular collection arrangements. The council will aim to minimise these costs by seeking partnership arrangements with other councils if necessary.

4.8.2. Abandoned Vehicles

Abandoned vehicles (AVs) are those deemed to have no known owner for which the council has a duty to remove. Medway Council has a contract in place to ensure that all vehicles collected are treated and disposed of in accordance with the ELV Directive. This means that all fluids, tyres, air bags and batteries are removed from the vehicle and disposed of separately in accordance with the Hazardous Waste Regulations. The recovery of the remaining items complies with the targets set in the directive.

The number of Avs has increased substantially since 2000 due to the value of the steel in a vehicle dropping below the cost of recovering the vehicle. At the same time closer harmonisation of vehicle pricing in Europe meant the cost of new vehicles falling below inflation, but the value of older vehicles plummeting.

Councils, the police and the DVLA trialled a partnership in Medway called Operation Cubit. In this scheme untaxed vehicles were removed immediately using the powers of all three agencies. This reduced vandalism and arson on abandoned vehicles. Previously such vehicles, which had been served a notice of removal, had to be left on the street for a set period of time before they could be removed.

Operation Cubit proved to be successful in removing Avs from the streets by dealing with illegal vehicles before they became abandoned. It has also led to many changes in the law on vehicle taxation, including continuous registration whether the vehicle is used on or off the road. The council also introduced a surrender scheme, which allows a legitimate owner living in Medway to dispose of the vehicle free of charge with a guarantee that current disposal regulations will be met. The demand for this scheme is exceptional, because owners are assured that their vehicle will not continue to be used afterwards and that all the required paperwork is dealt with.

In the last 18 months the value of steel has increased six to seven fold and the number of Avs has dropped significantly because it is once again worthwhile to collect them. However recent changes to the licensing of scrap yards and the need for all vehicles to be processed in accordance with the ELV Directive means that the number of Avs could again increase.

Table 12 shows the number of vehicles dealt with under each scheme used in Medway since 1998.

Table 12: Number of abandoned vehicles dealt with in Medway since 1998

Year	Avs scrapped	Cubit	Surrendered	Total
1998/99 – 2003/04	9,834	1,445	0	11,279
2004/05	2,001	393	694	3,088
Total	**11,835**	**1,838**	**694**	**14,367**

4.8.3. School waste

The current waste contract includes the collection and disposal of waste from 102 schools. The school waste and domestic waste is managed separately by the contractor because the schools are invoiced directly and individually for the number and frequency of emptying waste containers provided. This is different to the household collection service, which is paid for by the weight of waste collected.

At the start of the contract none of the schools recycled any material to any appreciable extent. If a school agreed to undertake recycling, a number of their refuse bins were converted for the collection of recyclable materials or additional bins were issued. These bins are emptied free and the school gets a nominal payment of £5.29 for every tonne of mixed recyclable material collected. Blue boxes have been issued to participating schools for use in the classroom to assist and encourage recycling. As the schools' residual waste is not weighed on collection the exact recycling percentage cannot currently be worked out. Once all the schools have determined the number of containers normally used for residual waste and recycling, a volumetric conversion can be made for the weight of residual waste collected.

Initially the recycling collection was only for mixed paper and cardboard. In April 2005 the service was changed to include the full range of materials collected via the domestic blue box scheme.

Table 13: Number of schools participating and tonnage collected

	Number of schools participating	Total tonnage collected
Sept 03 – Aug 04	88	243 tonnes
Sept 04 – Aug 05	99	303 tonnes

Medway Council also runs an interschool competition that measures the amount of recyclables collected per pupil. The school with the highest amount is awarded a £100 prize in book vouchers.

Each term the schools are issued a newsletter - "Schools Recycling Update". This promotes recycling services and includes a league table showing the top recycling schools.

Medway Council officers regularly visit schools and give talks to students, staff and caretakers about the importance of recycling.

4.9. REFUSE DISPOSAL

All residual municipal waste currently collected in Medway is transported by road to the Rainham landfill site facility (in Essex) having been bulked at the Skipaway transfer station on Medway City Estate in Rochester. The landfill site is situated at Coldharbour Lane, Rainham, Essex with planning permission to allow waste to be imported by road until 2012 and 2018 by river. The site receives all the residual waste from Medway. This includes waste from households, street sweeping, flytipping, and HWRC sites. The total of around 105,000 tonnes municipal waste was collected for disposal at landfill in 2004/05. Cleanaway have an alternative smaller site in the locality in the event of problems occurring at the main site. The only alternative landfill sites with appreciable capacity near to Medway are in Canterbury, Kent or Redhill, Surrey.

The council's current policy on waste disposal states:

"Incinerators shall not be used for the disposal of Medway's household waste nor shall such waste be exported for incineration elsewhere unless an alternative environmental method of disposal cannot be achieved at a comparable cost."

4.10. EXISTING CONTRACTS

The majority of the services listed below are provided under the council's contract with Cleanaway. This contract runs until 2009. A number of low value agreements in respect of special waste disposal are also shown.

Table 14: Existing contract for waste management services

Waste services contract	Contractors	Approximate annual value
Refuse collection	Cleanaway October 2002 – Sept 2009	£2,800,000
Street cleansing		£2,550,000
Recycling collection		£1,800,000
Management of household waste recycling centres		£1,100,000
Clinical waste collection		£60,000
School waste collection		£80,000
Refuse disposal		£4,000,000
Collection and disposal of abandoned vehicles	S&P Motors October 2002 – Sept 2009	£120,000
Collection, transportation and disposal of fridges and freezers	EMR 2003 - 2005	£125,000
Collection and disposal of batteries	G&P Batteries	£5,000
Collection and disposal of gas bottles	Agreement linked to KCC contract	
Collection and disposal of tyres	S&P Motors	£10,000

4.11. BUDGETS

The current cost for waste collection, recycling and disposal in 2004/05 is:

- Collection - £4.6m
- Disposal - £4.0m

Thus the cost for the collection and disposal of waste in Medway for 2004/05 is £8.6 million (excluding the service for dealing with abandoned vehicles). This is equivalent to an average of £81.90 per household per year (based on 105,000 households).

Figure 10 shows the upward trend in collection and disposal cost since 2001. Due to a change in the calculation of the collection cost in 2002/03 the previous year has been omitted in this comparison. Medway Council has introduced significant changes in the kerbside waste collection since 2002/03. These include extended collection scheme for dry recyclables and the introduction of garden waste collection to 65,000 households. This has led to a considerable increase in the collection cost per household over the last two years. Although Medway has significantly increased its recycling level to 27 per cent in 2004/05 the disposal cost continue to increase due to overall waste growth and the increase in landfill tax.

It is anticipated that the cost of waste management will increase significantly in the coming years in order to comply with UK and EU targets for recycling, composting and landfill diversion.

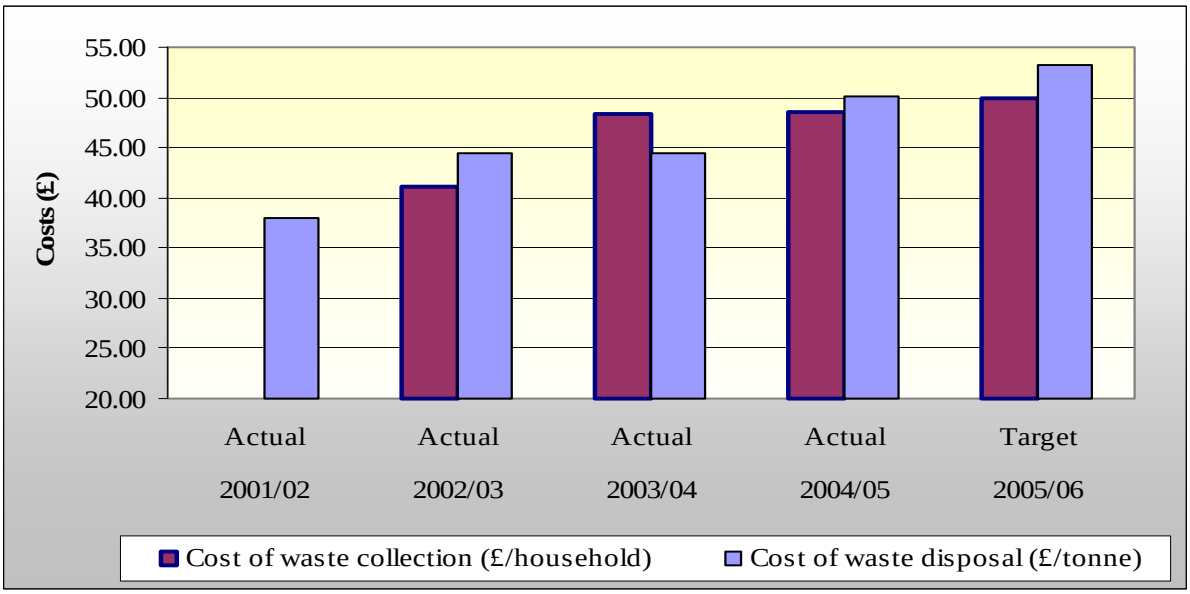


Figure 10: Increase of collection and disposal cost based on BVPI

4.12. ROTATE REPORT

During the winter 2004 an advisor from WRAP's ROTATE (Recycling and Organics Technical Advisory Team) support team visited Medway to review waste collection and recycling services with a view to improving performance Their recommendations were: -

- Carry out participation surveys to identify areas of low participation, allowing targeted market and promotion of services.
- Provide additional kerbside recycling capacity to households via additional boxes or bags.
- Include glass in the kerbside recycling scheme.
- Expand the kerbside green waste collection.
- Consider banning green waste from domestic waste collections.
- Seek ways to introduce kitchen waste collection, either via a separate collection or combining with the existing green waste collection.
- Brand promotional material and make further use of the Medway Matters newsletter.
- Raise awareness and commitment among members, to encourage strong leadership to enable them to tackle difficult issues.
- Consider alternate waste collections for refuse and recycling/composting
- Consider introducing a charge for the collecting bulky waste items and sorting of them for recycling.
- Review operations at HWRC's in accordance with recommendations in the 2004 Network recycling report on HWRCs.

4.13. BEST VALUE REVIEW

The best value review carried out in 2000 effectively overlaid the previous waste strategy. It reviewed the performance of the services provided at that time and allowed members to select a way forward that best met the council's financial, legal, contract and waste liabilities until the implications of many new EU directives were made clearer by UK interpretation.

It meant that any new contract or contracts that were let following the review would not only be based on the recommendations of the review, but were of a duration that generated interest amongst tenderers but also allowed new contracts to be let to meet major changes expected in future legislation.

The main objectives of the best value option chosen by Medway Council in the review and which have therefore been included in the current services are:

- Landfill residual waste.
- Extension of the brown bin service.
- Using low technology to compost garden waste, preferably in Medway.
- Providing recycling boxes for mixed recycling collected fortnightly.
- Keeping existing neighbourhood recycling points.
- Keeping existing weekly collection of refuse with the council continuing to provide sacks.
- Providing ongoing publicity to promote recycling and reuse.

All of these objectives were incorporated into the current waste contract, including the combination of services best suited to achieve the aims of the council. The contract was also let for the recommended period of time - seven years. It can potentially be extended for two years but this would be subject to agreement from both parties.

The new waste strategy must take account of legislative changes that have taken place since the last version was produced and the effects of this on existing services. It must predict and allow for forthcoming changes in waste law, targets and penalties so that new services comply with these, as well as meeting the future aspirations of the council. It will mean further significant changes to services and the type and packaging of the contracts so that the right procurement procedure is used.

5. STRATEGY DEVELOPMENT

5.1. PROJECTION OF FUTURE WASTE QUANTITIES

Increasing amounts of waste will be generated as the UK population and the economy continues to grow. The national growth rate for waste generation is approximately 3 per cent. In Medway the average growth rate for waste has been calculated at 2.1 per cent over the last 5 years (1999/00 to 2003/04).

It is difficult to predict trends in waste growth. It is subject to significant variations and can be influenced by many factors that are difficult to model, such as the weather. For example

the weather is likely to have an effect on the amount of garden waste. However it is necessary to try to provide an indication of future waste growth.

The annual growth rate for waste per household has been identified as 0.8 per cent. This waste growth rate per household has been based upon the overall waste average growth rate of 2.1 per cent minus the household growth rate of 1.3 per cent in 2003.[2] This has to be considered in the context of the new contract. This prevented co-collection of trade waste and placed additional control of commercial vehicles entering the HWRC sites. As a result Medway experienced a decrease in waste growth in 2001/02 and 2002/03.

In order to forecast waste growth rate for the future, housing development and waste minimisation activities should be considered. Medway is recognised by the government as part of the developing Thames Gateway region. This means the waste growth rate has to account for additional households in the area. Given the demography and availability of land in Medway, the council has identified Key Development Plans for areas where the number of dwellings might be increased to accommodate a growing population. In the Best Practicable Environmental Option for Medway (Section 5.4) the number of dwellings has been distributed according to the Development Plans covering a period up to 2024 as shown in Table 15.

Table 15: Projected Growth in Households in Medway to 2024

Development Area	Timescale	Projected increase in number of dwellings	Average
Chatham Centre and waterfront	2004-24	1500	1500
Rochester Riverside	2004-12	1500-1800	1650
Star Hill to Sun Pier	2004-10	350-600	500
Brompton, Fort Amherst and the Lines	2004-14	400-700	550
Chatham Historic Docks	2004-14	200-300	250
St Marys Island	2004-11	680-750	715
Maritime and Interface land	2005-21*	250-600	425
Strood Riverside	2004-08	500	500
Strood Centre	2005-15	100-200	150
Strood Waterfront	2004-24	100-500	300
The Upnors	2007-19	60-100	80
Gillingham Waterfront	2005-10	800-1000	900
Chattenden	2005-10		5000
Hoo	2005-12		550
Wainscott	2005-10		300
Grange Farm	2005-10		250
Cuxton Pit	2004-07		450
Midkent College	2007-17	300-400	350

* Timescale assumed by AEA Technology

The annual growth of households is calculated from these forecasts of the number of dwellings. This is determined by equally distributing the forecast growth annually. For example, in Strood Riverside it is forecasted to grow by 500 dwellings between 2004-2008. Over five years this means an annual growth of 100 dwellings per year. The annual growth for the whole of Medway is calculated as the sum of the individual areas.

[2] Growth of households + the growth of waste per household = Annual waste growth rate.

This growth rate in the number of dwellings is added to the current growth rate for waste per household (0.8 per cent) to get the annual growth rate in waste generation. Beyond 2025 it is forecasted that there will be little space available in Medway for additional dwellings, so the annual growth rate is assumed to remain at 0.05 per cent. It is also assumed that the waste growth rate per household remains at 0.8 per cent. Waste minimisation and public education activities will be required to maintain that rate.

Table 16: Waste growth rate for the different scenarios

Year	Annual household growth	Household growth rate (per cent)	Overall waste growth rate (HH growth rate + waste growth rate)*
2003		1.3	2.1
2004	719	0.7	1.5
2005	1422	1.3	2.2
2006	1422	1.3	2.2
2007	1459	1.3	2.1
2008	1348	1.2	2.0
2009	1248	1.1	1.9
2010	1242	1.1	1.6
2011	929	0.8	1.6
2012	836	0.7	1.5
2013	591	0.5	1.3
2014	588	0.5	1.3
2015	514	0.4	1.3
2016	514	0.4	1.3
2017	512	0.4	1.3
2018	478	0.4	1.2
2019	475	0.4	1.2
2020	475	0.4	1.2
2021	474	0.4	1.2
2022	97	0.1	0.9
2023	97	0.1	0.9
2024	70	0.1	0.9
2025		0.05[#]	0.9

[#]Assumes 0.05 per cent growth rate beyond 2025 as there will be little space available for additional households in Medway.
*Assumes an annual waste growth rate of 0.8 per cent per household.

This waste growth rate per year is multiplied by the total waste generation in the previous year to calculate the annual amount of waste.

It is essential that schemes are in place to achieve and sustain reductions in waste growth. Figure 11 illustrates the effects of various growth rates on the waste generation in Medway.

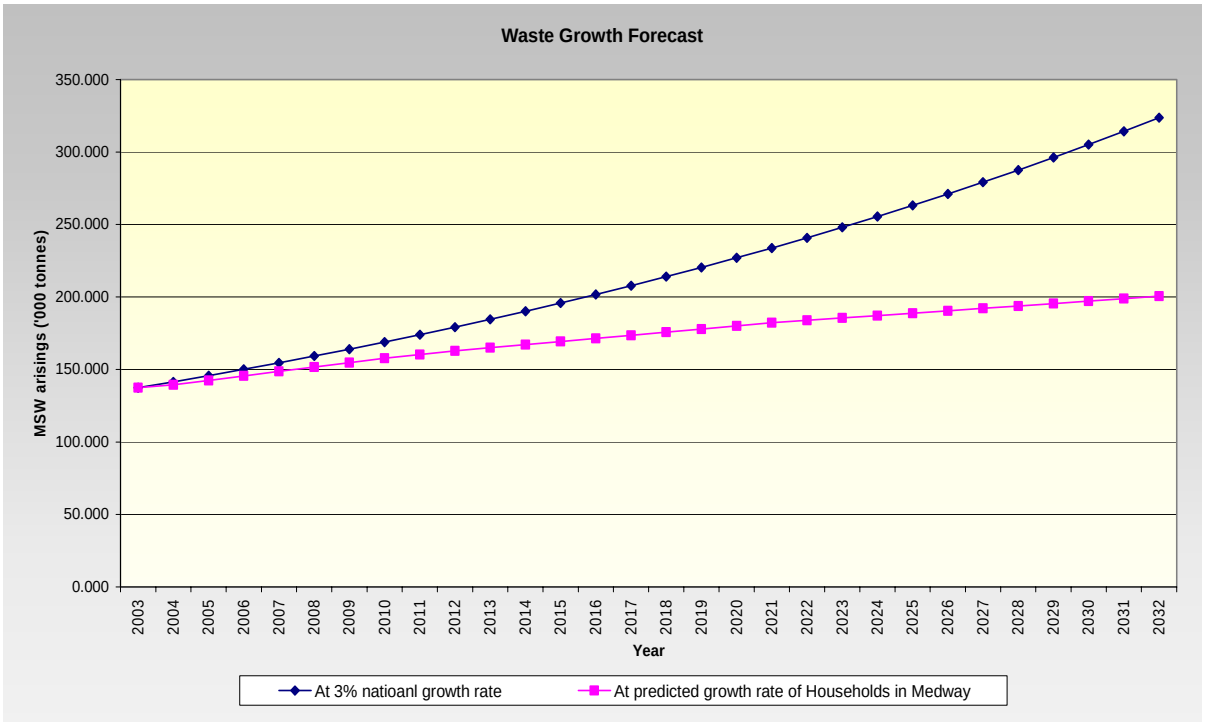


Figure 11: Effects of waste growth in Medway

5.2. IMPLICATIONS FOR MEDWAY

Although Medway continues to increase the amount of waste that is recycled, we need to develop a waste strategy for future years that will enable us to:

- Meet any statutory recycling targets, which are set by government. It is not yet known if government will set any further statutory recycling targets.
- Reduce the amount of biodegradable waste that is disposed on in landfill sites to meet the requirements of the Landfill Directive and to meet the annual landfill allowance targets. These targets have been set by the Waste and Emissions Trading Act.

The main challenge will be to meet the requirements set by the Landfill Directive on reducing the amount of biodegradable waste that is disposed of in landfill sites. The European Commission will be able to fine member states who do not meet their targets. This fine is currently 500,000 Euros (about £350,000) per day.

The government has implemented the Landfill Directive through the Waste and Emissions Trading Act. This spreads the responsibility for meeting the Landfill Directive target between all authorities. This means if every authority meets its target, the UK will not have to pay any fines to the European Commission. Each authority has been set a target for each year to 2020 based on the amount of waste it produced in 2001. The targets set for Medway mean that we will have to reduce the amount of biodegradable municipal waste (BMW) disposed of in landfill sites from the current level of 73,000 tonnes per year (based on 68 per cent biodegradable content in waste and Medway landfill waste of approximately 107,000 tonnes per year) to a maximum of 24,000 tonnes BMW per year by 2020.

The Waste Emissions Trading Act enables the government to fine authorities, which do not meet their yearly targets. This fine is expected to be £150 per tonne of waste above the allowance. These fines will contribute towards the payment of any fines to the European Commission.

Although the UK will not have to pay any fines to the European Commission until 2010 at the earliest, the Waste Emissions Trading Act enables the UK Government to fine any authority that does not meet its yearly targets. From in 2005/06 the government has recognised that whilst some authorities have installed a suitable treatment plant and are already easily meeting their allowances other authorities will not be able to meet their targets. They will not be able to do so until they have increased their current level of recycling and installed a suitable treatment facility. Because of this the legislation enables allowances to be traded between authorities. The aim of the trading of allowances is to enable authorities to meet their obligations through purchasing allowances at a lower cost than the cost of paying a fine to the government. If demand for allowances is high the cost of could approach the level of the fine.

Considering the anticipated waste growth (as indicated in Section 5.1) the total amount of municipal waste in Medway will increase from the current level of about 141,000 tonnes per year to about 178,000 tonnes per year by 2020. If we increased our recycling to 55 per cent (as proposed in the strategy), the amount of waste still to be disposed of in landfill sites would be about 80,000 tonnes in 2019/20. This is about 54,400 tonnes of biodegradable municipal waste.

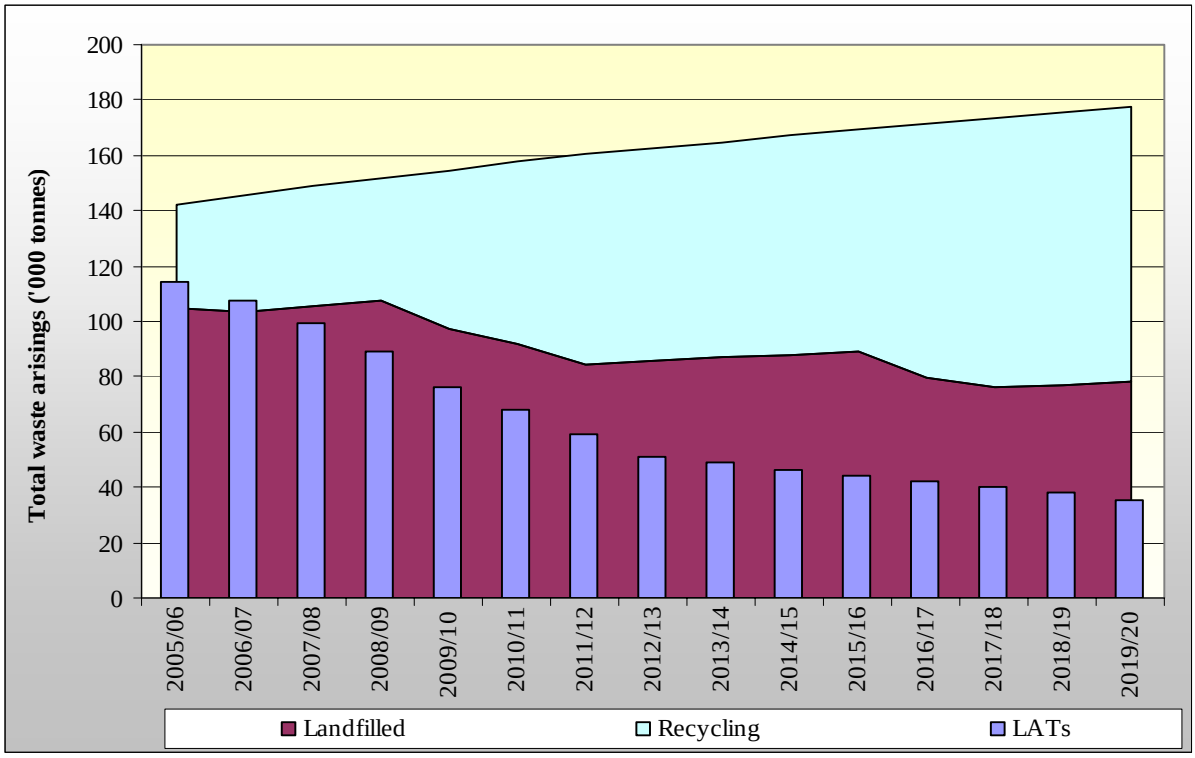


Figure 12: Proportion of recycled, recovered and landfilled waste [3]

[3] Note this graph models the targets of 40per cent in 2010, 45per cent in 2015 and 55per cent in 2020

Medway's maximum allowance for 2019/20 is 24,000 tonnes of biodegradable municipal waste to be disposed of in landfill sites each year. We would exceed our allowance by about 30,400 tonnes in 2019/20, which means that the fine we would have to pay would be £4.6 million (based on the current rate of £150 per tonne and assuming we were unable to purchase any allowances). This is equivalent to an extra payment of £38 per household in fines in the year 2020 on top of the waste management cost (assuming 120,000 households in 2020).

This approach is not acceptable because:

- Medway would not be making any contribution to meeting UK targets set by the Landfill Directive.
- It would result in higher increases in council tax than approaches that reduced the amount of waste to be disposed of in landfill sites.
- Significant landfill capacity would be required. Landfill is not an infinite resource, and is particularly scarce in the southeast of England.

Assuming that Medway can increase recycling to its target of 55 per cent it will also need to divert an additional 30,500 tonnes of waste from landfill by 2020 in order to meet government targets without having to either pay fines or purchase landfill allowances.

5.3. POSSIBLE TREATMENT OPTIONS

Reviews of treatment technologies have found that although there is public opposition to Energy from Waste (EfW) facilities, it is a well established technology and a market for the main product (electricity) is readily available. Some mechanical biological treatment (MBT) technologies are reasonably well developed, and are operating in other European countries. However markets for the products (fuel and/or compost) may be limited in the UK. The government is still considering if potential uses for the compost product would be classified as landfill, and thus would not count towards diverting waste from landfill sites.

Other MBT technologies, autoclaving and gasification, which only produce a fuel product are still being developed. These may have larger potential markets for the fuel product as it has a higher biomass content, and is more attractive to users such as power stations and cement kilns.

Table 17 summarises the main advantages and disadvantages of each treatment technology.

Table 17: Advantages and disadvantages of treatment technologies

Technology	Advantages	Disadvantages
Autoclaving	Range of potential markets for the main product. A higher proportion of dry recyclable materials can be recovered for recycling.	Technology is not yet fully established. Markets are currently limited. Uncertain as to the implications on LATS targets.
Gasification	Markets are available for the electricity that is produced.	Technology is not yet established with household waste.

Technology	Advantages	Disadvantages
Production of a refuse derived fuel (RDF) product	Technology is well established.	Markets for the fuel product are currently limited.
MBT with Composting	Composting is a simple technology and is very well established.	Markets for the compost product will be limited. The compost may not be able to be included in calculation of the recycling rate.
MBT with Anaerobic Digestion	Markets are available for the electricity generated.	Technology not yet well established for mixed household waste. Markets for the compost product will be limited.
Energy from Waste	Technology is well established. Markets are available for the electricity generated.	Public opposition. Metal and bottom ash can be recycled although it does not currently count towards recycling targets. Fly ash has to be landfilled as hazardous waste.

5.4. OPTIONS FOR TREATMENT AND DISPOSAL

The Government's Waste Strategy 2000 recommends that a BPEO assessment be conducted to help identify the best option for waste management in a particular region. The overall objective of this study is to ensure that the various waste management options under consideration for Medway are assessed to ensure the protection of the environment and to further sustainable development.

The process to determine the Best Practicable Environmental Option for managing waste in Medway was conducted in 2005. The goals and objectives set by Medway were used to develop a series of waste management scenarios. These were modelled to develop the BPEO for managing waste in Medway. To represent a variety of possible waste management options that could be implemented, the scenarios assessed were developed in consultation with Medway Council waste management and planning officers. The scenarios chosen are summarised below:

Base case **Landfill with introduction of kitchen waste collection – c**ontinuation of the current landfilling of residual waste.

Scenario 1a **Centralised EfW in Medway – p**rovision of a single 120ktpa energy from waste (EfW) facility (2012) located in Medway, to treat residual waste.

Scenario 1b **Decentralised EfW in Allington – u**sing 100ktpa capacity of the energy from waste (EfW) facility located in Allington from 2009 (with purchased capacity being increased to reflect waste growth). As the EfW facility is not centrally located, the residual waste is bulked at a central transfer station, before transfer to the Allington EfW facility.

Scenario 1c Centralised EfW in Medway with river transportation – As Scenario 1a with the provision for a 120ktpa EfW facility located at the Isle of Grain with transportation via barge across the Medway inlet instead of road transportation.

Scenario 2 Centralised Pyrolysis/Gasification in Medway (2012) - Provision of a 120ktpa pyrolysis/gasification, (2012) located in Medway for residual waste treatment.

Scenario 3 Centralised Autoclaving in Medway (2012) – Provision of an autoclaving technology (2012) with 120ktpa capacity, located in Medway.

Scenario 4a Centralised Mechanical Biological Treatment (MBT) in Medway with export of RDF to third party – Provision of a 120ktpa MBT technology located in Medway (2012) with the RDF product sold to a third party.

Scenario 4b Centralised MBT in Medway with on site combustion of RDF – Provision of a 120ktpa MBT technology located in Medway (2012) with the RDF undergoing on-site combustion.

Scenario 4c Centralised MBT in Medway with RDF disposed to Landfill – Provision of a 120ktpa MBT technology located in Medway (2012) with the RDF product disposed to Rainham, Shelford or Redhill landfill.

Scenario 5 Centralised MBT in Medway with export of RDF to third party and with no kitchen waste collection – Provision of a 120ktpa MBT technology located in Medway (2012) with the RDF product sold to a third party. No kitchen waste collection.

Scenario 6 Decentralised Pyrolysis/Gasification in Medway - Provision of a single 120ktpa pyrolysis/gasification facility (2012) located in Medway. The MRF and in-vessel composting facilities are decentralised at two separate smaller sites within Medway.

The infrastructure to deliver these scenarios was evaluated and assessed against a range of criteria based on environmental, socio-economic and operational issues. Combining these assessments and applying weighting factors to reflect the relative importance of each criteria enabled overall scores to be calculated for each scenario. The weighting factors used for the BPEO assessment for Medway were derived in a consultation meeting with a cross section of officers from different sections and directorates in Medway Council. In addition, weightings of the criteria were undertaken by the public in four consultation workshops in March 2005 and during a Waste Forum meeting in June 2005. The overall weighting factors are an equal combination of both the officers and public weightings.

Table **18** shows the overall weighted performance of the 11 scenarios assessed.

Table 18: Overall weighted performance

Objectives	Scenario										
	Base Case	**Sc 1a**	**Sc 1b**	**Sc 1c**	**Sc 2**	**Sc 3**	**Sc 4a**	**Sc 4b**	**Sc 4c**	**Sc 5**	**Sc 6**
	Landfill	EfW (road)	EfW Allington	EfW (river)	Pyrol/ Gasific.	Auto-claving	MBT-RDF to 3rd Party	MBT on-site combu stion	MBT-RDF to landfill	MBT as 4a, no kitchen waste	Decentr. Pyrol/ Gas
Environmental	13.12	35.85	35.21	29.71	32.26	38.59	28.77	22.16	20.45	31.29	30.47
Socio-economic	10.59	12.18	20.93	8.58	11.82	13.28	9.99	9.37	8.28	2.99	12.32
Operational	11.90	14.52	18.97	14.34	14.68	17.49	17.40	15.38	16.54	17.98	10.93
Total	35.60	62.55	75.11	52.63	58.76	69.37	56.15	46.91	45.27	52.26	53.72
Rank	11	3	1	7	4	2	5	9	10	8	6

The results show that diversion of waste away from landfill is the best option. Generally, energy from waste (EfW) plants score well because they benefit from the additional energy production offsetting the use of fossil fuel. However, autoclaving also benefits from the landfill diversion and additional recycling.

This analysis shows that scenario 1b (decentralised EfW) is ranked the highest. This scenario scores considerably higher in the socio-economic objectives as the scenario has the highest rank for minimising overall costs. This was weighted with the highest importance in Medway. This is primarily due to the EfW facility already being under construction in Allington with potential spare capacity and thus only the cost of purchasing a 100ktpa capacity is required. High capital costs for residual treatment are also avoided.

The results highlighted a limitation of the MBT process: it is less efficient at energy recovery than incineration. This impacts its performance in the WISARD analysis and resulting environmental objective scores. Also the technology is sensitive to having a market for the RDF product and compost/digestate product. These markets are yet to be identified or established.

The autoclaving scenario scores favourable ranking second in overall performance. This has been identified as a result of the high diversion rates of biodegradable waste from landfill combined with the additional 20 per cent recycling that the autoclave technology could achieve. However, the autoclaving process is a new technology not yet established in the UK and there is a significant degree of uncertainty associated with the process and the availability of the markets for this recycled material. A sensitivity analysis on the use of the autoclaving products showed that without a stable market for the recycled material the scenario scores less favourably and is only comparable to other MBT technology scenarios.

Further analysis of the results identifies the sensitivity of the results and rankings to the weightings, as identified by the public, Waste Forum and Medway Council officers. This sensitivity analysis shows the potential variation in the ranking of options if the weightings are applied differently (see Figure 13). Depending on the variation to the weightings, the scenarios show a significant overlap in the overall ranking although scenario 1b (Allington)

and scenario 3 (autoclaving) rank predominantly highest. Although the scenario 3 (autoclaving) identifies a low sensitivity to the weighting, the sensitivity of the technology depending on the establishment of a stable market for its recycled product should be considered.

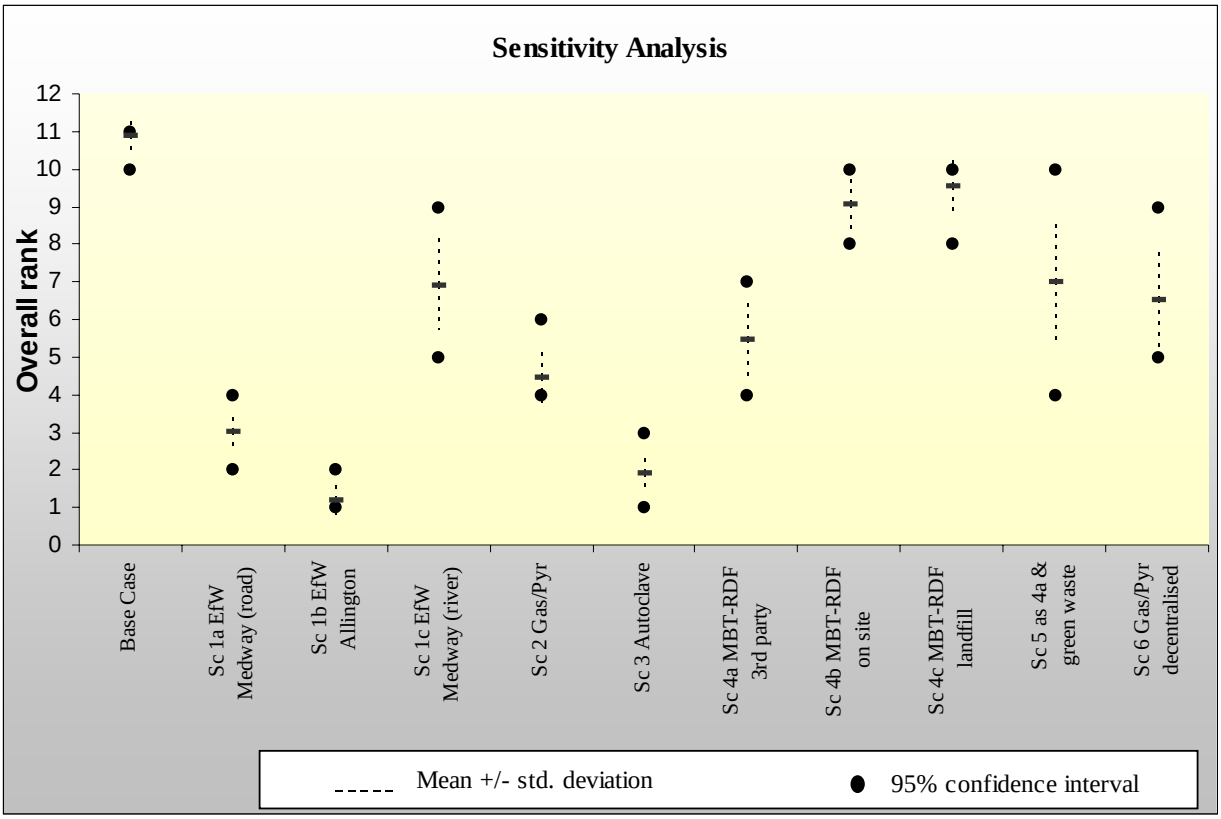


Figure 13: Variation in ranking during sensitivity analysis

In summary, examination of the results shows some key issues Medway needs to consider when selecting a treatment solution to meet LATs targets. These are:

- Energy recovery through thermal treatment is favourable.
- The autoclaving technology option performs favourably although there is significant uncertainty associated with the technology and this should not be ignored.
- MBT technology may benefit from energy generation through anaerobic digestion (AD) although the uncertainty of markets for RDF and compost/digestate needs to be considered.
- Improvement of the recycling performance and landfill diversion of biodegradable municipal waste through the introduction of biowaste (kitchen) waste collection.
- Using waste in a beneficial manner (i.e. recycling or recovery of materials).
- Achievement of planning permission.
- Low overall cost of waste management (including collection and disposal).

These aspects are expressed predominantly in scenario 1b (EfW in Allington). However, it may not be possible to purchase sufficient capacity at Allington and other options need to be considered. The following options may also form the BPEO for Medway:

- Thermal treatment with energy recovery (mass burn incineration or pyrolysis/gasification).

- Autoclaving with careful consideration of markets for recyclable material and the fuel product.
- MBT technology with RDF going to 3rd party considering the risk of finding the market. AD would provide a benefit of energy generation.

All of these options should be further considered in the procurement process for residual treatment technologies in order to provide the BPEO for Medway. There are many other influences outside of this evaluation, which need to be considered in the procurement process. These include:

- the ability of the technology market to deliver.
- the future market for recyclable products, compost and fuel product.
- the overall deliverability of any solution.
- the time factor.

6. HOW DO WE IMPLEMENT THE NECESSARY ACTIONS?

Over 70 per cent of Medway's municipal waste is disposed of in landfill sites. This method of disposing of waste is at the bottom of the waste hierarchy. To move towards more sustainable waste management we must reduce the amount of waste we create and invest in moving further up the waste hierarchy.

6.1. MINIMISE THE AMOUNT OF WASTE GENERATED

Waste reduction and reuse are at the top of the waste hierarchy. Medway Council is working with local charities and organisations to encourage waste reduction and reuse. The council aims to stabilise total household waste collected by 2010 at 2005 levels and in so doing reduce waste by 1 per cent. This means we need to continue to provide education on waste and raise awareness of the problems of unsustainable waste growth.

Reducing and preventing waste at source and home composting has an important role to play. We will continue to promote home composting as part of the national scheme run by WRAP. We will also provide education and support to enable as many householders as possible to participate.

Medway Council will continue to promote real nappies and work closely with local nappy agents and health visitors. The £30 incentive scheme will continue to be provided.

Other schemes are being considered and may be implemented in future:

- A home or mobile wood chipping service for items that are too large for the brown bin collection to encourage people to keep their bulky woody waste at home rather then using the HWRCs. This could be a charged service to cover equipment and running costs.

- Increased advertising for the Vines Centre Trust and other reuse schemes. This would encourage residents to reuse furniture and white goods instead of relying on the councils bulky waste collection service.
- Increased education targeted at waste minimisation. This would highlight the influence consumers can have over manufactures.
- Continuation of work with government, WRAP, ReMade Kent and Medway and other external agencies to encourage waste minimisation at source and increase markets for recycled materials.
- Consider limits being placed on the range of bulky items collected to exclude potential industrial waste. Items that could be excluded are those that form part of the fabric of the house, such as baths, WCs, shower trays, sinks, fitted kitchen/wardrobe units, fitted fires and extractor fans. Links to be established with the councils 'Fair Traders' scheme to ensure businesses associated with housing renovation and repair are responsible waste disposers, licensed waste carriers and use reputable waste disposal facilities.
- Increased fly-tipping enforcement. This would discourage flytipping and ultimately limit the number of incidents.
- Reducing waste left at HWRCs from outside Medway.
- Carrying out further investigations into the use of sink digesters for waste food, especially in flats and new build properties.
- Green procurement code, to encourage the use of recycled items at home and within the council's work. This would reduce the amount of virgin materials used and help minimise waste.

Table 19 outlines timescale for schemes and initiatives targeting waste minimisation as planned by Medway Council over the next 5 years. Progress with these initiatives will be monitored and reported yearly and assessed in the next review of the waste strategy. An action plan will be formulated for implementation of these initiatives once the strategy has been adopted by council in January 2006, following which business cases for each initiative will be formulated to assess their potential impact on waste minimisation and associated costs.

Table 19: Schemes and initiatives recommended to targets waste minimisation

	Initiative	Description	Timescale
WM 1	Waste growth	Slow down, stabilise rate of growth of municipal waste with the aim to maintain waste collected per head of population at 2005/6 levels of 567kg per annum.	2010
WM 2	Waste minimisation at source	Work with external agencies to encourage waste minimisation at source and improve markets for recycled materials.	On going
WM 3	Home composting campaign	Continue to provide home composting units and support the national campaign.	On going
WM 4	Reusable nappies	Continue to support the real nappy programme, working with external bodies such as Waste Resource Action Programme, Real Nappy network, local agents and health visitors.	On going
WM 5	Wood chipping	Investigate the feasibility of a home, mobile wood chipping service.	2007

WM 6	Charity reuse schemes	Increase advertising for reuse schemes, for example the Vines Centre Trust, to encourage residents to reuse furniture and white goods rather then rely on the council's bulky waste collection service.	On going
WM 7	Waste exchange	Investigate and undertake a trial waste exchange day to promote reuse of items.	2006
WM 8	Bulky waste reduction	Limit the range of bulky items collected to exclude those that could be deemed to be industrial waste, ensuring close monitoring to assess impact on fly tipping.	2007
WM 9	Think before you buy	Increase education of the public on waste minimisation to use the power and influence consumers have over manufacturers.	On going
WM 10	Enforcement	Increase fly-tipping enforcement. This would discourage fly-tipping and ultimately limit the number of incidents.	On going
WM 11	The green procurement code	Work with other sections within Medway Council to promote a green procurement code and with external agencies to pass the message on to other businesses in Medway.	On going
WM12	Household waste recycling centres	Work with KCC to ensure Medway is compensated for the waste left at household waste recycling centres by residents from outside the area or the sites' usage is restricted to Medway residents only.	2006
WM 13	Food digesters	Conduct further investigations, especially with local water authorities, to assess the impact and feasibility for the use of sink digesters for waste food, especially in flats and new builds.	2007

6.2. WHAT LEVEL OF RECYCLING AND WHY?

Medway's statutory recycling and composting target for 2005/6 is 30 per cent. In 2004/5, we achieved 27.5 per cent. No further statutory recycling targets have been set for Medway, but nationally the UK must reach 33 per cent by 2015. It must also recover value from 40 per cent of municipal waste by 2010 and 45 per cent by 2015. Recycling and composting count towards the recovery target.

If Medway does not rely on any disposal arrangement to reach recovery targets it would need to recycle and compost a minimum of 45 per cent of waste by 2015. This means that the recycling rate would need to increase by an average of at least 1 per cent per year until 2015. Alternatively, any new collection contract will have to achieve an increase of between 5 per cent and 7 per cent within 18 months of the start unless the disposal option produces some form of energy from waste, which contributes towards the recovery target.

Consultation work carried out included a questionnaire to the best value panel in September 2004 and workshops undertaken in March and June 2005. In the consultation residents said they would like more recycling and a higher target being achieved. Even though the questionnaire did not ask residents to indicate a specific recycling rate, they were asked about other materials they would like to recycle at the kerbside and at HWRC's.

At the workshops, residents were asked to suggest a target for recycling. The suggested targets ranged from 30 per cent to 100 per cent. On average, residents would like to see Medway aiming for a recycling rate of around 60 per cent. In the Medway Waste Forum workshop the results were between 85 per cent and 100 per cent, although their answer did include the need for consideration of MBT technology for residual treatment.

What recycling rate are other UK authorities achieving?
Those local authorities with the highest achievements seem to be increasing recycling further and most have alternate weekly collections of residual waste. There are no recent improvements to their comprehensive services that make their procedures stand out as unique or exceptional in the last year and likely to lead to an appreciable future gain.

6.3. HOW TO INCREASE THE RECYCLING LEVEL?

Following public consultation and due to the potential additional costs of the Landfill Directive, the Council aims to increase the recycling rate to at least:

- 40 per cent by 2010
- 45 per cent by 2015
- 55 per cent by 2020

Medway Council would like to achieve these targets through recycling and composting of materials collected at the kerbside, at bring sites and at HWRCs. Source segregated dry recyclables and organic materials are better quality, as they are not contaminated through residual waste. This makes markets for products easier to secure.

The following sections provide information about the potential changes and the decisions the council must make to achieve these challenging targets. Additional recycling at the kerbside will depend on factors including:

- Potential capture rate of recyclable and compostable materials.
- Actual participation rates.
- Type of materials collected.
- Type of containers used for collection of recyclable and organic material.
- How often collections are made.

Each of these affects the cost and contract arrangements for collection.

6.3.1. Capture Rates

To achieve increased recycling rates, the capture rate must be increased. In section 4.4.1, the meaning of capture rates was discussed along with an explanation of how this is difficult to assess without more detailed surveys and sampling over a period of time.
As shown Table 7, only a proportion of the total recyclable waste available is being collected. This proportion varies for different materials. To achieve 100 per cent capture rates, all residents would have to be recycling all of their recyclable materials. This is unlikely to happen. Capture rates are likely to improve when the range of materials collected, the size of container and frequency of collection are increased.

In the questionnaire residents were asked to state reasons for not recycling frequently. Their responses are summarised in Table 20.

Table 20: Reasons for infrequent use of Blue Box and garden waste kerbside services

Blue Box Kerbside Recycling		**Garden Waste Collection Service**	
Respondents	435	Respondents	1054
Box missing or stolen	29	Not enough to fill bin every fortnight	45
Not sure of type of items collected	17	Service not available at my property	35
Live in a flat-service not available	17	No space outside to put bin	9
Not enough to fill box every fortnight	16	Take garden waste to the tip	7
Box is too small	15	Don't have a garden	7
Unaware of collection day	12	Bin difficult to move when full	7
Prefer to use recycling banks	12	Wheeled bin missing/stolen	6
No space to store the box	10	Not sure what items can be collected	5
Too much trouble	10	Unaware of collection day	3
Collection unreliable	7	Not interested	3
Not interested	6	Too much trouble	3
Box difficult to move when full	6	Collection unreliable	1
Take recyclables to the tip	5	Not convinced of environmental benefits	1
Not convinced of environmental benefits	3		
Total per cent	**100**	**Total per cent**	**100**

Issues like missing containers and unreliable collections can be easily addressed through contract management. Other issues like not knowing the collection day or the materials that can be recycled need to be addressed by improved education.

Where residents consider it is too much trouble, are not interested or not convinced of the environmental benefits of recycling, better education and potentially introducing a restriction in residual waste collections (see section 6.6.3) encourages greater participation in the recycling services. The effects of container size are considered in the next section.

Table 21 summarises the implication on the recycling rate if the capture rate of materials already collected at the kerbside would be increased.

Table 21: Summary of implications on recycling rate with increased capture rate

Material	Current capture rate (per cent)	Potential tonnage	Actual tonnages 2004/5	Current contribution to recycling rate (per cent)	Increased capture rate (per cent)	Increased capture rate	Potential contribution to recycling rate (per cent)
Paper and card	48	24,932	11,866*	11.8	60	14,959	14.9
Plastic film	12	2,143	261*	0.3	25	536	0.5
Dense plastic	24	1,619	391*	0.4	50	810	0.8
Cans	8	3,085	261*	0.3	25	771	0.8
Garden waste	69	17,075	11,808	11.7	80	13,660	13.6

* estimated from make up at MRF and actual from bring sites only.

6.3.2. Types of materials collected

To achieve the best recycling rate it is important to know what makes up the waste we produce. In 1999 MEL Research undertook a detailed analysis of waste collected at different times of year from different parts of Medway. The information was updated in 2004 by AEA Technology using a desk based review. This took account of changes in the waste make up in other parts of the UK since 1999. The following table gives a breakdown of additional materials that could be separated for recycling and how much of our waste they make up.

Table 22: Breakdown of additional materials in the waste stream potentially for recycling

Material	Percentage in waste stream
Glass	6.12
Kitchen Putrescibles	10.17
Tetra packs	0.33
Other types of plastic	4.81
Household batteries	0.10
WEEE	0.62

Note: The percentage of materials available for recycling is not necessarily the percentage of material present in the waste stream, e.g. not all kitchen putrescibles are compostable.

The questionnaire established that 81 per cent of respondents would like to be able to recycle glass bottles and jars. Plastic containers, in addition to plastic bottles, were mentioned by 6 per cent of respondents, clothing and textiles were each mentioned by 5 per cent of respondents. The most frequently mentioned items in requests to the council's waste services section for additional recycling collections are glass, batteries and tetra packs.

1. Glass

Over recent years the market for glass has become more stable. There have been developments in alternate uses for glass bottles and jars other than re manufacturing the same items. Although bring sites are well used, there is a high level of demand from Medway residents for kerbside collections of glass. Glass currently represents around 6.12 per cent of Medway's kerbside waste (6,158 tonnes in 2004/5). Collections through bring sites account for 1,762 tonnes. Including glass in a kerbside scheme would generate about 3,079 tonnes. This assumes a 50 per cent capture rate. This would add around 1.35 per cent to the recycling rate.

Newer MRFs (such as in Greenwich) have a mechanical process where glass bottles and jars can be separated out from mixed collections of paper, card, plastics and cans. However, there are operational problems and any glass contamination of paper will cause difficulties in the recycling process. Some paper mills operate a strict quality check to EU standards for waste paper received. Many mills want relatively high grade sorting to have taken place. Most will reject glass contaminated paper waste.

2. Kitchen Putrescibles

Under the Animal-By-product Regulation food waste cannot be composted in open windrows. This includes any vegetable waste that has come out of a domestic kitchen, because it might have been contaminated by contact with meat products. This means all kitchen waste would have to be composted within a sealed container. This is known as in-vessel composting. Kitchen waste which can be composted represents 10.17 per cent of the waste stream. Introducing a kerbside collection in conjunction with garden waste using existing brown bins could have a significant impact on the recycling rate.

Even with a 50 per cent capture rate from suitable properties we estimate the increase in weight collected for composting would add 5 per cent to the recycling rate. The use of the brown bin would need to be extended to cover all suitable properties and the bins would need to be emptied more often due to the highly putrescible material.

3. Tetra packs

Tetra packs contain at least three types of materials; cardboard, foil and plastic. These are very difficult to separate. In Europe, every day around 70 million litres of are packaged in beverage cartons, yet tetra pack cartons account for less than 1 per cent of the total waste created by Europe's households[4]. In Medway such packs only account for around 0.33 per cent of waste.

There is only one company in the UK that recycles tetra packs and it is based in Scotland. MRFs handling mixed materials will not accept tetra packs. There is one transfer station for tetra packs in Essex and it charges a fee to collect them as loose materials, transport it to their depot in Essex, bail and then transport them to the recycling facility in Scotland. Due to the low tonnages involved, it is not considered to be cost effective to consider collecting these items for recycling at the moment.

4. Plastics other than bottles and bags.

Medway Council currently collects all types of plastic bottle and plastic carrier bags for recycling. There are many other types of plastics within the waste. Even though these are only 4.81 per cent of the waste by weight, they do represent a high volume of waste. These items include yoghurt pots, butter tubs, ice cream tubs and plastic film but like tetra packs,

[4] http://www.tetrapak.com/docs/environment/What_happens-eng.pdf

there is little market in the UK or overseas for these types of plastics and, it is not currently economically viable to collect them for recycling. MRFs for mixed materials do not accept these types of plastic.

5. Household batteries and Waste Electrical and Electronic Equipment

There will be a legal requirement in the future to collect or segregate the disposal of WEEE goods and batteries. This is a result of restrictions on hazardous waste being sent to landfill sites, the forthcoming UK legislation interpreting the Draft Directive on Batteries and Accumulators and the WEEE Directive. Whilst this doesn't directly affect householders, they will be affected by changes that the council will have to introduce. This will provide opportunities to increase the recycling and potential reuse of WEEE items. Manufacturers will become responsible for the cost of processing and disposing of WEEE.

Batteries and small WEEE items represent only 0.1 per cent and 0.62 per cent of Medway's waste respectively. If they are recycled it will have little impact on the recycling rate. The benefit of recycling such items is reducing environmental damage from the chemicals contained within them. Collections will be more economically viable at bring sites and HWRCs due to the limited quantities and weight of items involved. Large WEEE items, such as cookers, washing machines, fridges and microwaves are already collected separately from residual waste by the bulky waste service and at the HWRC's. This service will be affected by new legislation if retailers are made to provide a take back scheme when new items are delivered.

6. Bulky waste items

Many bulky waste items collected by Medway are already recycled. In 2004/5 over 38,000 collections took place each year accounting for 2,214 tonnes of waste of which 487 tonnes were metal items and fridges/freezers that were recycled. Most collections are made free of charge and up to three items can be collected on each booking.

Auditors have commented that providing a free bulky waste collection service does not contribute to waste minimisation and prevents opportunities for many items to be re used. The range of items currently collected extends beyond what is deemed to be household waste. The council does not have to collect waste which results from repairs to property. All bulky waste collected however has to be counted as household waste which means it is taken into account when calculating the recycling percentage. As the waste is disposed of in landfill sites as mixed waste, it will be classified as 68 per cent biodegradable and counted against Medway's LATS targets.

White goods are collected separately in special vehicles for recycling and treatment before disposal. All other bulky waste is crushed on collection due to the high volume of items involved. To enable recycling to take place, even for wooden items, a change in the collection system would be needed at additional cost.

In the questionnaire a third of respondents said that they would be willing to pay for a quicker bulky waste collection service. Two thirds of respondents would not be prepared to pay at all for this service. Over half of the respondents who were willing to pay for a collection service (50.6per cent) were prepared to pay under £5 per collection. Around 43.per cent were willing to pay under £10 per collection. Figure 14 shows the amount respondents are willing to pay for a bulky waste collection service.

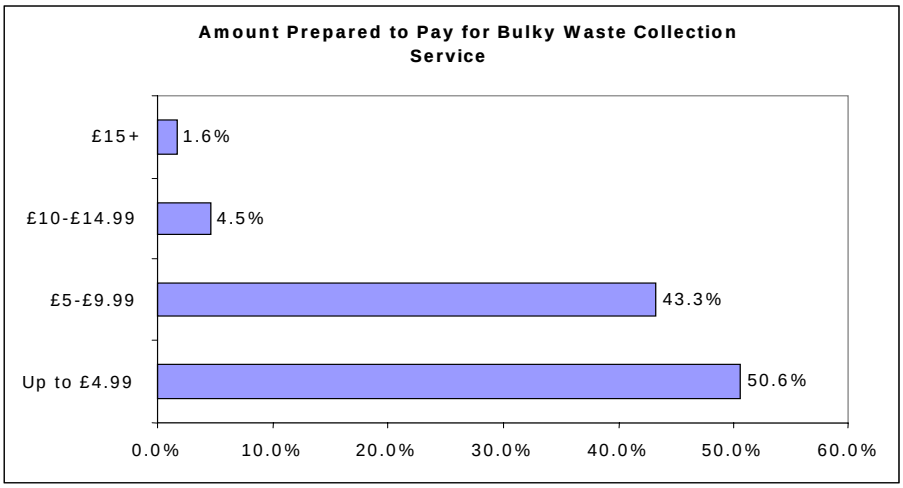


Figure 14: Responses to questionnaire regarding amount to be paid for bulky waste collection

Medway Council considers changes to the current bulky waste:

- Restricting collections to certain types of bulky household waste. This would mean that some items would be removed by commercial operators and not become part of Medway's municipal waste.
- Introducing collection charges would encourage greater use of the retailer take back schemes should they become compulsory. It would also encourage residents to consider passing on items to charities or renovation organisations.

7. Cooking oil

Historically, cooking oil has been collected commercially from catering businesses for use in animal feeds. Since the introduction of the Animal By-Products Regulation, this has not been permitted but there is a growing industry turning cooking oil into bio fuel for use in vehicle engines. Research has shown that cooking oil represents a noticeable part of Medway's waste emanating primarily from deep fat fryers. Changes in eating and cooking habits however mean less food is fried at home thus reducing cooking oil waste. There may be potential to collect cooking oil at HWRCs but quantities are likely to be very low so it is questionable if there is a need for this service. Further investigation would be required to establish if this service would be economical. Space is very limited at these sites and could be better used for other services. Providing this service at HWRC sites could also encourage misuse of the sites by businesses.

6.3.3. Type of kerbside collection container

The type of container used for collection of recyclable and organic material is likely to affect recycling. Medway Council is considering the various containers available to identify how recycling rates could be improved cost efficiently.

Containers for garden/kitchen waste

Collections of kitchen waste in many areas are often made using the same container as the garden waste. This is to avoid having to introduce another vehicle and container in the kerbside service. In Medway this could be achieved using the 240 litre brown bins. To ensure kitchen waste collections are viable around 20,000 brown bins would need to be purchased for those properties without brown bins and for properties built since the original scheme started. The council would need to work out the number of householders prepared to participate in the scheme.

There are difficulties collecting kitchen waste from flats as, they are unlikely to have a brown bin. For smaller low rise complexes it may be possible to introduce a shared bin. However, the large quantity of kitchen waste and segregation of types of waste may be difficult to maintain with shared bins in flat complexes. The kitchen waste could be often contaminated with other waste such as plastics. This would mean that the kitchen waste has to be disposed of in landfill sites.

For larger multiple units of accommodation the council may provide subsidised or free sink disposal units. These would eliminate the need for any bins or collection arrangements for kitchen waste. It would however depend on negotiation and agreement with the water company in Medway.

Containers for dry recyclables

To enable a higher capture rate and a wider range of materials to be collected, the container already provided for dry recyclables needs to be reviewed. The blue 55-litre box is easily filled if residents are keen to recycle. Medway Council regularly receives requests for additional containers. Many residents revert to filling black sacks with recycling once the blue box is full use carrier bags and cardboard boxes. There are also problems with litter from papers and plastic bottles blown from overflowing boxes.

The council has investigated providing an additional blue bag for residents putting out recycling that exceeds the capacity of the box. A reusable version would incur considerable extra handling costs during collection and has limited capacity. A single use bag has a much larger capacity and does not involve any more handling costs or time than required to deal with carrier bags and cardboard boxes.

In October –November 2005 a survey of all households in Medway was undertaken to assess which properties are participating in the blue box services. Theses that are taking part are being issued a once used plastic bag (made form recycled materials) in December 2005 to supplement the capacity if the blue box scheme. The effects this additional container has tonnages of materials collected will be assessed in the following months.

In the questionnaire, residents were asked to indicate their preference for containers. A box (as in the current scheme) was the most popular choice, selected by over 36 per cent of respondents, although over 32 per cent preferred a wheeled bin. Just under 19 per cent of respondents had no preference and the remaining 11.7 per cent would prefer to use bags for kerbside recycling. Figure 15 shows respondent preferences.

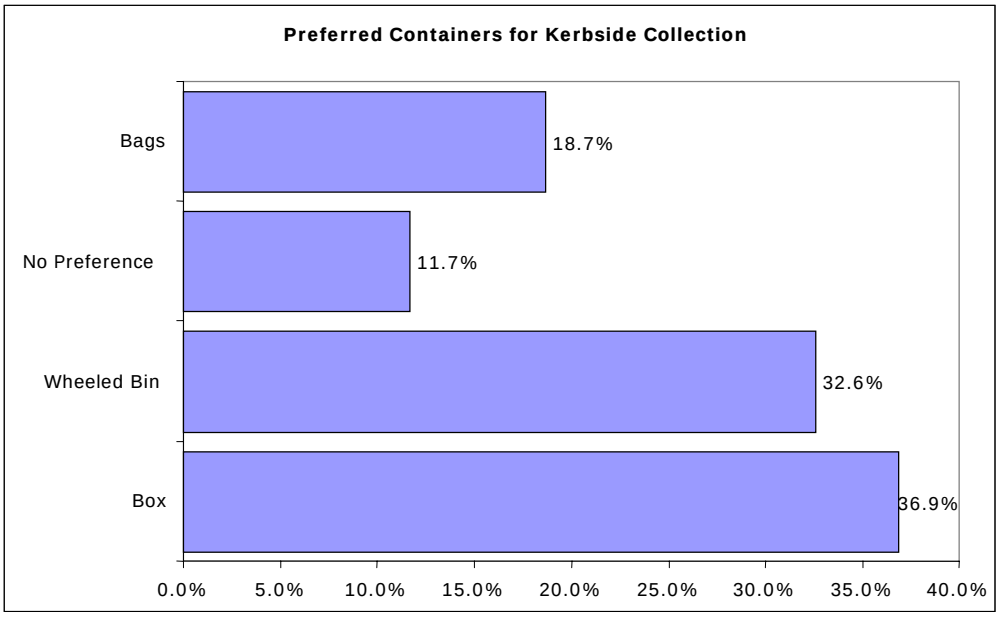


Figure 15: Questionnaire responses regarding preferred kerbside collection container

The council needs to consider the type of container to be used in future collection contracts. In a survey of the top 12 performing authorities in 2003/4 a range of container types were used for the collection of recyclable materials:

- Four authorities use wheeled bins.
- Three authorities issue more than one box.
- One authority uses boxes and bags.
- One authority uses clear sacks only.
- One authority uses one box but collects weekly.
- Two authorities use a single box, but do not yet collect cardboard or plastics.

The type of collection container used will also depend how often it is emptied. The more often a container is emptied, the smaller it can be. The costs of different collection systems are detailed below.

Residual waste

Studies have shown that when introducing a wheeled bin service using 240litre bins and collecting weekly, the amount of residual waste rises. Despite this many councils have recently converted to wheeled bins for residual waste collection. There are advantages to wheeled bins compared to black sacks. These include:

- The elimination of split bags from overfilling or animal attacks.
- Being able to place restrictions on the amount of waste collected, encouraging more use of recycling and composting facilities.

The major disadvantage for wheeled bins is the capital cost for introducing the bins. A 240 litre bin costs about £18, plus delivery. Their expected life span is more than 15 years, but many councils have used wheeled bins for over 25 years and have not yet had to replace them. The capital costs need to be considered against the annual costs of black sacks (see section below on costs).

A review of the residual waste collection of the top 12 authorities showed the following :

- Nine authorities collect residual waste fortnightly all using 240 litre wheelie bins, 8 of which do not allow side waste.
- Two authorities collect weekly using 140 litre wheelie bins, neither allows side waste.
- One authority collects weekly on sack or dustbin.

Summary of container type options:

Medway Council has set challenging targets to achieve 40 per cent recycling by 2010, 45 per cent recycling by 2015 and 55 per cent recycling by 2020. The type of container is likely to affect the level of recycling and the council needs to identify a cost efficient option to achieve the recycling targets that would also be accepted by residents.

Table 23 provides a cost breakdown of providing a variety of container type options. AEA Technology modelled the likely collection cost for each container option. These costs were based on the amount of waste, which Medway is predicted to produce in 2015 with 45 per cent recycling.

The frequency of collection for each type of waste is kept the same as now (weekly residual, alternate weekly collection for dry recycling and garden/kitchen waste). The model is based on:

- A total of 117,229 households in 2015.
- 90,000 households being suitable for wheeled bins.
- 12,229 households not being suitable for wheeled bins.
- 15,000 flats.

The modelled collection costs are indicative only and should be seen as information to allow the comparison of various container types and collection frequency. The modelling tool used to derive the likely cost for future collection arrangements contains certain factors which have to be taken into consideration when viewing the results outlined in the tables below.

1. The waste tonnage for 2015 has been used with a recycling target of 45%.
2. The costs are based on today's prices and therefore do not take into consideration inflation.
3. It should be noted that whilst modelling the current container arrangement with 2015 tonnage, the cost cannot be compared with the current collection cost for Medway. The cost will change as it depends on the tonnage collected, e.g. less residual waste will be collected in 2015, hence the collection cost for residual waste will be slightly lower.

Participation Rate – is the percentage of households that will have to be using the scheme at least once every four weeks to achieve the set recycling targets. To achieve the high participation rates needed an extensive education programme will be required.

Scheme Efficiency – is how effective the scheme will have to be in order to achieve the recycling target. The scheme efficiency rate considers the participation rate, requirements for education and awareness raising and that contamination levels should be kept low.

Table 23: Indicative cost of different container type options[5]

Container Type		Indicative collection cost
Residual waste		
Option 1	Black sacks issued to all households including flats	£2.02m
Option 2	240ltr wheeled bins for 90,000 properties with 27,229 given sacks	£2.47m
Dry Recycling		
Option 1	No additional containers	CF[6]
Option 2	102,229 given an additional box (i.e. total 2 boxes)	£1.55m
Option 3	102,229 given one use sack in addition to box	£1.65m
Option 4a	90,000 houses given wheeled bins and 12,229 houses given additional box	£1.60m
Option 4b	90,000 houses given wheeled bins and 12,229 houses given additional bag	£1.63m
Garden/kitchen waste		
Option 1	No additional containers	Limit exceeded[7]
Option 2	Additional wheeled bin for 90,000	£1.90m
Option 3	Additional wheeled bin for 90,000 H/Hs + biodegradable sacks for 12,229	£1.93m

[5] The cost provided have been modelled based upon a number of variables and are provided for indicative purposes only. The real cost will be identified during procurement when bids are received. These may vary dependent upon market conditions, competition and other factor at the time.
[6] Container full – scenario can not be modelled as insufficient containers to take tonnage of waste
[7] Tonnage of waste collected from households exceeds typical maximum of 400kg/hh/yr

Table 23 shows which options are the cheapest and most workable considering the limitations of the size/number of containers being insufficient in some cases for the tonnage of waste produced. The cheapest option for residual waste is Option 1, which is to provide all households and flats with black sacks. The drawback with black sacks however are the health and safety implications both for the users and the refuse collectors of handling the bags, as well as the potential litter caused by split bags. In addition, wheeled bins would allow the council to place restrictions on the amount of residual waste collected, encouraging more use of recycling and composting facilities. With out these restrictions, Medway would be unlikely to meet its recycling targets.

The cheapest scenario for dry recycling is Option 2. This is to provide each household with 2 boxes. This option does however require a high participation and scheme efficiency rate due to the limited volume of the boxes, therefore wheeled bins would be a more viable option when trying to obtain the challenging recycling targets, which have been set.

Providing all suitable households with wheeled bins for the collection of kitchen/garden waste, Option 2, has come out as the cheapest option. However, providing biodegradable bags to a number of additional households does not show a large difference in cost, but a slightly lower participation rate and a higher scheme efficiency rate would be required to achieve the recycling target, because more households are included in the scheme.

The logistics of storing the containers for each of the households will have to be taken into consideration before any decisions are made, for example will all households have the facilities to store 3 wheeled bins, 1 bin for each of three waste types. Furthermore, the participation and scheme efficiencies rates for all of the options are high and therefore a major educational programme will be essential if targets are to be met.

6.3.4. Frequency of collection

The frequency of collection is also likely to affect the recycling level. Table 24 and Table 25 provide a cost breakdown of different collection frequency for each of the waste types. The collection frequency was modelled with the current container types used within Medway, with the exception of the dry recyclables where an additional box was given to 102,229 households. Without this change it would not have been possible to model dry recyclables as the container available would not be sufficient for the amount of waste.

Option 1 Weekly residual, alternate weekly dry recycling and kitchen/garden
Option 2 Weekly garden/kitchen, alternate weekly residual and dry recycling
Option 3 Weekly garden/kitchen & residual, alternate weekly dry recycling
Option 4 Weekly garden/kitchen & dry recycling, alternate weekly residual
Option 5 Weekly garden/kitchen, residual & dry recycling

Table 24: Indicative cost considering frequency of collection for current container types [8]

Frequency of collection – with current container types				
	Residual	**Dry Recyclable**	**Kitchen/Garden**	**Total**
Option 1	£2.02m	£1.56m	£1.90m	£5.48m
Option 2	£1.78m	£1.55m	£2.22m	£5.54m
Option 3	£2.01m	£1.55m	£2.23m	£5.79m
Option 4	£1.77m	£2.34m	£2.21m	£6.32m
Option 5	£2.01m	£2.36m	£2.23m	£6.60m

Alternate weekly collection
Weekly collection
Container type: Residual – black sack to all households
Dry recyclable – 2 boxes to 102,229 households
Kitchen/garden waste – wheeled bin to 90,000 households

A weekly collection for residual waste and an alternate weekly collection for dry recyclable and kitchen/waste (Option 1) is the cheapest collection scenario. This scenario however requires a high participation and scheme efficiency rate in order to achieve the modelled 45 per cent recycling target. Option 2 is more expensive, but is more likely to achieve the recycling rates aimed for.

Table 25 is based on the same options as Table 24 with a change in the container type for each of the waste types in order to provide more storage capacity for residents.

Table 25: Indicative cost considering frequency of collection for high container capacity[8]

Frequency of collection – with high container capacity				
	Residual	**Dry Recyclable**	**Kitchen/Garden**	**Total**
Option 1	£2.47m	£1.63m	£1.93m	£6.03m
Option 2	£2.15m	£1.63m	£2.26m	£6.04m
Option 3	£2.48m	£1.64m	£2.26m	£6.38m
Option 4	£2.17m	£2.30m	£2.27m	£6.74m
Option 5	£2.50m	£2.30m	£2.28m	£7.07m

Alternate weekly collection
Weekly collection
Container type: Residual –Wheeled bin to all 90,000 households, remaining with black sack
Dry recyclable – wheeled bin to 90,000 households and 12,229 with 2 boxes
Kitchen/garden waste – wheeled bin to 90,000 households with bag to 12,229 households

The cheapest scenario again is Option 1 with weekly collection for residual waste and alternate weekly collection for dry recyclables and kitchen/garden waste. The cost is higher than that seen in Table 24 with the lower container capacity yet the participation and scheme efficiency rate are likely to be more obtainable.

[8] The cost provided have been modelled based upon a number of variables and are provided for indicative purposes only. The real cost will be identified during procurement when bids are received. These may vary dependent upon market conditions, competition and other factor at the time.

However, in the decision of collection frequency it should also be considered that residents need to be encouraged to do recycling. It should be noted that high participation rates will be required to achieve the increased recycling rates which will result in either higher collection costs or mandatory actions. Limiting the collection of residual waste to alternate weekly collections is likely to have a benefit for increasing recycling levels. Alternate weekly collection inherently provides a level of pressure to recycle and leads to increased participation rates without resorting to large scale support programmes (at high cost) or penalising households who do not recycle (unpopular).

Option 2 provides alternate weekly collection for residuals and dry recyclables with weekly collection for kitchen /garden waste. Although this option is slightly more expensive it is more likely to lead to the increased recycling targets.

6.3.5. Household waste recycling centres

The household waste recycling centres recycled 44% in 2004/5. Improvements could be made on this performance through more separation of mixed waste by residents. An analysis of the contents of the residual waste skips needs to be undertaken to assess the potential additional materials that could be recovered or recycled.

A study needs to be undertaken to establish if an increase in the numbers of trained recycling staff with appropriate incentives at each site, on top of the current staff whose time is predominantly occupied with operational issues, is required. This will determine the higher targets that need to be set in the next contract to encourage the proactive separation of mixed waste at the sites.

6.3.6. Contract implications

The current collection ***and household waste recycling centre contract runs*** until September 2009. Due to the contract conditions there are only certain options that could potentially be implemented during the contract period. These include increased monitoring of participation and capture rates to enable targeted education and awareness campaigns. All other items would be subject to inclusion in the next contract and relevant tendering procedures.

6.3.7. Budgets for education and promotion of waste minimisation and recycling

Education and promotion of recycling services is a significant factor affecting capture rates. Residents need to be continuously reminded about collection schemes that are in place. The most successful recycling schemes in the UK rely on intensive public education with significant budgets to promote the services. The Waste Resource and Action Programme (WRAP) is a government-sponsored organisation, one of its commitments has been to sponsor and provide advice for local authorities to initiate an effective recycling and waste awareness campaign. £30 million in funding has been set aside and a number of case studies will soon be available to review the campaigns which have been implemented. It may be possible for Medway to receive similar funding as WRAP is planning to restart this programme in March 2006. If not, the review of these case studies will be valuable in understanding the effectiveness of different campaigns. Previous reports from WRAP have stated that the amount required for an extensive, successful campaign is £2.50 per household per year, which would equal to approximately £260,000 in Medway. However, remaining on a weekly collection for residual waste could potentially lead to even higher budgets required for education programmes.

The Devon Authorities Recycling Partnership carried out a waste marketing campaign with funding of £1.1m provided by DEFRA in 2002. This study of waste arising and public attitudes in conjunction with an advertising and public relations campaign resulted in a step change in attitudes to waste and levels of recycling in Devon. The campaign has proven to be a success achieving outstanding results across the board.

Key Results of the Devon campaign:

- Residents have a positive feel about recycling and want to participate.
- Lack of participation is not due to apathy but is largely due to practical reasons such as no kerbside container, no transport or no storage space.
- Kerbside recycling is the most favoured method of recycling.
- Kerbside recycling has seen a dramatic 31% increase over the recycling tonnage figures for the previous year.
- The growth in residual waste sent to landfill has been reduced to 0.88% in 02/03 as compared to 3.3% in 01/02.
- The public wants to recycle cardboard and plastics.
- Television advertising has been shown to be the most effective media.

Key Lessons Learnt

- Waste marketing works but a marketing mix is essential.
- Television advertising is a vital component of the marketing strategy.
- Advertorials in newspapers and magazines are effective.
- One to one communication with the public is important.
- Partnerships between authorities, their contractors and the media are essential to success.
- Commitment from all involved is vital.
- An adequate campaign budget is necessary.
- Ministerial and Member support makes a tremendous difference.

6.3.8. ”Zero Waste” - the principle

”Zero Waste” is a concept first adopted in Canberra, Australia, in 1996. It generally means setting a goal of a waste free society where materials are no longer treated as waste but as valued resources. It is generally agreed that the achievement of “Zero Waste” should be a long-term aim. In 1996 Canberra adopted its “Zero Waste” policy aiming for a target year of 2010. In 2005 they achieved a 70 per cent resource recovery rate. This includes diversion through recycling and other resource recovery initiatives, including reuse, renewing of materials (value adding), commercial composting of garden waste and other similar activities. It does not include incineration or energy recovery.

It should be noted that Canberra collects both household waste as well as significant amounts of commercial waste. Commercial waste has a large proportion of materials that are easily recyclable. This means the recycling level can be significantly increased with the collection of commercial waste. In Medway, municipal waste does not include the collection of commercial waste, which is collected separately by external waste management companies and is outside the scope of this strategy and our targets.

Resource management needs to be adopted as an approach to achieving sustainable waste management. Local authorities alone cannot achieve the aspirations of integrated resource management. A radical change is required to how we manage and perceive waste. It is vital that industry is involved in the process if the amount of waste generated is to be reduced.

Is "Zero Waste" a viable option for Medway?
Medway Waste Forum, a voluntary organisation made up of members of the Medway Community, has adopted a waste management strategy stating Zero Waste by 2020. Their strategy can be found at www.medwaywasteforum.org.uk.

"Zero Waste" is a concept that the council should seek to adopt but would need to clearly define because to achieve true "Zero Waste" would be extremely difficult, if not impossible. A long term strategy would be needed with extensive resources put into waste minimisation, recycling schemes and public education as well as support from industry and government.

At this stage it is felt that "Zero Waste" is a policy that there are insufficient resources available to adopt it, but it is acknowledged as a longer term aim if we are to achieve sustainable waste management practices and shifting the thinking from waste to materials with a viable resource value. The issue of zero waste will be reconsidered in five years when the next review takes place.

6.3.9. Recommendations

In order to increase the recycling level all options outlined above should be considered. To provide a focus and direction for the strategy, Medway Council has identified preferred options for the long-term management of Medway's waste below which should be implemented within the next 5 years to ensure targets are met. Progress with these initiatives will be monitored and reported yearly and assessed in the next review of the waste strategy. An action plan will be formulated for implementation of these initiatives now the council has adopted the strategy.

Table 26: Initiatives to increase recycling in Medway

	Initiative	Description	Timescale
R 1	Recycling rate	Aim to increase the recycling rate to 40 per cent by 2010; 45 per cent by 2015; 55 per cent 2020, with a recognition that Medway will revisit the Zero Waste proposal in the next review.	On going
R 2	Containers	a) Undertake a borough wide survey of all properties suitable for two (garden and residual waste) or three (all services) wheeled bins.	2006/7
		b) Issue approximately 20,000 brown bins to those properties deemed suitable	2006/7
		c) To investigate all suitable households being issued with a wheeled bin for the collection of residual waste via an alternate weekly collection to ensure high levels of recycling and a reduction in residual waste.	2009
		d) Provide residents with the option of a third wheeled bin for dry recycling or additional reusable bags to supplement the blue boxes.	2009

R 3	Schools recycling	Continue to work with schools and ensure waste and recycling become an everyday part of all school children's lives encouraging waste reduction, reuse and recycling.	Ongoing
R 4	Awareness campaign	Link localised activity to national and regional waste awareness campaigns, ensuring all publicity is easily accessible by all Medway residents, using a wide variety of media.	Ongoing
R 5	Targeted communication and awareness raising activities	Undertake participation surveys and capture rate analysis for the kerbside recycling services to enable a targeted message on recycling to be given and to apply resources where needed to achieve a higher recycling rate.	2006
R 6	Bulky waste	Introduce a reasonable charge for the bulky waste collection service to enable a higher level of recycling to be achieved.	2009
R 7	Glass recycling	Introduce the kerbside collections of glass for the next collection contract.	2009
R 8	Other new materials	Work with partners to enable new materials to be collected when new markets are available and it is feasible, for example with certain plastics.	2009
R 9	In-vessel composting	a) Once an in-vessel composting unit is operational expand the brown bin service to include the collection of all putrescible kitchen waste. b) Issue biodegradable bags to households unsuitable fro a wheeled bin in replacement of the brown plastic sacks.	2010
R 10	Multiple occupancy dwelling recycling	Provide all multiple occupancy dwellings in the area with a recycling kerbside collection via bins suitable for each property.	On going (completion by 2010)
R 11	Bring sites and household waste recycling centres	Continue to promote the sites and utilise the national bin colour coding scheme when refurbishments are due.	On going
R12	Waste electronic and electrical equipment	Investigate the feasibility of using the household waste recycling centres for waste electronic and electrical equipment collections other than from residents.	2006

6.4. REQUIREMENTS FOR NEW CAPACITY

There are three areas where additional waste handling and treatment facilities will be required:

- Waste transfer station and bulking facility by 2009.
- In-vessel composting facility by 2009.
- Waste treatment facility by 2012.

6.4.1. Transfer Stations and Bulking Facility

Medway Council has one depot from which waste services are coordinated. It is located at Pier Approach Road and contains a licensed transfer station for 26,000 tonnes per year of specified wastes. The depot is too small for the resource requirements of an integrated contract. This means the current contractor relies on space at their own depot for a number of refuse and street cleaning vehicles.

The existing contract requires the transfer of approximately 110,000 tonnes of waste and recycling into bulk haulage vehicles for transportation to a landfill site, MRF or specialist reprocessing contractor. The council depot could not cope with this amount of waste. A sub-contract was set up by the main contractor with a second private contractor to deal with the excess.

Without the land and licensed resources to deal with its own waste Medway Council has to rely completely on a limited number of contractors to provide sufficient site capacity. However any contractor needs to be sufficiently interested in the council's contract and on there being available locally sufficient and appropriate licensed facilities.

As a result the council is seeking to obtain such facilities so that any further waste contracts can be operated from a single site, regardless of whether the services are contracted out or are provided in house. A single site with weighbridges operated and controlled directly by the council would also ensure better management and control of a waste contract, with more accurate waste statistics.

To provide this facility the council will need to purchase land, obtain relevant planning permission and waste management licenses and construct the facility before the start of the next contract.

Dependent on the disposal solutions adopted by the Council, the location of those facilities and the collection arrangements eventually put into place the potential capacity of any depot and transfer station may not be fully utilised. If and when this becomes apparent the Council should consider the options available to it including selling any spare capacity or considering the receipt, transfer and disposal of a wider range of municipal wastes. It might also be prudent to consider providing a service whereby small quantities of commercial waste generated by trades people can be accepted from vans and disposed of for an appropriate fee.

6.4.2. In-vessel composting facilities

To increase the level of recycling to the target levels, it will be necessary to collect food and kitchen waste from households for composting. Whilst garden waste can be composted at the existing facilities food and kitchen waste (and any garden waste which is mixed with it) needs to be composted in specialised in-vessel composting facilities. One facility, with a total capacity of up to 30,000 tonnes per year, will need to be built in Medway by 2009/10 if the area is to achieve the 45 per cent recycling target by 2015.

6.4.3. Treatment and disposal facility for residual waste

To ensure that Medway meets future landfill allowance targets, treatment capacity up to 90,000 tonnes of waste per year will be needed in a residual treatment facility. This will need to be close to Medway or a facility will need to be built in Medway by the end of 2011.

The BPEO assessment concluded that treatment of Medway's residual waste in the EfW at Allington facility would be the best option for achieving this. However, the Council needs to go through a procurement process to identify the best option for Medway. The Council can specify that the successful contractor must meet Medway's landfill allowance targets, and that the treatment plant must not compromise any further action that Medway may take to increase recycling.

6.4.4. Cost Implications

Table 27 shows the estimated total cost for each of the scenarios that were considered in the BPEO assessment. This total cost covers collection of all waste streams, recycling and composting, waste treatment and disposal. The cost provided have been modelled based upon a number of variables and are provided for indicative purposes only. The real cost of treatment will be identified during procurement of services when bids are received. These may vary dependent upon market conditions, competition and other factors at the time. The residual treatment facilities have been modelled to be operational in 2011. It should be noted that the BPEO was modelled to achieve 36 per cent recycling by 2015. The total revenue cost for waste management as shown below is useful to compare the cost implications of each treatment technology option. The provided total costs per year are exclusive of LATS. Due to the potential variation of the market value for LATS it is difficult to model future waste management cost. Thus, the potential additional cost (or benefits if selling the allowances) based on the potential maximum value of £150 per tonne is also shown in Table 27. Section 6.8.6 further outlines the risk and the potential cost implications due to possible variations in the market value of LATS.

Table 27: Revenue cost for total waste collection and disposal (£m/y)

Scenario	2010		2015		2020	
	£M*	LATS at £150	£M*	LATS at £150	£M*	LATS at £150
Base case - Landfill	13.9	+3.5	15.7	+6.5	16.5	+8
1a - EfW (road)	14.6	+3.5	17.2	-4.2	18.0	-3.3
1b - EfW Allington	13.1	-6.6	14.3	-4.1	15.0	-3.3
1c - EfW (river)	13.8	+3.5	18.1	-4.2	19.1	-3.3
2 - Pyrolysis/Gasification	14.6	+3.5	17.5	-4.2	18.4	-3.3
3 - Autoclaving	14.6	+3.5	16.8	-3.9	17.6	-2.9
4a - MBT with export of RDF to third party	14.6	+3.5	17.9	-3.9	18.8	-3
4b - MBT with on site combustion of RDF	146	+3.5	18.3	-3.9	19.3	-3.1
4c - MBT with RDF disposed to landfill	14.6	+3.5	18.3	-2.5	19.3	-1.6
5 - MBT as 4a but with no kitchen waste collection	14.7	+5.1	17.6	-3.5	18.5	-2.5
6 - Decentralised Pyrolysis/Gasification	14.4	+3.5	17.1	-4.2	18.0	-3.3

* Cost £M does not include the cost/revenue of purchasing or selling LATS

The equivalent cost in terms of estimated payments per household in 2015 is indicated in Table 28. This assumes that the number of households increases from the current level of 104,900 to about 117,229 households as modelled for the BPEO assessment (discussed in Section 5.1).

Table 28: Estimated cost of waste management per household in 2015.

Scenario	£ per household	
	At £0 for LATs	At £150 for LATS
Base case - Landfill	134	189
1a - EfW (road)	147	111
1b - EfW Allington	122	87
1c - EfW (river)	154	119
2 - Pyrolysis/Gasification	149	113
3 - Autoclaving	143	110
4a - MBT with export of RDF to third party	153	119
4b - MBT with on site combustion of RDF	156	123
4c - MBT with RDF disposed to landfill	156	135
5 - MBT as 4a but with no kitchen waste collection	150	120
6 - Decentralised Pyrolysis/Gasification	146	110

The current costs of our waste management services are approx £81.90 per household (as discussed in Section 4.11). Table 28 shows that total costs (collection and disposal) for waste management are set to rise substantially, in particular as these costs do not include the enhanced recycling levels. It should also be noted that potential costs for monitoring, education and awareness raising programmes are not included in the estimated cost of waste management.

6.4.5. Potential locations for future waste treatment facilities

Medway Council is in the process of preparing the Local Development Framework (LDF). This is expected to be finished in 2007. It is unlikely that the Local Development Document (LDD) covering waste, minerals and energy will be prepared before 2008-09.The LDD should identify specific sites for waste treatment facilities.

A strategic environmental assessment (SEA) must be undertaken within the development of the LDF for Medway as described in Section 2.6.2. This will include full stakeholder and public consultation. Before any new waste treatment facility can be developed, planning permission must be obtained for the proposed facility, even though the location may be listed in the LDD once that is completed. In order to achieve planning permission for a waste treatment facility, a site-specific environmental impact assessment must be undertaken. This also includes public consultation.

6.5. PARTNERSHIP ARRANGEMENTS

Medway is in a fairly unique position in terms of potential partners identified to date. It is the only unitary authority in Kent, but is also within close proximity to other unitary authorities in both London and Essex. An initial desk based review of partnership work has been undertaken, but further work needs to be completed to build on this study to ensure effective procurement.

There are various options for Medway to engage in partnership arrangement for all aspects of waste management or only parts of it i.e. residual treatment, in-vessel composting. These options should be carefully considered, as partnering arrangements are likely to show some benefits, particularly in the expenditure, because larger facilities are cheaper to operate.

The aim of the further partnership review is to assess the viability of the potential partners, of which nine have been identified in the initial desk based review. A more detailed analysis of these partners will be undertaken, to include face-to-face discussions to assess true viability of potential partnerships. This work is essential for Medway to achieve effective procurement.

Out of the nine potential partners identified , four local authorities will be taken forward for further analysis as they indicated the greatest potential for partnering of various parts of waste management service.

Table 29: Local authorities taken forward for further review of potential partnering arrangements

Potential partners for further review	Reason for review
Kent County Council	Option to purchase spare capacity from Allington EfW.
Thurrock Council	Potential for partnering for composting, disposal. There is good potential as Thurrock is on similar time scale and is a unitary authority.
Bexley London Borough Council	Potential to partner for composting, because Bexley is currently investigating options for in-vessel composting.
Croydon London Borough Council	There is already a partnership arangement in place between Bromley, Croydon and Merton for MBT capacity of residual waste. There may be a possibility to include Medway.

There will be a need for further more detailed work with the potential partners to assess compatibility of BPEO options and synergies in waste strategy, composition, and collection/disposal arrangements. This can commence once the strategy has been finalised to allow the detailed comparison of strategy documents and other authorities' BPEO.

6.6. STAKEHOLDER INVOLVEMENT

As part of the strategy development, Medway carried out a public consultation exercise in March 2005 and a similar exercise with Medway Waste Forum, part of the LA21 group in Medway, in June 2005. These showed support for the council's approach to aim for higher levels of recycling. Participants also made a number of suggestions on ways in which the services could be improved and recycling increased. These comments have been included and used to formulate the recommendations.

Another key message from the consultation workshops was that it is critical to keep stakeholders and the public informed of Medway's plans. To support the implementation of the waste strategy Medway Council produced an education/information campaign that was approved by cabinet and supported by a cross party working group to explain why it is so critical that we increase recycling and invest in new treatment facilities for processing waste.

The consultation included articles in the local newspaper and radio advertising, road shows across Medway, a questionnaire sent out to the citizens panel, LSP questionnaire on collection issues and a workshop on dispsoal and a public workshop on disposal hosted by the LSP.

Over 170 organisations were issued with the draft strategy for comment as well as the document being made available to residents via Medway's web site, council buildings and on request to the waste service department.

Comments received from the consultation process have been incorporated into the final strategy and recommendations amended in accordance.

6.7. TIMETABLE

6.7.1. Action Plan

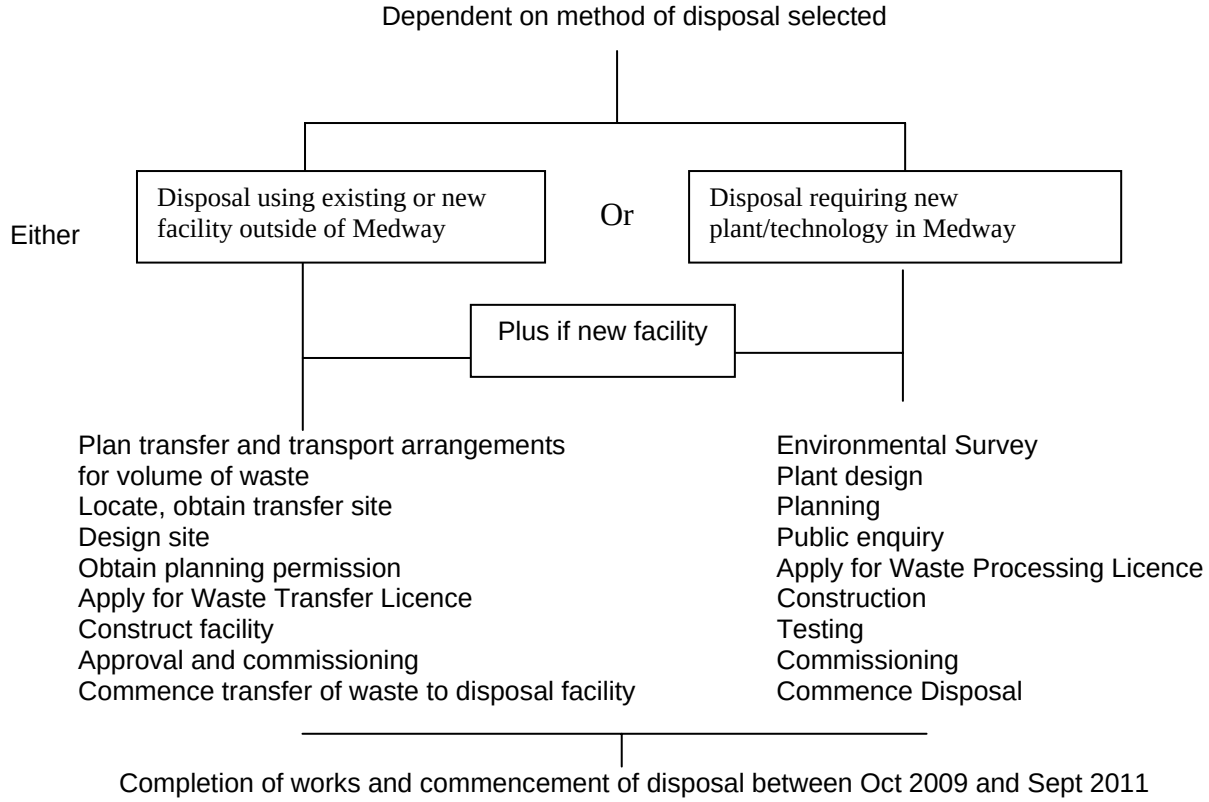
Following acceptance of the waste strategy by the Council, an action plan will be prepared to take account of the waste minimisation and recycling recommendations adopted. A few of the recommendations could be implemented within the period of the existing waste services contract but many will require new contract arrangements that will have to be undertaken immediately a contract has been awarded for the processing of residual wastes.

6.7.2. Procurement Timetable

With the approaching Landfill Diversion targets, obtaining an appropriate disposal solution is the key priority. If we do not do this, Medway Council faces the prospect of not meeting our landfill diversion targets and will incur significant fines from the government.

Procurement of any type of waste treatment facility is a time consuming process and takes a number of years. Getting planning permission is the main key step as delays in the planning process can significantly delay the procurement process or halt it completely.

The key steps in the procurement of a treatment facility are shown below.



Outline timetable for obtaining future waste disposal arrangements

• Results/recommendations of service options in strategy accepted by council	January 2006
• Prepare scope and parameters of requirements with targets required to be met; contract conditions and tender documentation.	January to July 2006
• Publish notice in EU for expression of interest	August 2006
• Evaluate responses	October to November 2006
• Prepare select list of tenderers to pursue negotiated procedure and issue tenders.	January 2007
• Tender Returns	March 2007
• Select BAFO at end of negotiated procedures and then award contract	December 2007

6.7.3. Contract configuration

The range of options for both collection services and for disposal means that there is a range of contract permutations so it is impractical to list them all. It is unlikley that a completely integrated collection and disposal contract will prove to be the best solution on this occasion.

In order to complete a procurement exercise within the timetable available, and to take account of the potential lack of a disposal process not being in place, it is important to establish what industry is able to offer at a viably economic price and when.

The final disposal option chosen is likely to determine what other separate disposal contracts will be needed. It will also affect how the collection contracts will need to be configured and specified to meet the recommendations of the strategy and the conditions from negotiated disposal contracts.

It would be at this stage also that any joint arrangements with other authorities, identified during the preparation of the action plan and agreed by the council, would be incorporated into the relevant contracts.

6.8. RISK ASSESSMENT

The waste hierarchy encourages reduction of waste produced, increasing recycling, and recovering value from residual waste. Whilst the waste strategy should follow the aims of the waste hierarchy, Medway Council has to ensure that the strategy adopted can be delivered and does not create unacceptable risks for the council.

There are risks associated with the waste strategy. The main risks are discussed below along with their impacts and possible solutions and ways of mitigating the risks.

6.8.1. Waste growth differs to that which is predicted

Waste growth could increase above or decrease below the rate predicted, which would have an implication on the treatment capacity required and associated costs.

If waste grows at a higher rate, the overall cost of waste management will rise due to more waste requiring processing. There is also a risk that facilities may be unable to handle the additional waste. This may mean that Medway would risk not meeting their landfill diversion targets as unprocessed waste would be disposed of in landfill sites.

If waste does not grow at the predicted rate, it would be easier for Medway to meet its targets. The cost per tonne of dealing with residual waste would increase as treatment facilities would not be used to full capacity, and therefore the overall cost would not be reduced pro rata with reduced tonnages.

Medway may be able to reduce the impact of variations in waste growth by passing any associated risks onto a contractor as part of a contract. But it is unlikely that the private sector will accept this risk without substantial payment.

6.8.2. Cost implications if recycling level is not achieved

Medway Council is seeking to move towards higher recycling rates of 40 per cent by 2010, 45 per cent by 2015 and 55 per cent by 2020.The implications on the overall waste disposal costs should be considered and the risk assessed if the anticipated recycling level is not achieved or not maintained in the long term. More residual waste will have to be diverted from landfill and subsequently Medway will exceed the available processing capacity of the residual treatment facility to meet their targets.
The implications on overall waste management costs can vary, because the impact on collection costs depends on how the recycling scheme performs. For example, recycling may be lower than anticipated because the required participation rate cannot be achieved or maintained. However the recycling schemes have already been implemented and costs incurred. This means the collection costs remain relatively high even though the recycling

target will not be achieved. Thus the collection costs are highly sensitive to timing of implementation, public participation and volumes of waste.

Generally it should be considered that the anticipation to achieve higher recycling levels contains a financial risk. This financial risk is created through the technical performance risk of not being able to meet the target. The capacity of residual treatment may not be enough and additional landfill allowances may have to be purchased. If a lower recycling target is planned for Medway, the financial risk will be transferred into a political risk. The political risk is the reputation of the authority with residents and peers for failing to strive for best practice recycling rates. This will affect evaluations such as Comprehensive Performance Assessment and Best Value reviews.

At a more pragmatic level, the public opposition to any residual waste treatment facility will be greater as the facility will be seen to be larger than necessary and therefore exacerbating perceived negative impacts. This could lead to problems with planning and could well result in planning failure. Such failure would have substantial financial impacts through delay in meeting landfill diversion targets.

6.8.3. Public acceptability and planning permissions for facilities

Resistance from the public can be expected to all types of waste treatment facilities, although there may be higher resistance to certain types. Gaining planning permission will be difficult, particularly if an EfW facility is proposed in Medway. This difficulty may be more acute if a lower recycling target is achieved. Public opposition may be greater as the facility will be seen to be larger than necessary.

If facilities are delayed there will be significant financial implications for Medway. There is a need for promotional information for the public on the need for a residual waste treatment facility. There will also be a need for high quality designs that are visually acceptable to the public, and a need for information on the impact of these facilities.

In order to reduce this risk of planning failure Medway must ensure that any planning application complies with the Waste Development Framework and planning policy. This should prevent challenges on technical issues. It must also involve the general public in the process by keeping them up to date with site-specific issues, as well as informing them about the technologies proposed.

The full cooperation of the public is required to achieve the proposed stretched recycling targets. This will mean significant changes will have to be made by householders to minimise waste generated, and increase remaining waste that is separated out for recycling. If the increase in recycling is not achieved, then the residual treatment facility will need to treat more waste. The council will then need to use suitable public education programmes to ensure that the required recycling and minimisation rates are achieved.

6.8.4. Risk of failure in the partnerships arrangements

The government policy encourages councils to consider partnership arrangements and there are various benefits such as lower cost for the partners of the treatment facility and lower overall environmental impacts. Therefore Medway may enter a partnership arrangement with a neighbouring authority. The various options for partnership are still subject to review. If Medway entered into a partnership with another authority or third party to provide waste management infrastructure there is a risk that the partnership may enter difficulties. This could put the implementation of the waste strategy at risk. To avoid this Medway Council should only enter into partnerships with legal standing.

The potential difficulties and risk associated with partnership for waste treatment are for example:

- Setting up a partnership requires time, which may delay the procurement process.
- If the recycling levels achieved in the partnering authorities are very different that may result in difficulties in assessing the performance of the residual treatment technology. For example the achievement of overall recycling levels and LATS diversion targets then needs to considered in the performance of the residual treatment facility.
- The partner authority providing the location for the facility is likely to have more problems with planning as the environmental impacts for that council would be higher although the overall impact of the waste treatment would be lower.

6.8.5. Failure of treatment systems

The BPEO assessment has indicated that waste should be diverted from landfill, and that the use of EfW technology would have the greatest environmental benefits from energy production. There would also be benefits in using MBT technologies or autoclaving as these would divert waste from landfill sites. This assumes that markets could be identified for the products that they produce, and that potential uses for compost products would not be classified as landfilling.

The main area of concern for delivering the strategy will be managing residual waste. The key issues are the reliability of the treatment technology and the availability of markets for the products that they generate. Landfill is a very well established technology with no end products, and would be the most reliable option. It would however not enable landfill diversion targets to be met.

Energy from waste (EfW) technology is a very well established technology and there is a readily available market for the generated electricity. Mechanical Biological Treatment (MBT) technologies are less well established in the UK. Although they are widely used in Europe there are concerns about their performance in biodegradable municipal waste diversion and product quality.

This risk can be considerably reduced through careful procurement and evaluation of the systems during the tendering process. In addition any technical risk of operation failure may be passed to the contractor by including a requirement to meet Landfill Directive targets in an output based contract.

6.8.6. Variations in value of tradable landfill allowances

It is predicted, based on current waste growth and recycling rates, that Medway Council has sufficient landfill allowances via the banking scheme to meet the targets set until 2008/9. During this year this, the amount of waste landfilled will exceed the allowances due to non allowance of banking over target years. If Medway is still reliant on landfill at this time allowances will have to be purchased to cover the shortfall. If an alternative disposal option can be secured for the residual waste that will divert high levels of biodegradable waste from landfill, Medway may have excess allowance to sell.

When assessing the different waste management scenarios, assumptions were made regarding the rate at which tradable landfill allowances would be bought and sold. The value of tradable allowances depends on other authorities ability to achieve the targets for diversion of biodegradable municipal waste and how the market will develop.

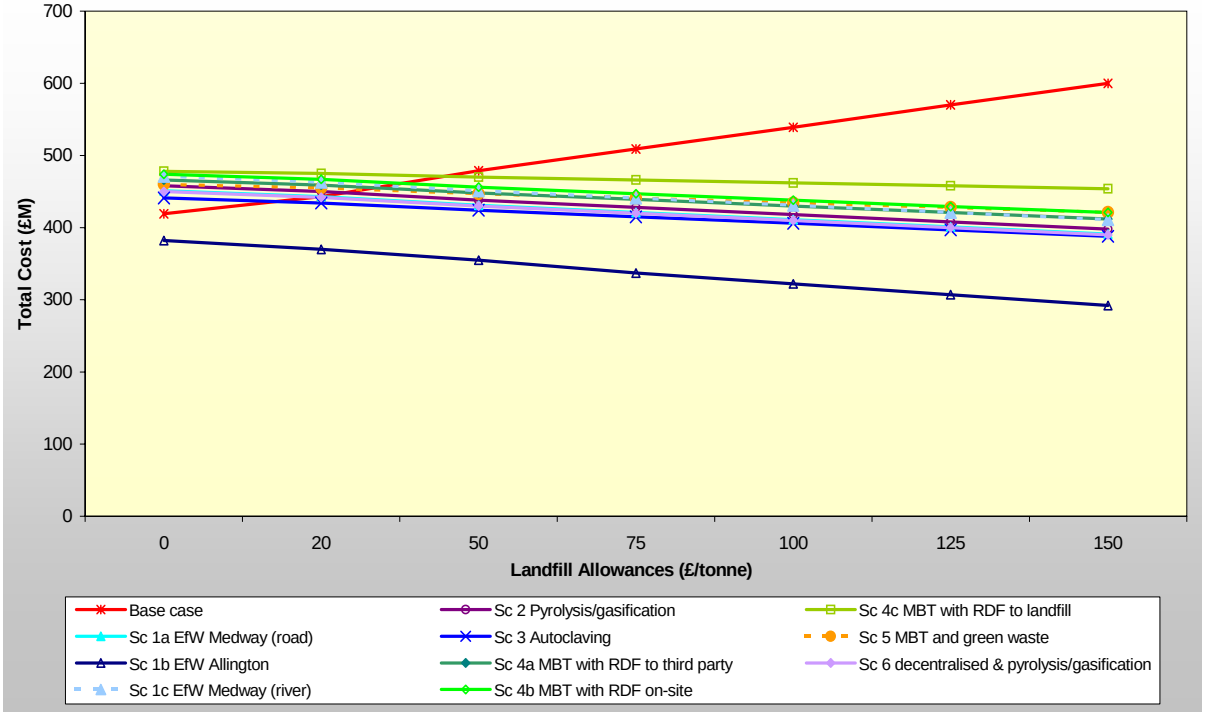
Most local authorities are expected to meet their landfill allowances in the short term (up to 2009) through increased recycling, borrowing and banking. This means the value is likely to be low due to less demand before 2009. In the medium term (2010-2013) tradable landfill allowances (LATs) may become more valuable as many authorities are likely to have difficulties implementing residual treatment facilities within the required time scale, particularly with LATs allocations reducing substantially.

Trading and LATs values are likely to reduce in the long-term (2013-2020), because most authorities will plan to meet these targets and will introduce the facilities required in order to reduce the affect of the £150 per tonne penalty. Due to these uncertainties a sensitivity analysis of the BPEO scenarios has been undertaken to show the impact of different allowance values on the total costs of waste management. In this analysis, the trade value of landfill allowances were varied between zero up to the maximum of £150 per tonne as shown in Figure 16. The same value has been assumed for buying and selling landfill allowances.

shows the total cost (from 2007 to 2032) of the 11 scenarios modelled against a range of values for LATS. Within the BPEO assessment LATS were assigned a value of £20/tonne, which shows relatively little difference in the total waste management cost of each scenario.

This indicates that the base case becomes more expensive with increasing LATs values, because all residual waste is disposed of in landfill sites exceeding Medway's allocations. The base case shows lower total costs compared to some other residual treatment scenarios if landfill allowances can be purchased at low prices up to £20 per tonne over the whole contract period. However it is likely that the landfill allowances will on average be traded above £20 per tonne, in particular in the medium term (2010 to 2015).

Figure 16: Sensitivity analysis with varying LATS values



If the residual waste is treated through thermal treatment, autoclaving or MBT and a market can be secured for the outgoing product, the landfill diversion targets will be met and spare landfill allowances can be sold. This would create an additional income for Medway Council. This means the total cost decreases with the additional allowance income, but how much depends on the market value of the allowances and how many allowances Medway Council can provide for sale. In addition it should be noted that landfill diversion targets are provided until 2020 and it is currently not known how the scheme will continue after then. In the BPEO assessment we have assumed that the scheme continues but remains static at the same target as in 2020.

In summary, this analysis indicates that treatment of residual waste (any type of thermal treatment, autoclaving or MBT technology) is likely to be more cost effective than landfilling. Having a residual treatment facility in place would reduce the need to purchase landfill allowances, and would reduce the risk to be dependant on the market value of the LATs.

6.8.7. Marketing of the products

The targets within this strategy depend completely on being able to provide products which are acceptable to the market. This is particularly important if an MBT technology is chosen for residual treatment. If the products are not of high enough quality they will need to be disposed of in landfill sites or through thermal treatment. This would increase the cost of treating the residual waste due to the need to pay for landfill disposal of the products. It would also mean that as the MBT plant was not diverting waste away from landfill, Medway Council would be exceeding its landfill allowance target, and would incur additional costs from purchasing landfill allowances or paying fines. These additional costs would have to be met by increasing council tax.

Medway Council may be able to reduce the risk of the market uncertainty by passing this onto the contractor. The contractor may accept this for recyclable materials such as metals and aggregates. However recent experience of procurement indicate that contractors are only willing to accept the risk for the fuel product if they have a secured market in place, such as a combustion facility on site or near to the site. Whilst some contractors have taken the risk for the compost product in the past, recent movement in legislation and uncertainties of future government policy may well reduce this level of acceptance.

The other area of concern about delivering the waste strategy is the availability of markets for materials that are collected for recycling or composting. Although there are potentially significant markets for source separated compost products, they are not yet fully established. However compost production will increase nationally in response to the Landfill Directive. This will put pressure on the markets for these materials, resulting in reduced prices for products.

Markets for dry recyclable materials, such as paper, are well established. However the markets for recyclable materials are notoriously volatile. Ensuring the treatment system and resultant products are carefully evaluated during the tendering process can mitigate the risks of being unable to sell material or products.

7. MONITORING AND REVIEW

7.1. PERFORMANCE AGAINST TARGETS

The strategy is not a static document. Updates on the recommendations will be presented to Overview and Scrutiny to monitor progress and ensure objectives are on target and will be met. The whole strategy will be reviewed every 5 years. The following table will be updated annually and used to give a summary of performance against targets.

Table 30: Summary of performance against targets in Medway

	Initiative	Timescale	Target/performance measure	Performance	Updated
WM 1	Waste growth	2010	Stabilise at 567kg per head of population		
WM 2	Waste minimisation at source	On going	Number of initiatives/ education events involved with		
WM 3	Home composting campaign	On going	Number of participating households		
WM 4	Reusable nappies	On going	Number of babies in reusable nappies		
WM 5	Wood chipping	2007	Investigation of feasibility		
WM 6	Charity reuse schemes	On going	Number of initiatives/ education events involved with		
WM 7	Waste exchange	2006	Investigation of feasibility		
WM 8	Bulky waste reduction	2007	Limit the range		
WM 9	Think before you buy	On going	Number of initiatives/ education events involved with		
WM 10	Flytipping enforcement	On going	Number of enforcements and incidents		
WM 11	The green procurement code	On going	Code in place and used across Council		
WM12	Restrictions at household waste recycling centres	2006	Agreement to be reached with KCC		
WM 13	Food digestors	2007	Investigation of feasibility		
R 1	Recycling rate increases	On going	40% by 2010 45% by 2015 55% by 2020		
R 2	Containers	2006/7 2006/7 2009 2009	Survey undertaken Brown bins issued Feasibility study undertaken Wheel bins/bags for recycling		
R 3	Schools recycling	Ongoing	Number of initiatives/ education events involved with		
R 4	Awareness campaign	Ongoing	Number of initiatives/ education events involved with		
R 5	Targeted communication	2006	Number of targeted		

	activities		events undertaken		
R 6	Bulky waste charging	2009	Charge introduced		
R 7	Kerbside glass recycling	2009	Glass collection started		
R 8	Other new materials at kerbside	2009	Investigation of feasibility		
R 9	In vessel composting	2010	Collections of kitchen waste started		
R 10	Multiple occupancy dwelling recycling	2010	All multiple occupancy dwelling have recycling collections		
R 11	Bring and household waste recycling centre improvements.	On going	Bank refurbishment scheme and public satisfaction		
R 12	Waste electronic and electrical equipment	2006	Investigation of feasibility		

7.2 REVIEW

Medway's Waste Strategy will be reviewed every 5 years to enable the plan to adjust to changes in recycling methods. Best Value Performance Indicators (BVPI's) are published each year in the Councils Performance Plan and key waste BVPI's are published on Medway Council's web site each month. Regular updates on services will also be given to the Environment and Front Line Services Overview and Scrutiny Committee.

Opinion polls are undertaken each year by the council, in which questions are asked of residents on their satisfaction with the services delivered. Medway publishes the results of these surveys on the council web site.

8. GLOSSARY

6EAP	Sixth Environmental Action Plan
ATF	Authorised Treatment Faculty
AV	Abandoned Vehicles
BMW	Biodegradable Municipal Waste
BPEO	Best Practical Environmental Option
BVPIs	Best Value Performance Indicators
C&D	Construction and Demolition
CADP	Continual Ambulatory Peritoneal Dialysis
CAMOD	Collection Authority Model
CCTV	Closed Circuit Television
CFCs	Chlorofluorocarbons
EfW	Energy from Waste
ELV	End of Life Vehicles (directive)
EPA	Environmental Protection Act
EU	European Union
EWC	European Waste Catalogue
HCFCs	Hydrochlorofluorocarbons
HWRCs	Household Waste Recycling Centres
LASU	Local Authority Support Unit
LAT	Landfill Allowance Trading
LDDs	Local Development Documents
LDFs	Local Development Frameworks
MBT	Mechanical Biological Treatment
MEL	Measurement Evaluation Learning Consultancy
MRF	Material Recycling Facility
MSW	Municipal Solid Waste
ODS	Ozone Depleting Substances
PPC	Pollution Prevention Control
PPS	Planning Policy Statements
RDF	Refuse Derived Fuel
SEA	Strategic Environmental Assessment
SEERA	South East Regional Assembly

WCAs	Waste Collection Authorities
WEEE	Waste Electrical and Electronic Equipment (directive)
WIP	Waste Implementation Programme
WISARD	Waste Integrated Systems Assessment for recovery and Disposal
WRAP	Waste Resource Action Programme

Best Practical Environmental Option (BPEO)	Is an assessment that is conducted to identify the best waste management technique for a particular region.
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
Commercial Waste	Waste from individual traders, wholesalers, catering establishments, shops and offices, etc which is not collected by a local authority
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
Energy for Waste (EfW) facility	The combustion of waste under controlled conditions in which the heat released is recovered to provide hot water and steam, which is usually used for electricity generation.
Gasification	Heating waste in a low-oxygen atmosphere at high temperatures to give off a fuel gas. This technology was used to produce gas from coal, however it is a relatively new application to treat waste.
Global warming	The gradual rise of the earth's surface temperature thought to be caused by the greenhouse effect and responsible for changes in global climate patterns. Global warming has occurred in the past as a result of natural influences, yet the term is often used to describe the warming which is predicted as a result of the emissions caused by man-made sources.
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 civic amenity sites
Household Waste Recycling Centres	Facilities provided by the Council, for residents to bring items for disposal, including bulky items, green waste, recyclables and general refuse. Sometimes called Civic Amenity or Simply the "Tip".
Industrial Waste	Waste arising from factories and industrial plants.

In-vessel Composting	The composting of biodegradable material in an enclosed vessel. In-vessel systems have greater process control than windrow systems and speed up the initial phases of composting.
Landfill	Burying waste, usually in disused quarries.
Mechanical Biological Treatment (MBT)	A term for mechanical sorting/separation techniques, which is, used in conjunction with biological treatment processes, such as composting.
Municipal waste	All household wastes plus hazardous household waste; parks and garden wastes and the waste from institutions and commercial premises collected by the local authority.
Open Windrows	Windrow composting consists of forming the mixture of raw materials (green waste) into long narrow piles, which are turned and re-mixed on a regular basis.
Pre-Treatment	The prior sorting, chemical or biological processing of waste to reduce volume or make the waste material safer.
Refuse Derived Fuel (RDF)	A solid, liquid or gaseous fuel derived from waste, which typically will be used as a fuel product on site by a third party user.
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.
Reuse	Using materials again, or many times, particularly in the location they were generated.
Strategic Environmental Assessment (SEA)	A directive implemented in England and Wales in July 2004 it provide a process of evaluating the environmental impacts of a policy, plan, strategy or program.
Stakeholder	Anyone who has an interest or involvement in waste management in Medway.
Sustainability	Meeting the needs of the present without damaging the ability of future generations to meet their needs.

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