



Joint Municipal Waste Management Strategy

2007 – 2020

GLOUCESTERSHIRE WASTE PARTNERSHIP
Joint Municipal Waste Management Strategy
2007 - 2020

This Joint Municipal Waste Management Strategy has been adopted by all 7 Local Authorities in Gloucestershire. It sets out how we will protect the environment by improving our waste management services at affordable financial cost

Through the Gloucestershire Waste Partnership, each authority is committed to achieving the aims and objectives detailed in this strategy and will continually review and develop action plans to ensure it is implemented in the most effective way.

Signed : Cheltenham Borough Council

Cotswold District Council

Forest of Dean District Council

Gloucester City Council

Gloucestershire County Council

Stroud District Council

Tewkesbury Borough Council

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Volume 1 Headline Strategy

1. Waste, the Environment and our Community

We as a nation have become a throwaway society and live beyond our environmental means. If everyone in the world lived as we currently do in Europe we would require three planets to support us.¹ We need to break the link between economic growth and environmental damage, reduce our levels of consumption and production, to ensure that we can become a 'one planet' economy. Climate change is probably the greatest threat to our way of life and reducing the emissions of carbon dioxide from all sectors of society is vital to avoid dangerous climate change².

Society needs to become more efficient and prudent with our natural resources. In doing so we need to be innovative and become responsible for our own behaviour and the impact we have on our environment. Materials consumption also contributes indirectly to climate change. We use energy to mine, extract, harvest, process and transport raw materials and more energy to manufacture, transport materials. After use, we then need to dispose of the products³. Therefore we need to think about the whole life cycle of materials.

Good management of waste, especially waste minimisation and recycling, are some of the most immediate things that we can do as individuals to contribute to a reduction in climate change. Waste is both a global and local issue and communities need to become responsible for their own waste; we all have a part to play - as individuals, employers or employees, governments, consumers and as parents⁴.

Responsibly managing our waste involves huge costs. In recent years, waste growth and increased environmental regulation have meant that local government expenditure on waste management has increased way above inflation. Waste management budgets have approximately doubled in Gloucestershire since 2000. In addition, over the last ten years, Gloucestershire's waste has increased by about 3% per year. If this trend continues the amount of waste that we have to manage will almost double within a generation.

Further cost increases are likely as we proactively move away from the traditional "dig and dump" approach towards a 21st century "resource management" approach. Although we currently recycle and compost 30% of our household waste in Gloucestershire, the remainder is still buried in landfill sites. This contributes to climate change and loses resources that could be otherwise reused, recycled or recovered in to new, useful products. We need to invest in new facilities and infrastructure to manage our waste in a more sustainable way. This Strategy sets out how we will protect the environment by improving our waste management services at affordable financial cost.

¹ New Economics Foundation & WWF (2005) Well-being and the environment. Achieving 'One Planet Living' and maintaining quality of life. The power of well-being 4.

² David Milliband (2006) DEFRA .

³ http://www.grn.org/zerowaste/climate_change.html

⁴ European Union Sixth Environment Action Programme: Environment 2010, Our Future, Our Choice

2. Waste management in the future

This Strategy is guided by the principles of the Waste Hierarchy (see diagram below), aims to minimise waste generation and view waste materials as a resource. Waste should be prevented from being produced, reused where possible, then recycled or composted. Any waste that cannot be reused, recycled or composted should be treated to recover any potential value (such as energy). Disposal should be the last resort.

We see a future where:

- we throw out waste as a last resort;
- we deal with waste at home wherever possible;
- any discarded materials are segregated so that these materials can be easily re-used or recycled;
- communities and commerce see recycling & composting as an everyday activity;
- stable and ethical markets allow us to reprocess recyclable materials into high quality products;
- hazardous household waste is removed from the waste stream to reduce the potential of pollution; and
- waste material that cannot be recycled or composted is treated to recover further value.



Our waste management services will need to meet statutory objectives and targets and should be considered environmentally sound, cost effective and reliable. In addition, our waste management services will be integrated and co-ordinated providing consistency of services, reduced costs and reduced transportation. We will review services on an ongoing basis to ensure that we are able to adopt the most appropriate approach in response to new developments and changing circumstances. This Strategy also aspires to positively contribute to the Gloucestershire County Council's Community Strategy, which aims to deliver economic, social and environmental well-being in a sustainable way.

3. Background to the Strategy

3.1 What is the purpose of this Strategy?

This Headline Strategy sets out our current position, and the aims, objectives and future plans of the Gloucestershire Waste Partnership. It provides a framework for the development of municipal waste management services through to 2020, and will inform the business and financial planning of each of the Gloucestershire Local Authorities. It sets key aims and objectives to ensure waste is managed effectively. Above all, it will enable us to realise our vision for the future.

The joint Strategy covers the management of municipal waste. Municipal waste includes household waste (collected from householders or delivered by them to our Household Recycling Centres and Bring Sites), street litter and street sweepings, and commercial wastes, similar to household wastes that are collected by the Waste Collection Authorities or on their behalf.

Government requires the preparation of this document. Following wide ranging public consultation this Strategy has been developed and will be presented to Government as the Joint Municipal Waste Management Strategy for Gloucestershire as defined by section 32 of the Waste and Emissions Trading Act (2003).

3.2 What is the Gloucestershire Waste Partnership?

The Gloucestershire Waste Partnership (GWP) is a partnership between the County and District Councils of Gloucestershire. These are Cheltenham Borough Council, Cotswold District Council, Forest of Dean District Council, Gloucester City Council, Gloucestershire County Council, Stroud District Council and Tewkesbury Borough Council. The GWP is a voluntary structure (at the time of preparation of this strategy) with constituent authorities that are highly committed to working together. However, the GWP has no formal statutory authority or powers to direct the actions of its constituent parties. It will be essential therefore, in moving forward on the objectives of the strategy, that mechanisms for working together as effectively as possible continue to be developed. This means optimising our joint working on such things as decision making processes, funding, and procurement of services and infrastructure. A strong and effective partnership will be key to the implementation of this strategy, and ongoing development of the partnership therefore forms part of the strategy itself.

The County Council is designated (under the Environmental Protection Act 1990) as the Waste Disposal Authority (WDA) and has a duty to provide waste disposal facilities (currently landfill) for waste collected by the District Councils, who are designated as Waste Collection Authorities (WCAs).

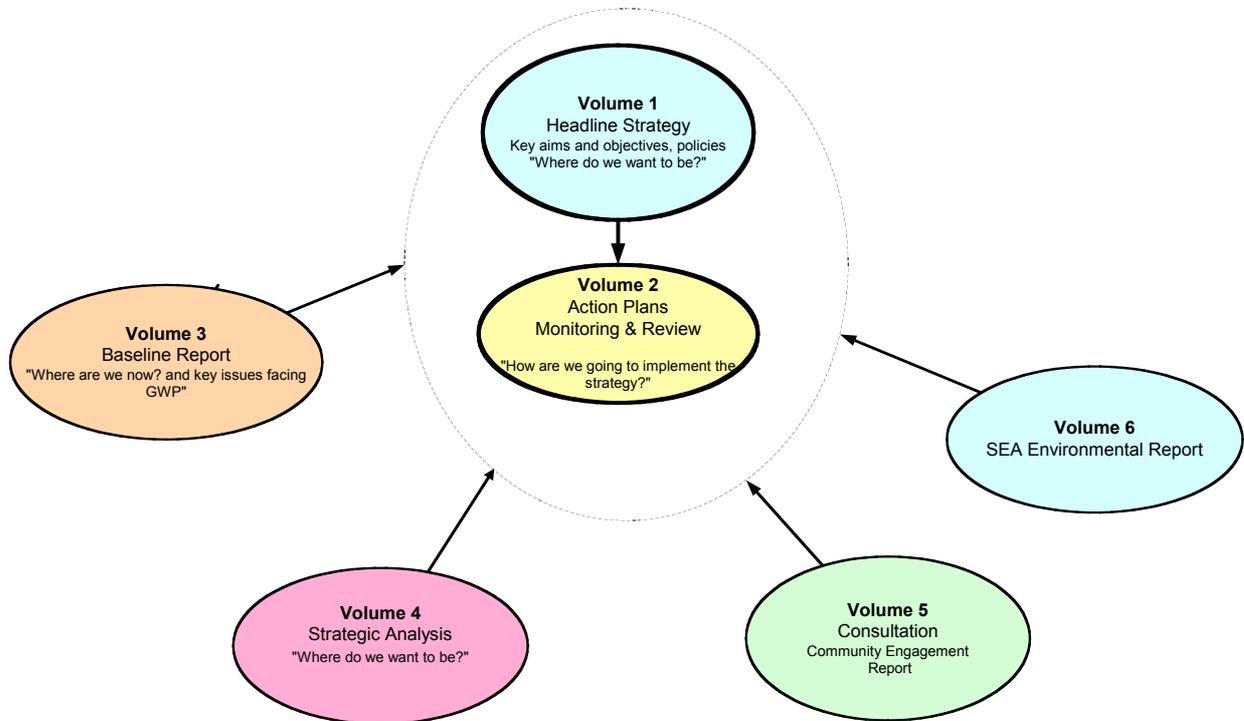
This Partnership is represented by a group of senior officers and elected members from each authority. The group was formed to identify and develop opportunities for joint working and to further the aims of achieving sustainable waste management in Gloucestershire.

The Gloucestershire Local Government Association (Gloucestershire LGA) oversees the work of GWP and provides high-level strategic and political guidance. The Gloucestershire LGA is comprised of the Leaders and Chief Executives of each of the Gloucestershire Authorities. Recently the Gloucestershire LGA agreed a shared vision statement and some key waste management objectives, which includes moving towards commonality of services provided by the WCAs.

3.3 What is the format of the Strategy?

The Strategy is intended to be a “living” document that can be easily updated. It is structured as follows:

Figure 1 – the Strategy documents



The Strategy is comprised of six volumes. This Headline Strategy (Volume 1) is backed by a detailed Action Plan (Volume 2), which sets out specific tasks to meet the Strategy objectives. The Action Plan will be monitored and reviewed by the GWP on an annual basis. The Headline Strategy document will be reviewed every five years (unless triggered by a significant change event e.g. change in law).

The Baseline Report (Volume 3) provides information on current municipal waste management in Gloucestershire, and outlines influencing factors such as demographics and legislative drivers. The Strategic Analysis section (Volume 4) contains a series of reports, which are the basis for determining our strategic approach. Reports within Volume 4 include municipal waste growth forecasting, strategic options appraisal for collection and disposal, and a waste minimisation plan & business case.

The Community Engagement report (Volume 5) details how we have consulted with the public and key stakeholders, and how the views of the community have influenced the development of this Strategy. An Environmental Report (Volume 6) also accompanies the Strategy. The Strategy is required by statute to be assessed against, and shaped by, a range of sustainability criteria. The Environmental Report explains how a Strategic Environmental Assessment was carried out and reports on the environmental impact of the Strategy and various waste management options. This report has also informed the development of this Strategy.

3.4 How has the Strategy been developed?

This Strategy replaces the Joint Authorities Municipal Waste Management Strategy published in April 2002. Whilst many of our objectives and plans are unchanged, an updated and revised strategy is now necessary to take account of recent legislative, policy developments, experience and best practice. This Strategy has also been developed in conjunction with the Land Use Policy Framework for waste. We have also taken account of the following:

- Waste Strategy 2000 and Waste Strategy 2007;
- Guidance on Municipal Waste Management Strategies (Defra, 2005);
- Planning Policy Statement 10 (PPS10);
- Gloucestershire Waste Local Plan (2004);
- South West Regional Waste Strategy;
- The Regional Spatial Strategy;
- The Waste and Emissions Trading Act 2003;
- Clean Neighbourhoods and Environment Act 2005;
- Other environmental protection policy and legislation; and
- Early consultation with the public.

We will ensure that current and future policy development will be informed by national, regional and local guidance, and other relevant local plans and strategies.

3.4.1 The Waste Planning Framework and Joint Consultation

As well as being the Waste Disposal Authority, Gloucestershire County Council (GCC) is also the Waste Planning Authority (WPA). As the WPA, GCC is responsible for preparing waste related development plan documents for the Minerals & Waste Development Framework⁵ (M&WDF) for Gloucestershire. GCC also determines minerals & waste planning applications, and is responsible for monitoring and enforcing minerals & waste planning controls. The Waste Core Strategy (WCS) will provide the spatial framework for sustainable waste management in the county over the next ten to twenty years and provide the policy framework for land use decisions for waste management.

This Joint Municipal Waste Management Strategy has been prepared side by side with the new Waste Development Planning Documents (the planning Waste Core Strategy), and therefore an iterative process is being followed whereby the JMWMS both informs and is informed by the planning WCS. It is important to note that the WCS sets strategic policies for determining the appropriate provision of waste management facilities in Gloucestershire over the next 10-20 years for all waste streams. The JMWMS does not set policy to determine where municipal waste management facilities should be sited; this Strategy details how municipal waste will be collected and disposed of and the JMWMS draws from the adopted Waste Local Plan (until it is replaced by Waste Development Plan Documents) to determine where these facilities should be located.

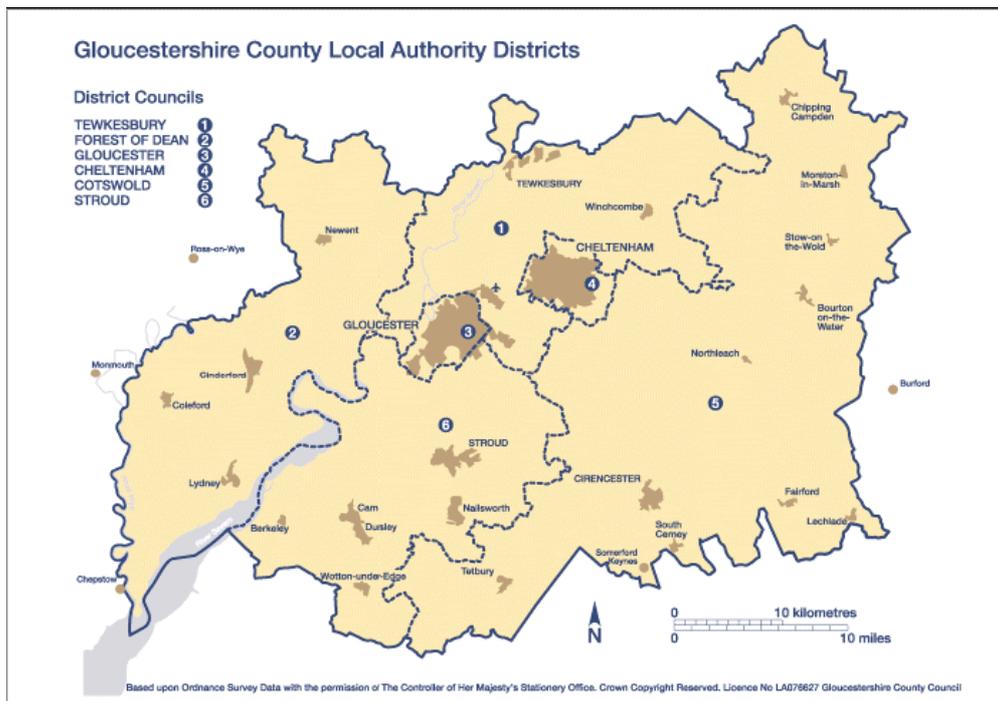
The potential for integrating consultation and review periods between the JMWMS and the WCS has been explored and is ongoing. Joint consultation has been undertaken during the formative stages of both the JMWMS and WCS documents and will continue to dovetail wherever possible.

⁵ The proposed Waste Development Plan Documents include the Waste Core Strategy (due for adoption in December 2009), a Waste Site Allocation DPD (due for adoption in March 2012), and a Development Control Policies DPD (also due for adoption in March 2012) and Proposals Map (ongoing).

4. Where are we now?

Gloucestershire is located within the northern extremity of the South West of England. The County is substantially rural in nature with the main urban development in Cheltenham and Gloucester. The River Severn divides the County, focussing east/west journeys to major bridging points. There are good north/south road connections via the M5 and the main east/west road being the A40. The green and rural landscape is a key county asset; Areas of Outstanding Natural Beauty (AONB) account for 51% of the county area. Map 1 shows the County with its constituent Local Authority District boundaries.

Figure 2 - Gloucestershire County Local Authority Districts



Gloucestershire has a population of approximately 565,000 (Census, 2001) which has grown at 0.5% per annum over the last 10 years and is predicted to grow to between 595,000 and 642,500 by 2026. There are approximately 246,800 households in Gloucestershire at present but this is expected to increase to between 275,000 and 295,000 households by 2026. The population is predicted to become increasingly aged which in itself may present new challenges in the design of services which people are able to fully utilise.

4.1 Current waste management in Gloucestershire

4.1.1 Municipal Waste Arisings

As stated above the joint Strategy covers the management of municipal waste which is mainly household waste. Household waste, which makes up over 96% of municipal waste arisings, is waste collected from householders (or delivered by them to our Household Recycling Centres and Bring Sites), street litter and sweepings. Municipal waste also

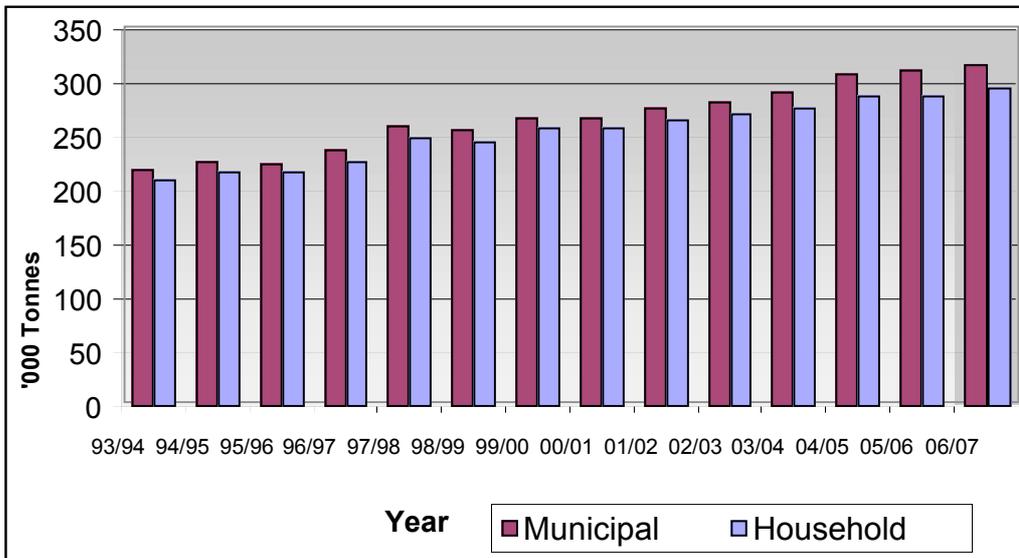
includes some commercial waste similar in composition to household waste that has been collected by, or on behalf of the Waste Collection Authorities.

In 2006/7, the county produced 324,143 tonnes of municipal waste, of which 302,355 tonnes was household waste. This equates to 525kg of household waste per head of population per annum, and about 1,220 kg per household per annum. The District Councils collected 10,538 tonnes of commercial waste and the County Council received 11,232 tonnes of DIY waste through its Household Recycling Centres. Under the current arrangements, all municipal waste is transported via the road network.

The majority of this waste is still disposed of in landfill sites located in Gloucestershire, despite making positive steps forward to increase the amount of waste recycled and composted. We now recycle and compost 32% of our household waste; this is over double of what we recycled five years ago but we are still burying 68% of our household waste in landfill sites in Gloucestershire.

Over the last 5 years, the amount of municipal waste collected has increased on average by over 3% each year (see figure 2). Year on year, as previously observed, the continued growth in population and number of households will directly impact on the quantity of waste generated. If waste continues to grow at 3% we would double the amount of waste produced in the next 25 years. The cost of collecting, recycling, composting and disposing of this is already about £30 million a year. This would have huge cost implications.

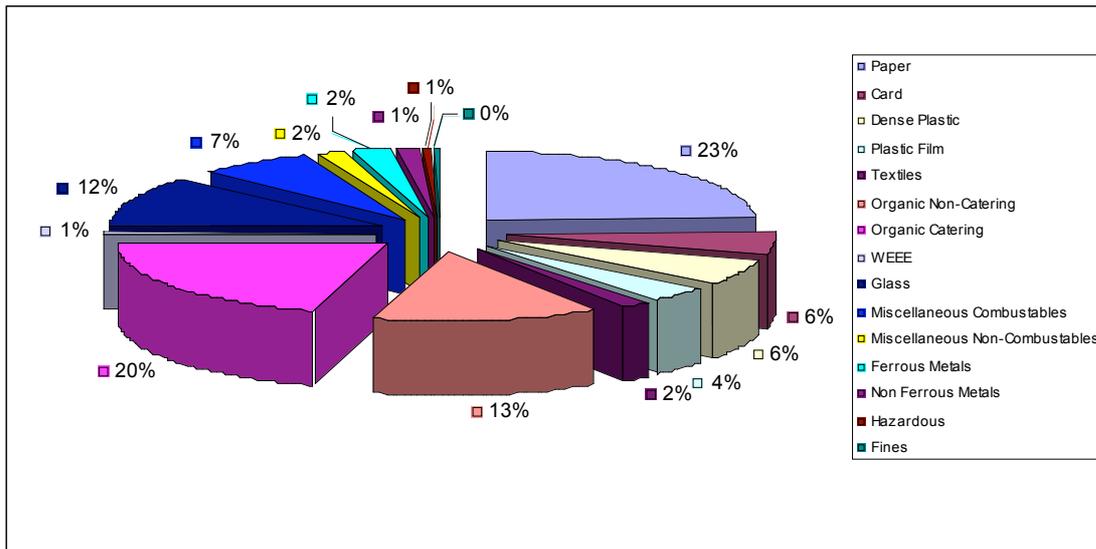
Figure 3 - Gloucestershire's Total Household and Total Municipal Waste Arisings from 93/94 to 06/07



4.1.2 What is the Composition of the Household waste?

Having recognised the importance of identifying the composition of our waste stream, we commissioned a household waste composition study during 2004/5. A breakdown of an average household bin (including separately collected recyclables and compostables) is shown in figure 3.

Figure 4 - Average breakdown of Household Waste arising in Gloucestershire



This study identifies that approximately 70% of the materials produced by a household can be re-used, recycled or composted. Sixty eight percent of the waste stream was found to be biodegradable, and of that 34% is organic (kitchen and garden waste). Kitchen waste (food scraps) is not currently collected separately.

4.1.3 How is municipal waste currently managed?

There is some commonality in the way that dry recyclables are collected by the District Councils (Waste Collection Authorities). Each council provides a kerbside recycling service for paper, glass and cans, which are manually sorted at the kerbside and loaded on to a vehicle. Some Councils collect additional materials such as plastic bottles, textiles and batteries. Five District Councils have introduced kerbside garden waste collection schemes; four schemes offer free collections and the fifth charges for the collection of green waste. Each District Council provides a weekly collection of residual waste ('rubbish') in black bags or in wheelie bins.

There is a special collection service for 'bulky' household waste enabling residents to dispose of large household items e.g. mattresses, fridges and freezers. Five districts offer a waste (refuse) collection service for commercial waste. Gloucester City currently offers commercial waste recycling collection of cardboard and mixed glass, and Cheltenham BC has begun trialling a mixed glass commercial waste recycling scheme to businesses in Cheltenham. The scheme allows trade customers to recycle their glass bottles and jars with collections being offered at a cheaper rate than normal landfilled waste.

In addition to a kerbside service, each District provides a network of bring banks for various dry recyclables. The County Council provides five Household Recycling Centres (HRCs) for the receipt of recyclables, green waste, hazardous waste and residual waste. Cheltenham Borough Council also operates a discretionary civic amenity site.

Recyclable materials are currently sorted within the County and materials such as clean glass, papers and magazines are sent elsewhere in the UK or overseas for reprocessing or onward transfer. (See Volume 3, Baseline Report). Garden waste collected at the HRCs and at the kerbside is windrow composted at 3 composting sites located in Gloucestershire. All residual waste is landfilled at two sites within Gloucestershire.

4.1.4 What are we doing to encourage waste minimisation, recycling and composting?

We currently run a number of initiatives to encourage and improve waste minimisation and participation in recycling and composting schemes.

4.1.4.1 Recycle for Gloucestershire Campaign



The 'Recycle for Gloucestershire' campaign has been in existence since 2004 and uses high level advertising and consistent branding to raise awareness of waste minimisation, recycling and composting schemes, services and facilities. It aims to encourage people to recycle more often through the use of:

- direct mail;
- the development of a website (www.recycleforgloucestershire.com);
- outdoor media (adshells and billboards);
- press advertisements;
- roadshows; and
- doorstep canvassing.

The campaign links closely with the national 'Recycle Now' campaign introduced by WRAP. From 2004 to 2006, the Recycle for Gloucestershire Campaign boosted participation in kerbside recycling schemes by 7.5% to 67.5%. Householders were also shown to be recycling more often as a result of the campaign (10% increase over time in the number of householders participating on three consecutive collections). The 2006 to 2008 campaign aims to deliver further improvement in participation.

4.1.4.2 Getting our own house in order

GWP recognises the importance of sustainably managing its own business. Each authority carries out a range of activities that contribute to "getting their own house in order". This includes engaging all staff to manage waste in line with the principles of the waste hierarchy and how to recognise the importance "green procurement". Stroud District Council holds EMAS accreditation and Gloucestershire County Council has recently let a corporate contract to enable all premises to recycle their waste as standard practice.

4.1.4.3 Waste Minimisation Activities and Education

GWP currently supports a number of waste minimisation projects across Gloucestershire such as the Real Nappy Campaign, no junk mail, home composting and furniture reuse. There is also a strong emphasis on working in schools. Approximately 15% of all schools were visited in 2006/7. GWP officers currently liaise with head teachers, develop waste related activities, which support the national curriculum and visit schools to deliver these activities.

4.1.4.4 Community group support

GWP officers support a variety of community-based activities such as the furniture recycling projects, re-paint schemes and community composting. In addition, the GWP has supported the establishment of the Gloucestershire Community Waste Partnership, which is open to all waste-based enterprises in Gloucestershire and aims to improve partnership working between community enterprises and increase contact between the community and the public sector within waste management. The partnership has launched its own website – www.gcwp.org.uk. The County Council supports Community Groups (charities and social enterprises) through payments known as Recycling Credits. In 2006/07 the community sector recycled 1188 tonnes and received £50,000 in payment.

5. Where do we want to be?

This section discusses our strategic drivers and sets out our objectives for managing waste over the next 13 years. Before determining our objectives, we considered a number of drivers that are influencing our direction of travel and shaping our Strategy. This includes EU and UK government policy, landfill diversion targets, recycling and composting targets for household waste, as well as social and economic factors and public perception.

5.1 Environmental Policy Drivers

We have to do the right thing to ensure that we do not jeopardise our planet for future generations. As referred to in section 1, we have become a throwaway society and our habits and lifestyles are contributing to climate change and global warming.

The need to change has been recognised by Central Government and European Union. This has resulted in the introduction of policies, legislation and fiscal measures intended to transform the way we currently manage waste. This is driven by an aim to move away from a society that depends heavily on landfill to one which is led by the principles of the waste management hierarchy.

The European Union environmental policy currently addresses four priority areas for action. These are defined by the sixth Community environment action programme as namely:

- combating climate change;
- protecting nature and biodiversity;
- preserving the environment, health and quality of life; and
- preserving natural resources.

This action programme delivers seven thematic strategies, one of which is the thematic strategy on the prevention and recycling of waste. This is accompanied by a proposal for a new waste framework directive and together this marks the launch of the modernisation of European waste policy. The thematic strategy clearly sets out the environmental objectives of waste policy, which aim to reduce the negative environmental impacts associated with the use of resources. The aim of the strategy is to change society into a “recycling economy which avoids generating waste and uses the material and energy resources contained in waste”.

The UK Government echoes this new thinking; climate change is now recognised as one of the biggest threats to our way of life. The Waste Strategy for England (May 2007)⁶ emphasises the Government’s recognition that we are still not doing enough; less waste needs to be sent to landfill and more needs to be recycled. It states that putting in place the necessary investment capacity to meet objectives must be a high priority in order to ensure we can meet our UK landfill diversion targets (see below for further explanation). The strategy also affirms the Government’s belief that Energy from Waste should have a clearer role to play in obtaining value from some of our waste resources and reducing environmental impact.

The Government proposes increased recycling targets but also recognises the need to ‘adapt and broaden’ its approach. There needs to be greater emphasis on buying and making products that create less waste, and the development of a joined up approach to waste integrating the way waste is managed by local authorities and by business. Most

⁶ Defra (2007). Waste Strategy for England 2007. www.defra.gov.uk

importantly the Government wants to 'secure long-term sustainability' and change our way of thinking about waste as a resource and not just as a waste. Waste should be seen as a material for re-use or conversion into a form that will provide the 'most economic, social and environmental gains'.

A report⁷ by WRAP has identified the genuine benefits of recycling. It revealed that recycling offers more environmental benefits and lower environmental impacts than other waste management options. They also assessed the relative greenhouse gas savings associated with current UK levels of recycling for paper/cardboard, glass, plastics, aluminium and steel. It was clear that the UK's current recycling rate saves between 10-15 million tonnes of CO₂ equivalents per year compared to employing the current mix of landfill and incineration with energy recovery to the same materials. This is equivalent to taking 3.5 million cars off the road.

5.1.1 Legislation and targets

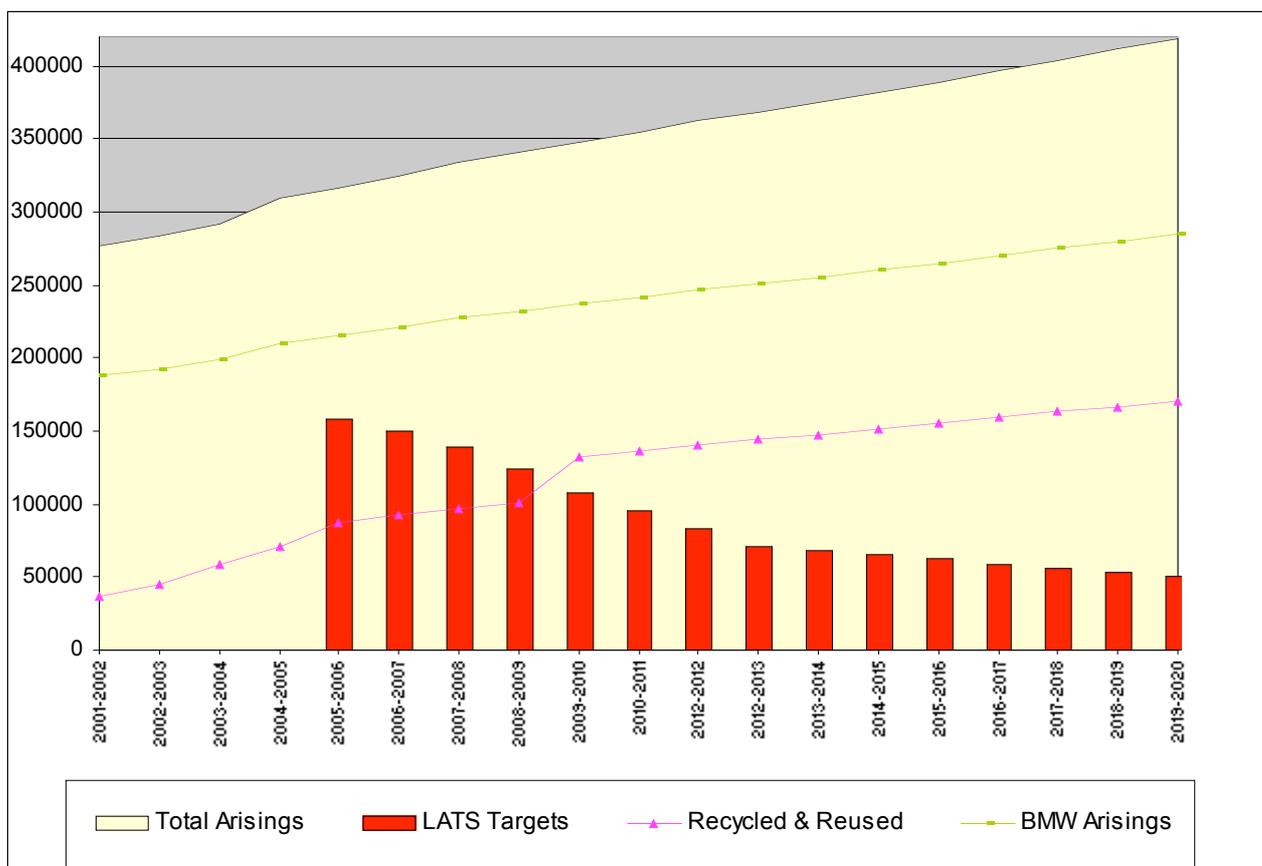
Two of our key UK drivers are Biodegradable Municipal Waste (BMW) landfill diversion targets as laid down by the Waste and Emissions Trading Act (WET) 2003, and statutory recycling and composting targets (which are measured through the Best Value Performance Indicators).

One of our highest priorities is the diversion of biodegradable waste from landfill. The EU Landfill Directive (1999) set strict targets to reduce the amount of active biodegradable municipal waste such as paper, card, garden and food waste allowed to go to landfill to decrease the levels of greenhouse gases emitted to atmosphere. In 2003, the Waste and Emissions Trading Act was enacted introducing a **Landfill Allowance Trading Scheme (LATS)** for England. This scheme aims to implement the requirements of the Landfill Directive: reduce biodegradable municipal waste (BMW) sent to landfill to 35% of 1995 levels by 2020 to ensure that the Government meets the requirements of the EU Landfill Directive.

Under this scheme, Gloucestershire County Council has been allocated a fixed number of allowances (tonnages) each year up to 2020. These reduce in number year on year as can be seen in figure 5. The allowances can be traded with other Waste Disposal Authorities and can be 'banked' over each year (except during those years that are EU target years - 2010, 2013 and 2020). If an authority does not hold sufficient allowances to cover the BMW landfilled, the Government can fine the Waste Disposal Authority £150 for every tonne of waste it landfills above its allocation. Recycling and composting performance will assist in diverting BMW from landfill but it will be necessary to invest in further treatment capacity for the remaining residual waste that is not recyclable in order to meet targets in the later years.

⁷ WRAP (2006) Environmental benefits of recycling: An international review of life cycle comparisons for key materials in the UK recycling sector. A comprehensive international review of existing life cycle analysis (LCA) projects to evaluate the impact on the environment of managing key materials in different ways- through recycling, incineration and landfill.

Figure 5 - Predicted Total Gloucestershire Waste Arisings (tonnes) , LATS allocations (tonnes) and level of recycling (tonnes)



Gloucestershire met its 2005/6 **BVPI recycling and composting target** of 30%, and performance in 2006/07 continued to improve. Targets for 2007/08 have been set, and the implications of these new targets for Gloucestershire authorities are set out below. As can be seen, Gloucestershire Councils are already exceeding their 2007/8 targets.

Table 1 - Actual Recycling Rate for 2006/7 and BVPI recycling targets for 2007/8

Council	Actual Recycling Rate (%)	BVPI recycling target (%)
	2006/07	2007/8
Cheltenham Borough	28%	24%
Cotswold District	41%	30%
Gloucester City	23%	20%*
Forest of Dean District	36%	30%
Stroud District	24%	30%
Tewkesbury Borough	26%	21%
Gloucestershire County**	32%	30%

* Statutory target increased from 18% to 20% (Government response to the consultation on options for Local Authority Statutory Performance Standards on Recycling and Composting in 2007/08 (Defra))

** The Gloucestershire County Council recycling rate is the combined District recycling rate and HRC recycling rate.

Government has indicated that recycling and composting rates will increase over time. The Waste Strategy for England 2007 proposes to increase national household waste recycling and composting rates to at least:

- 40% in 2010;
- 45% in 2015; and
- 50% in 2020.

The Government has also introduced Local Area Agreements (LAAs), which can be used to meet local challenges and 'stretch' targets. LAAs are a three year agreement between central government and a local area that sets out priorities to deliver 'genuinely sustainable communities through better outcomes for local people. The current LAA target for recycling and composting performance in the county is 40% by 2010.

In support of our efforts to recycle and compost more, the Gloucestershire Local Government Association has produced a recycling and composting vision which states "all households in Gloucestershire will have convenient and easy-to-use collection services, enabling them to recycle and compost at least 70% of their rubbish by April 2010".

Other legislation shapes our thinking (see the Baseline Report (Volume 3). The Clean Neighbourhoods and Environment Act (2005) contains a range of measures to improve the quality of the local environment by giving local authorities and the Environment Agency additional powers to deal with waste. This legislation, in conjunction with the Environmental Protection Act 1990, provides a number of opportunities to drive segregation, encourage waste reduction and ensure waste collection does not have a negative impact on the street scene. The Clean Neighbourhoods and Environment Act (2005) specifically gives local authorities the power to issue fixed penalty notices for waste left out on the street. This enables us to manage residual waste capacity more effectively, such as restricting side waste if required.

Producer responsibility legislation, for waste streams such as packaging and end of life vehicles makes industry responsible for the recovery, recycling and safe disposal of their products and wastes produced from their processes. Such legislation reduces the burden on the public purse. Supermarkets and other retailers are becoming more proactive encouraging life-cycle thinking in their products to reduce packaging and encouraging consumers to 'shop smartly' (re-useable bags) and recycle more. GWP is also creating closer links with local supermarkets to carry out joint campaigns.

The UK government is beginning to make links between waste and future energy policy. Recent documents such as the Waste Strategy Review Consultation and the Energy Review have offered some encouragement. Renewable energy is an integral part of the Government's long term aim to reduce CO₂ emissions by 60% by 2050. The Renewables Obligation (2002) is the government's main mechanism for supporting renewable energy and provides incentives for eligible forms of renewable energy. The Renewables Obligation requires licenced electricity providers to a specific and annually increasing percentage of electricity from renewable sources.

Mixed municipal waste is not an eligible source. However if the waste is purely biogenic with a maximum content of 2% accidental contamination it then becomes eligible. For example biogas generated from food waste using an anaerobic digester would be eligible and could demand a higher premium. Since 2007, the Renewable Obligation has changed and municipal waste's biogenic element is an eligible source of renewable energy if combusted to generate both heat and power in sufficient quantities. Gloucestershire is also developing an Energy Strategy. It is important that we identify potential long term links and opportunities and keep a watchful eye on government's thinking.

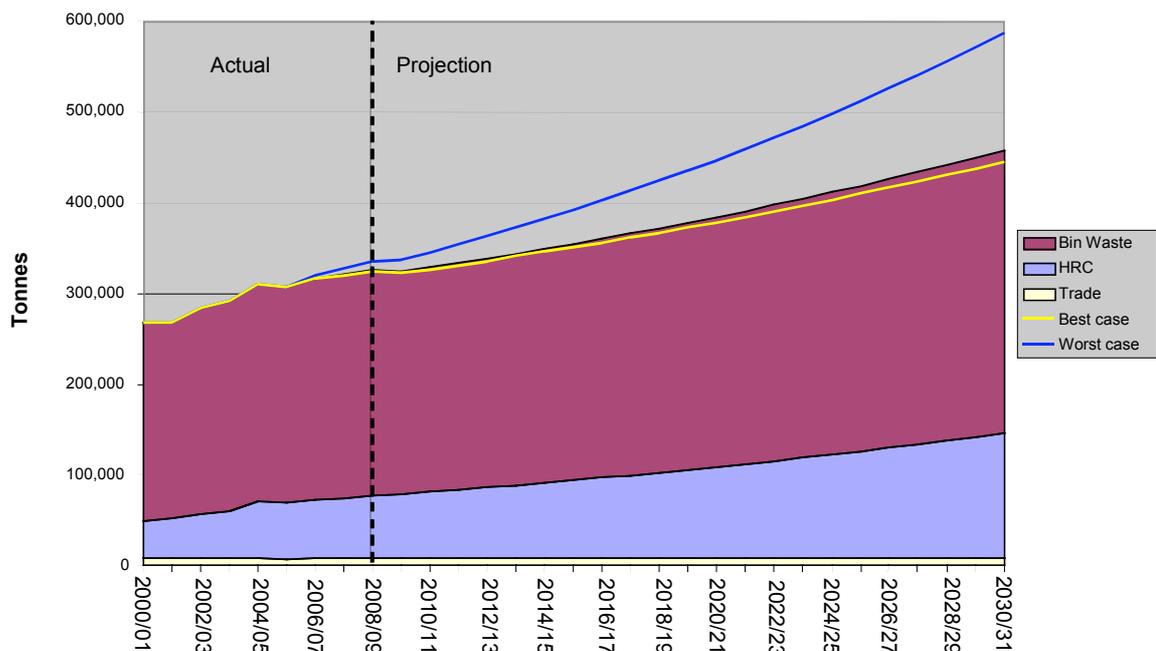
5.1.2 Future Waste Arisings

Waste is a product of society and the amount of waste grows over time as a result of increasing household numbers, economic growth (as people can afford more things they also throw away more) and changing consumer trends including fashion, increased amounts of packaging and greater quantities of disposable items. The recent National Waste Strategy Review revealed that England's municipal waste has grown less than Gross Domestic Product since 2000 suggesting a break in the link between waste generation and economic growth. Up to the millennium, England's municipal waste increased at about 3.5% per year, and this has now slowed to around 1.5% per year.

Gloucestershire's municipal waste arisings have risen by approximately 3% per annum over the last 10 years. Because of the compounding percentage increases over time, this level of growth will have a significant impact on the quantity of waste that Gloucestershire must manage: if growth continues at 3% it will double in 25 years⁸. This has clear financial and environmental implications. We would require greater waste management capacity, costs to the council tax payer would rise and it would be harder to reduce impacts on the environment and meet the requirements of the Landfill Allowance Trading Scheme.

Recent work has been undertaken to determine a sensible projection of future waste arisings on which planning for waste treatment and disposal facilities can be based. Total arisings are predicted to grow from around 324,000 tonnes per year in 2006/7 to some 457,000 tonnes by 2030/31. This is equivalent to an annual growth rate of 1.6%. This is based on recent and future waste growth and analysis of whether increases can be attributed to 'one-off' events such as the recent introduction of kerbside collection of green waste, changes and improvements at HRCs, the future introduction of reduced residual waste collection by all authorities by 2010/11 and new recycling and composting schemes. In a worst-case scenario (if the events were not 'one-offs') waste growth could be as high as 2.8% on average. Figure 6 below illustrates the projected municipal waste arisings up to 2030/31 providing best and worst case scenarios.

Figure 6 - Gloucestershire Municipal Solid Waste Arisings Projection



⁸ Eunomia (2006) Municipal Waste Prevention Strategy Report (Gloucestershire)

Reducing the frequency of residual waste collection has been shown to have a positive impact on waste reduction⁹ and levels of recycling in other authorities. Research¹⁰ conducted shows that authorities with 140L bins for residual waste have 9.5% lower overall waste arisings, recycle 61.2% more material, and dispose of 16.4% less residual collected waste compared to all authorities with 240L wheeled bins. The performance of authorities with fortnightly collections is even better with 13.1% lower arisings compared to all authorities with 240L wheeled bins, 82.4% more recycling, and 22.3% less residual collected waste. The best case scenario assumes moving to alternate weekly collection to enhance recycling and reduce waste production.

The above projection also accounts for the impacts of decreasing household size (number of persons per household). The number of households within Gloucestershire has increased at a faster rate than the population and mirrors the national trend of smaller household size. The size of the average Gloucestershire household is predicted to decrease from 2.31 persons in 2004 to 2.1 persons by 2026. Smaller households produce more waste per capita than larger households.

A higher number of homes will result in increased costs of waste collection and disposal. In addition, Gloucestershire has an ageing population, with a greater than average proportion of its residents above 50 years of age and a lower than average proportion of its residents below 35 years of age. Whilst older residents are often believed to be more likely to participate in recycling than younger age groups, older residents may require additional services such as assisted (or back door) collections.

5.1.3 Future Cost and Need for New Waste Facilities

Waste management budgets have increased beyond inflation in recent years as a result of new policy, legislative and fiscal drivers. Collectively the seven Gloucestershire authorities currently spend about £30 million on managing (collecting, recycling, composting and disposing) Gloucestershire's municipal waste and this can be expected to rise further for both collection and disposal services as higher environmental standards (statutory and good practice guidance) are met.

The majority of municipal waste (about 70%) is still disposed of in landfill sites located in Gloucestershire, despite making positive steps forward to increase the amount of waste recycled and composted. The cost of disposing of residual waste to landfill will continue to increase as the landfill tax escalator¹¹ increases, causing the tax per tonne of waste disposal to rise from its 2007/8 level of £24 per tonne by £8 per tonne per annum until at least 2010/11. In addition, the reduction in available landfill void space may begin to elevate the cost of landfill due to the economies of supply and demand. Importantly, if we fail to meet the biodegradable waste diversion targets, we face fines, which could amount to millions of pounds.

Gloucestershire's biodegradable landfill void space is declining. There are currently four sites in the County that can accept non-hazardous biodegradable wastes: Frampton; Hempsted; Wingmoor Farm (West); and Wingmoor Farm (East). The amount of time that these four landfill sites take to fill up is dependent on a number of factors and assumptions: the amount of material that is deposited in them; contractual issues i.e. if one site closes does its waste get sent to one of the other landfill sites in the County?; planning permission time limits; input restrictions; and compaction of material.

⁹ Eunomia Gloucestershire collection policies report 2006

¹⁰ Source: Eunomia Waste Minimisation Business Case, 2006.

¹¹ Landfill Tax Regulations were introduced in 1994 (see Baseline Report).

For the purposes of disposing of municipal waste, the County Council, under its contract with Cory Environmental, use two landfill sites - Hempsted and Wingmoor Farm (West). Indications are that Hempsted will be full within the next 5 years whereas Wingmoor Farm (West) could last considerably longer dependant on the factors outlined above. If however void space in Gloucestershire were no longer available it may then be necessary to transport waste to other landfill sites out of County. Therefore diverting waste from landfill to free the remaining voidspace is a high priority. Further investment is required to help us to recycle and compost more material. We need to develop new collection systems, composting and bulking/transfer facilities and also invest in developing a residual waste treatment technology to enable us to divert waste from landfill.

5.1.4 Public Expectations

Gaining the views of the residents of Gloucestershire is key to the development and delivery of the joint Strategy. In preparing this strategy we have:

- sought the views of senior council officers and elected members on our strategic objectives;
- distributed a questionnaire to targeted stakeholders and the wider public on key issues relating to the emerging Strategy;
- undertaken targeted stakeholder workshops;
- held a public consultation event jointly with the Waste Planning Authority to consider our vision and objectives, and also to gain views on how waste should be managed in the future.
- sought the views of statutory consultees, other stakeholders and the wider Gloucestershire public on the draft strategy and supporting documents.

In addition to the above, we continue to carry out market research as part of the 'Recycle for Gloucestershire' campaign to gauge the effectiveness of our services and promotional campaigns.

Early consultation (see Volume 5) revealed that more people want to recycle and that service expectations are rising. Education is also considered vital to encourage people to produce less waste, and recycle and compost more. It is felt that GWP needs to work harder to change attitudes and behaviour towards the waste they produce. This includes making it easier for the householder to recycle and compost and consider incentives and penalties to encourage waste reduction, recycling and composting. Householders would also like to be able to recycle a wider range of materials and home composting was viewed as the best option for managing biowaste. Kerbside collection of garden waste was the second preferred management option.

Currently this Strategy does not cover the management of commercial waste (with the exception of 11,000 tonnes which is collected by the Districts). Our early consultation findings suggested that Gloucestershire residents would like our municipal waste management Strategy to cover all categories of commercial waste in the future. Municipal waste only contributes to about 22% of the controlled wastes¹² managed in Gloucestershire. We aim to explore how we can assist the sustainable management of commercial wastes and this is included in our Strategy action plans.

¹² Controlled wastes are defined by the Waste Framework Directive as commercial, industrial, municipal wastes and some agricultural wastes (does not include natural agricultural wastes).

5.2 Our Strategy objectives

Gloucestershire Waste Partnership has developed nine objectives, to deliver a sustainable waste management service where waste generation is minimised and waste materials are seen as a resource. These objectives are the foundations of our Joint Municipal Waste Management Strategy:

Objective 1: “Changing Behaviour”

To further develop our service design, communications and our education programmes to promote waste minimisation and to maximise participation in sustainable waste management services. In the long term we aim to transform consumer behaviour and society’s attitude to consumption and disposal.

The delivery of this Strategy largely depends on the acceptance and willingness of the community to take responsibility for their waste as this has major financial and service design implications. Influencing habits and attitudes towards recycling could be the success or failure of any waste minimisation or collection scheme provided. We also recognise that within our own business it is important to demonstrate commitment to reducing and recycling waste to provide leadership in this area.

Objective 2: “Reduction First”

To reduce Gloucestershire’s municipal waste by addressing waste generation at the household level and further up the supply chain.

Further growth in Gloucestershire’s municipal waste arisings is not sustainable. This will not only have a negative environmental impact but the need for further collection, treatment and disposal capacity will also significantly raise long-term costs. It is recognised that householders and businesses each have a key role to play in addressing this issue in the long term.

Objective 3: “Segregation at Source”

To provide collection systems that enable all householders to segregate their waste, balancing optimised collection systems with a desire to maintain the quality and value of the materials collected for recycling and composting.

Segregation by the householder maximises the diversion of good quality, valuable materials from the rubbish bin. Household waste logically segregates into three main streams: dry recyclables (paper, glass, cans etc), biowaste (kitchen and/or garden waste), and residual materials (that waste not suitable for recycling and composting). As a minimum, collection services will be provided for these three basic streams.

Objective 4: “Compost Hierarchy”

To promote home and community composting where possible, and also provide facilities to compost biowaste that is collected at the kerbside and received at HRCs. We aim to produce high quality composts that can be used locally.

Home and community composting are considered the most sustainable options for managing biowaste as it prevents this material from entering the waste stream and deals with waste at source. However, this is not always practical. Kerbside collection of green waste is established and popular in five of the six Districts. The composting of biowaste (kitchen and garden waste) on a larger scale is needed to divert of biodegradable municipal waste from landfill and avoid heavy fines. Composting can also retain valuable resources and improve soils.

Objective 5: “Residual Waste as a Resource”

To provide residual waste treatment capacity to divert waste from landfill, and find or develop markets for recovered materials. Our preferred treatment processes will optimise recovery of recyclables and gain further value from residual waste before disposal.

After we have reduced, reused, recycled and composted as much as we can there will still be some waste left over. This is referred to as ‘residual waste’. We intend to manage any residual waste (often referred to as ‘black bag’ waste) that remains as a potential resource. Continuing to landfill the majority of our household waste is not considered sustainable, and local landfill space cannot be guaranteed indefinitely. Residual waste treatment includes a number of technologies and techniques that can recover additional materials for recycling and gain further value including energy from combustion.

Objective 6: “Delivering the Strategy”

To implement this Strategy through clear leadership, accountable decision-making, timely investment and resourcing. We will look to secure sustainable funding to continuously improve Gloucestershire’s waste management service.

We recognise our duty to provide an effective and ‘value for money’ waste management service for our residents. Waste management is a priority and we are committed to investing in collection and waste management facilities. The timely development of waste management facilities is pivotal to the delivery of this Strategy.

Objective 7: “Working in Partnership”

To develop an effective partnership between the seven Gloucestershire authorities and investigate the formation of a suitable organisational framework, including financial and operational interests, for delivering this Strategy. We plan to develop strong partnerships with the Waste Planning Authority, businesses, community groups and other organisations to ensure effective management of the municipal waste stream.

The Gloucestershire Waste Partnership is responsible for recommending to constituent authorities ways of co-ordinating arrangements for collection and disposal. We want to work towards increasing commonality between District collection systems where possible to make recycling easier for Gloucestershire residents. We believe that there are potential efficiencies and economies of scale to be realised through developing joint working. GWP will also oversee the development and implementation of Gloucestershire’s Joint Strategy and report on progress on a regular basis.

Objective 8: “Closing the Resource Loop”

To reprocess waste materials at the most appropriate location; recycling locally wherever practical by supporting reprocessors within Gloucestershire. We will seek to ensure that our waste materials are recycled into high quality products, helping to generate jobs, create wealth, and mitigate the impact of climate change.

Good segregation of waste by householders will provide materials that can be recycled into new products. Currently, these materials such as glass, paper and plastics are entering both the national and international market. Recycling is more beneficial for the environment than other waste treatment options. It is fundamental that reprocessing and markets are developed in conjunction with green procurement policies to ensure we help to create sustainable markets for recycled products.

Objective 9: “Depollution of the Waste Stream”

To encourage the reduction of hazardous waste arisings, and to segregate and safely treat or dispose of hazardous materials from the municipal waste stream.

The removal of hazardous materials such as chemicals, batteries, asbestos and some electrical goods commonly found within municipal waste will ‘decontaminate’ the waste stream and allow these wastes to be safely treated; re-used or recycled where possible, or disposed of so any threat to the environment and human health is minimised.

5.3 Targets

We have a number of targets set by Government and through other adopted policies such as those within the South West Regional Waste Management Strategy (2003). In addition we have developed our own performance targets. These are based upon the findings of a strategic options appraisal and analysis (See Volume 4).

5.3.1 Key Targets

The targets set out below have been set to measure progress towards our strategic objectives.

T1: Changing Behaviour

Links to: Objective 1. "Changing Behaviour".

- **From 2007:**
 - **Visit a minimum of 50 schools each year.**
- **By March 2008:**
 - **Increase recycling & composting through existing schemes by 3%;**
 - **Increase participation in recycling & composting schemes in low performing areas by 20%;**
 - **Achieve a rate of 85% of householders classifying themselves as committed recyclers.**
- **By 2020:**
 - **Achieve an average participation rate of 80% in recycling & composting collection schemes;**
 - **Achieve an average capture rate of 80% for targeted recyclable and compostable materials.**

T2: Waste reduction

Links to: Objective 2. "Reduction First".

- **To reduce the growth of Gloucestershire's municipal waste arisings to zero by 2020.**

T3: Recycling and Composting

Links to: Objective 3. "Segregation at Source".
Objective 4. "Compost Hierarchy".

Minimum county-wide improvement targets have been set as follows;

	Recycling & Composting Target	Residual waste per capita target
2009/10	40%	314kg
2014/15	50%	273kg
2019/20	60%	228kg

T4: Meeting BMW diversion targets (LATS)

Links to: Objective 3. "Segregation at Source".
Objective 4. "Compost Hierarchy".
Objective 5. "Residual Waste as a Resource".

Reduce the amount of active biodegradable waste from landfill at least in line with the requirements of the Landfill Allowance Trading Scheme to:

Year	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13
tonnes	150,100	138,721	124,497	107,428	95,471	83,513	71,555

Year	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
tonnes	68,486	65,416	62,347	59,277	56,208	53,139	50,069

6. How are we going get there?

6.1 Introduction

This section sets out how the Strategy objectives will be met. Our services will be customer focussed and cost effective while maintaining high environmental standards. We will develop solutions that will, wherever possible, add value and deliver social and economic benefits to our community and ensure continuous improvement of our services.

We recognise the need to work together as Waste Collection Authorities and the Waste Disposal Authority and appreciate that we have different roles, responsibilities and government targets to meet. In particular, Gloucestershire County Council has the responsibility of meeting the LATS targets but the delivery of this rests on the cooperation between all seven authorities to provide collection and disposal services to increase recycling and composting and divert BMW from landfill.

6.2 Our Route Map

In the short to medium term the Gloucestershire Waste Partnership is developing a high recycling and composting strategy, which (subject to further public consultation and member approvals) is likely to include:

- Increased collection of dry recyclables through kerbside, bring sites and HRCs to maximise diversion of biodegradable materials;
- Introduction of kitchen (food) waste collection;
- Reducing residual waste collection capacity once recycling and composting collection schemes are in place;
- Continued collection of green waste where already implemented.

We believe this strategy will go some way to meet our LATS targets but it is unlikely to fully meet our obligations (particularly in the later years of the scheme, when targets become more stringent). We will therefore buy additional landfill allowances to ensure we avoid substantial fines.

If each District introduces good quality three stream collection systems, (backed up by successful & timely development of in-vessel composting infrastructure by Gloucestershire County Council) we estimate that each individual household could theoretically have the potential to recycle 70% of their rubbish. At an 80% public participation rate (supported by a partnership-driven communications campaign), this could result in excess of 50% recycling performance across Gloucestershire.

In the longer term, we will procure residual waste treatment capacity by 2014/15. This will meet our LATS obligations up to 2020. The decision to 'bank', 'borrow' and 'trade' in any one-year for Landfill Allowances will be made with a view to maximising flexibility by utilising the Waste Disposal Authorities ability to fully utilise the flexibility within the LATS regime.

The broad strategic route map currently under consideration for the management of Gloucestershire's household waste is as follows;

Table 2 - Broad strategic route map for management of Gloucestershire's household waste: 'Enhanced Recycling and Composting with a residual waste treatment technology'.

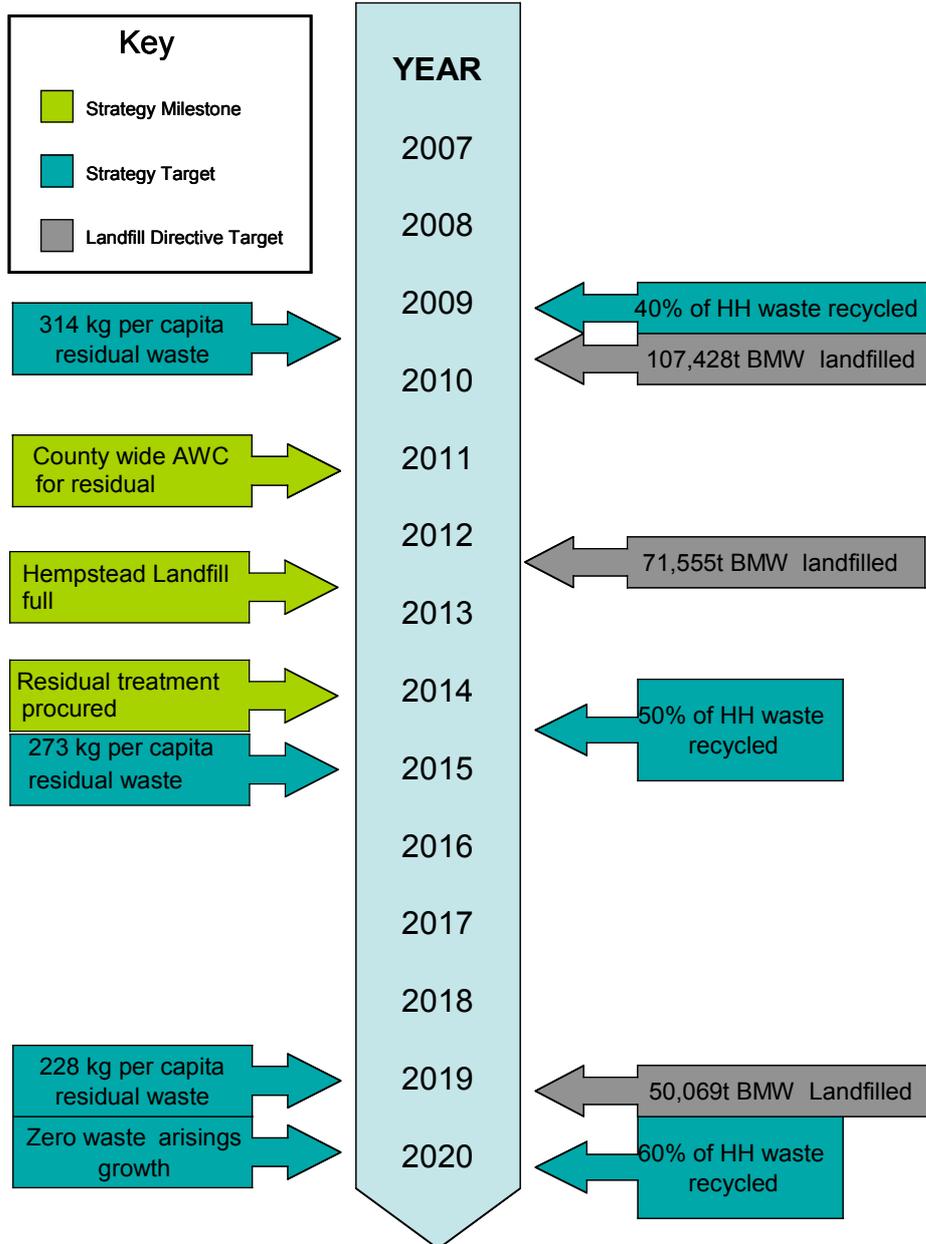
	Enhanced Recycling & Composting with Residual Waste Treatment technology¹³	Links to:
Waste Growth	Waste growth reduction schemes are implemented, reducing growth to zero by 2020	Objective 2
Collection	Continue with kerbside collection of dry recyclables but a separate biowaste collection (garden & kitchen). (N.B Collection of kitchen waste with dry recyclables for one District only with chargeable garden waste collection). Allow for growth of dry recyclable, garden and kitchen waste volumes. Reduced residual waste capacity to compensate for reduction in volume.	Objective 3
Recycling	Recyclables continue to be bulked at localised bulking facilities for onward transfer to reprocessors.	Objective 3
Composting	Biowaste to be composted at localised and centralised in-vessel and windrow composting facilities.	Objective 4
Treatment of Residual	Treat residual waste in a residual waste treatment facility (e.g. MBT, autoclave, energy from waste) and ensure that the outputs from the process are beneficially used where possible (e.g. recycling of further recyclables, use of Refuse Derived Fuel to produce energy).	Objective 5
Landfill	Unrecoverable output from residual waste treatment, composting and bulking facilities.	Objective 5

By 2019/20 it is envisaged that, through this Strategy, over half of Gloucestershire's waste will be recycled or composted, and year on year the growth of waste will reduce as householders become engaged and take responsibility for the waste they produce and use the services provided.

The following chart shows key targets and milestones for the strategy over time.

Figure 7 - Key Strategy Targets and Milestones

¹³ Mechanical Biological Treatment, Mechanical Heat Treatment (Autoclave), Energy from Waste.



Volume 2 High Level Action Plan

How are we going to implement the strategy?

This high level action plan provides details of how the Gloucestershire Waste Partnership intends to deliver its vision and objectives.

7. Changing Behaviour Action Plan

7.1 Background

The delivery of this Strategy largely depends on the acceptance and willingness of communities to take responsibility for their waste and to fully participate in the waste minimisation or collection schemes provided. We hope to make waste minimisation, recycling and composting mainstream, everyday activities that are easy to do.

The GWP works in partnership to deliver the countywide “Recycle for Gloucestershire” communications campaign and its associated monitoring of participation and customer satisfaction. We plan to build up this campaign over time and ensure that targeted information campaigns are implemented when delivering new services throughout the County. In parallel a long-term schools programme will also continue to educate and raise awareness (using ‘pester power’ to improve use of new and existing schemes).

We will also get our own house in order by reducing resource consumption and waste associated with local government services in Gloucestershire, ensuring we practise what we preach.

7.2 Actions

7.2.1 “Recycle for Gloucestershire” Campaign

We will deliver effective communications and education programmes so that residents understand both how to recycle and compost at home, and also why it is vital that we all “do our bit”. We will launch targeted campaigns to support the delivery of new schemes and services to gain high participation rates and capture of materials. Our campaigns will aim to mirror and support the national campaign, ‘Recycle Now’ and will contain positive, encouraging messages rather than “blame and scare” campaigns.

We will also communicate widely with residents to raise awareness of new waste technologies and tackle the ‘fear factor’ that can be associated with waste management facilities.

GWP agree that the common messages emerging include:

Table 1 - Possible common messages and what GWP plans to achieve

Issue	Messages to public	What we will do
A collective approach – public and authorities	Thank you for all you have done so far. We are making progress together. Waste is everyone’s business. Gloucestershire has a beautiful environment that we want to maintain now and for our	We will do our bit by making this as easy as we can for you. We will work collectively as a group of seven authorities and have common approaches to collection. We will have high quality services. We listen to what you say.

	children. We are keen to hear from you about ways to make this work.	We will reduce the waste we produce ourselves (OHIO).
Reduce	Reduce the waste you produce in the first place e.g. junk mail, paper etc.	Consider ways to encourage a reduction in the amount of waste produced e.g. bin size, no side waste, lid down.
Recycle Reuse	Continue to recycle and reuse as much as you can.	Provide a top quality recycling service as economically as possible. Look at ways to recycle more materials such as plastics and cardboard.
Residual	The collection service deals only with the rubbish that can't be recycled or composted.	We will explore/consult on collecting residual waste fortnightly.
Biodegradable waste	Compost kitchen (food) and garden waste at home. We will work towards collecting biowaste (food and/or garden waste) that can't be composted at home on a weekly basis (not garden waste in all cases). New facilities are needed within Gloucestershire to compost kitchen (food) waste.	Take biodegradable waste out of the system by enabling & promoting home composting. Work towards collecting & composting kitchen (food) waste. Consider the most effective ways to treat biodegradable waste.
Changing behaviour of public and retailers	Shop locally with your own carrier bag(s). Demand less packaging.	Lobby nationally to reduce packaging at source. Discuss packaging and waste reduction measures with supermarkets locally.
Trade waste	Many of you are local traders or have businesses. You are keen to play your part in reducing waste.	We will support SMEs in reducing and recycling waste.

Market research will be a key tool to evaluate customer needs, the effectiveness of our communication campaigns, the performance of our services and any need to redesign collection schemes.

7.2.2 Getting Our Own House In Order

If we expect others to minimise waste, recycle and compost, we need to 'practice what we preach'. We are committed to getting our own house in order and will progress this in a number of ways:

- We plan to become a stronger leader within Gloucestershire and to share best practice with other businesses, communities and other authorities;
- We plan to develop better ways to communicate and share good practice internally within GWP and externally with other organisations, for example Stroud District Council is an EMAS (Eco Management & Audit Scheme) accredited authority;

- We will continue to focus on minimising and recycling waste within our own business by :
 - reducing waste at source;
 - reusing materials where possible;
 - maximise recycling where economically viable by providing receptacles and services for segregation;
 - carrying out smarter procurement and contract specifications; and
 - changing staff behaviour;
- We will explore setting internal environmental or sustainability standards such as carbon emissions for GWP authorities;
- We plan to maximise links with other communication campaigns including 'Recycle for Gloucestershire' to intensify the messages and avoid confusion; and
- We will continue to work with supermarkets to ensure support for waste minimisation and re-use campaigns.

7.3 Risks

Resources – The Recycle for Gloucestershire Campaign is currently reliant on external government funding (WRAP). This funding is currently awarded for a period of 2 years through a competitive bidding process. Lack of future funding would either reduce the coverage and impact of the campaign or else would require further investment by the Gloucestershire local authorities.

8. Waste Minimisation and Reuse

8.1 Introduction

There are a number of key waste minimisation and reuse initiatives that will be implemented countywide. These include the introduction of new collection policies, the promotion of home composting and re-use through HRCs and bulky waste collections.

8.2 Action Plan

Our research¹⁴ on waste minimisation and reuse indicates that with the right level of investment, waste growth can be reduced by approximately 5,000 tonnes year on year. This may be further enhanced by the introduction of collection policies designed to increase recycling and composting, and reduce the amount of residual waste produced.

We are committed to reducing the growth of Gloucestershire's municipal waste arisings to zero percent by 2020. We plan to use a range of promotional and educational campaigns to change behaviour and habits. These will include:

- Home and community composting;
- Smart shopping;
- Junk mail and packaging;
- Reusable nappies;
- Educational waste minimisation and recycling initiatives for schools including activities and workshops;
- Improving recovery of materials at HRCs to increase re-use of waste materials;
- Working with charities to collect furniture and WEEE; and
- Support for the Gloucestershire Community Waste Partnership including possible grant funding and promotion of a swap site.

We will support and encourage new and existing community/social enterprise projects such as community composting and reuse schemes. We will lobby the private sector such as retailers and supermarkets, central government and public sector policy makers via the Local Government Association and other organisations to try to reduce packaging waste. In addition we will also support initiatives to reduce non-household waste such as 'own house in order' schemes and share good practise. All waste minimisation and re-use initiatives will be supported by the 'Recycle for Gloucestershire' campaign brand.

8.3 Risks

Waste growth - One of the biggest risks to delivering this Strategy is a failure to stem the growth of waste. It has been projected that waste growth will reduce to 1.6% on average over the next 25 years. Waste minimisation activities have been estimated to reduce growth to zero by 2020 if the right investment is made. However, these assumptions are dependent upon the quality of the available data and our forecasts.

Resources - Expenditure on waste minimisation is currently an investment for the future and may not realise immediate returns. This funding may therefore be at greater risk if immediate cost savings need to be made. However if waste continues to grow, this will require greater investment in collection services (such as extra rounds), larger treatment facilities and a greater threat of government fines.

¹⁴ Eunomia (2006) Development of a Municipal Waste Prevention Strategy (Final Report for Gloucestershire County Council

9. Collection Systems

9.1 Introduction

Source segregation of recyclable & compostable materials is fundamental to the delivery of this Strategy and will be carried out at the kerbside, and through bring sites and HRCs. Ensuring that the householder can easily participate in recycling schemes is vital for the success of any scheme. Any system, whether kerbside, bring site or HRC will be backed up by targeted communication campaigns providing clear and simple information on how to recycle. Procurement and management of the necessary services and infrastructure is also of course required.

9.2 Action Plan

Over the next 3 years we will strive to:

- increase the range of dry recyclables collected from the home;
- introduce the kerbside collection of kitchen (food) waste (either separately or in addition to garden waste collections where provided);
- introduce alternate weekly collection of residual waste provided sufficient recycling and composting infrastructure is in place;
- consider enforcement policies such as a no side waste ban and compulsory recycling measures;
- increase the re-use of appropriate materials collected via bulky collection services;
- develop kerbside collection schemes for hazardous materials such as batteries where these can be cost effective;
- increase reuse, recycling, and composting at HRCs through the provision of separate containers for materials that can be reused, recycled or composted;
- provide bring bank and household recycling centre banks to compliment those materials collected from the home and to provide reception facilities for a broader range of recyclables;
- provide on-going, targeted and measurable communication campaigns to support collection schemes.

We will consider ways to achieve economies of scale across districts through partnership working. In addition we will monitor legislation and best practise to ensure that our collection, treatment and disposal schemes do not compromise the health and safety of the public, our employees or our service users.

9.2.1 Kerbside Household Waste Collection

Based on the findings of our strategic options appraisal (volume 4), we are currently considering two collection systems to deliver enhanced recycling & composting performance:

Table 2 - Waste Collection Options (Kerbside and HRC) and predicted recycling and composting performance.

Option	Recyclables	Biowaste	Residual	* Estimated optimum performance (%)
5a	Weekly kerbside sort of recyclables (increased range of materials)	Weekly collection of co-mingled kitchen and garden waste	Fortnightly residual waste collection.	53%
8b	Weekly kerbside sort of recyclables	Weekly collection of kitchen waste with the dry recyclables. Charged fortnightly collection of garden waste	Fortnightly residual waste collection.	51%

* Based upon current participation modelling and householder behaviour. As a result of our strategic objective to influence and change behaviour, it is anticipated that changes in behaviour and participation in schemes as they are developed will enable a target of 60% to be reached by 2020.

The frequency of collection services will depend on the performance outputs, the outcome of public consultation, member support and the financial constraints of the authorities.

The main initiative is the county wide introduction of the kerbside collected kitchen (food) waste, either in addition to garden waste or collected separately. The timing of this is dependent on the delivery of In-Vessel Composting or Anaerobic Digestion facilities by Gloucestershire County Council. This is planned to be delivered by 2009/10 and will contribute significantly to meeting LATS.

GWP believes that home composting of kitchen and garden waste is the most sustainable approach to biowaste, but accepts that home composting alone will be insufficient to attain landfill diversion and recycling & composting targets. This means that kerbside collections of garden and kitchen waste will be necessary. However, we will continue to promote home composting, community composting and other waste minimisation activities to avoid biowaste entering the waste stream.

It is envisaged that as further kerbside recycling & composting schemes are introduced, the collection of residual waste may be reduced to a fortnightly collection. Most Districts would implement this by 2009/10, in line with the introduction of kitchen waste collections. This service change will be subject to further consultation and member approval.

In the long term we will explore the possibility of providing county wide commercial waste recycling collection schemes. We will monitor the performance and cost benefits of current pilot and commercial schemes already present in some Districts.

9.3 Collection policies

GWP aims to explore the opportunities provided by the Environmental Protection Act 1990 and the Clean Neighbourhood and Environment Act 2005 to drive segregation, encourage waste reduction and ensure waste collection does not have a negative impact on the street scene. Over the next 3 years we will collectively explore implementing common standards to reduce waste to landfill. For example, reduced residual bin size; a “no side waste” and “lid down” policy (which limits the amount of waste collected for landfilling) to ensure that use of recycling services are maximised.

9.4 Bring Sites

In the short term, we will continue to provide bring bank facilities across the County collecting a wide range of recyclables. These include (range will vary at each facility):

- Metal cans;
- Textiles and Shoes;
- Foil;
- Books, CDs and videos;
- Cardboard;
- Glass bottles;
- Paper and magazines; and
- Plastic bottles.

In the long term, as kerbside collection of segregated materials becomes established, we will offer bring bank facilities specifically for those materials that are not widely collected at the kerbside such shoes, books, cardboard and plastic bottles. This approach may also discourage the deposit of trade waste at these facilities. We will, however, explore the possibility of establishing bring bank facilities for business waste and determine a way to make the service cost neutral.

9.5 Household Recycling Centres (HRCs)

Gloucestershire County Council has let a 10 year contract for the management of the county's five Household Recycling Centres to Environmental Waste Controls plc. The company's ethos is resource management and the contract has been structured to ensure continuous improvement of current services with ambitious recycling and composting targets set in the early years (see section 5.3).

The five Household Recycling Centres will enhance their services to accept a wider range of recyclable materials including Waste Electronic and Electrical Equipment (WEEE), hazardous materials, DIY waste, and re-use items. We will continue to accept garden waste at Household Recycling Centres and a permitting system will be introduced to ensure that commercial waste is excluded from the sites.

In the long term, we will explore the development of HRC facilities for business waste.

9.6 Products: recyclables and compost

The GWP aims to explore:

- Jointly marketing dry recyclables to achieve greater scale economies and better prices for materials to offset our collection costs;
- Supporting the development of local reprocessors; waste based businesses, social enterprises and/or community groups throughout Gloucestershire;
- Selling compost made from garden and food waste back to Gloucestershire's householders.

9.7 Risks

Affordability - This is the main constraint on the implementation of collection services. The cost of waste management is rising year on year due to fiscal drivers and environmental

protection. If waste growth increases, this will also increase the need for further collection infrastructure and services: this will again impact on cost. This is set against a backdrop of council tax capping and a nationwide efficiency agenda for public services. Implementation of kitchen waste collection is dependent on the delivery of In-vessel composting. Delivering this technology has a number of additional risks associated with legal compliance, obtaining planning permission and procurement.

Participation in schemes - There is a risk that even if we have provided the collection services to give the opportunity to recycle 70% of household waste, the householders can not or do not use the services effectively, for example in the case of elderly residents who may be unable to fill or manoeuvre recycling boxes or sacks of waste materials. This will reduce the forecast performance of services, and will require particular attention to be paid to mitigation during service design.

Public expectation - Reducing the frequency of residual waste collections is a potential risk to levels of customer satisfaction and will require careful implementation and good communication with householders.

10. Waste Treatment Action Plan

10.1 Introduction

The provision of further collection services must be supported by a network of bulking, transfer, treatment and disposal facilities. Gloucestershire County Council has recently procured sufficient transfer, haulage and landfill capacity for the next 7-10 years. We have planned to meet our Landfill Allowances Trading Scheme requirements in the short to medium term by increasing recycling and composting and possibly through some trading of landfill permits. We are developing a residual waste management project to determine a preferred technology, procurement and funding route. This section sets out how we plan to provide sufficient treatment and disposal facilities to deliver this Strategy.

10.2 Bulking Facilities for Dry Recyclables

District Councils will continue to use their existing facilities for bulking dry recyclables in the short term. In the long term, as mentioned above, the Districts will work together to review the current service to explore efficiency savings and procure additional capacity that will be required as further kerbside recycling services are introduced.

10.3 Composting Facilities

The County Council has procured windrow composting capacity through its contract with Cory Environmental to compost garden waste collected at the kerbside and from the HRCs. This will be composted in the short term (next 2/3 years) at three facilities:

- Rose Hill Farm Composting Plant, Dymock;
- Wingmoor Composting Plant, Bishops Cleeve, Cheltenham;
- Sunhill Composting Plant, Poulton, Cirencester.

Kitchen waste and any garden waste co-collected with kitchen waste has to be composted using an in-vessel composting process since the introduction of the Animal By-Products Regulations (2005). This is to ensure that food waste is properly composted to protect animal health.

To ensure that the District Councils can introduce collection services for kitchen waste by 2009/10, the County Council plans to procure in-vessel composting capacity for the treatment of approximately 60,000 tonnes of mixed kitchen and garden waste. In the short term, Gloucestershire County Council plans to:

- Procure and gain finance for preferred technology for the treatment of kitchen and garden waste;
- Find and secure suitable site(s) for in-vessel composting plant(s);
- Gain planning permission and licensing for in-vessel composting plant(s);
- Produce good quality compost that can be used to improve Gloucestershire's soils;
- Find outlets/markets for the compost produced.

In the long term, we plan to refine the compost product we produce to be able to sell the product back to Gloucestershire's householders.

10.4 Transfer Facilities and Landfill

Gloucestershire County Council has recently (August 2006) awarded a contract to Cory Environmental to provide haulage and transfer of organic waste and residual waste, and disposal of residual waste for the next 10 years (with a contract breakpoint at year 7). Current transfer facilities and landfill capacity available to Gloucestershire County Council are:

- Lydney Transfer Station, Lydney (Forest of Dean);
- Cirencester Transfer Station, Love Lane, Cirencester (Cotswold);
- Hempsted Landfill Site, Hempsted, Gloucester;
- Wingmoor Landfill Site, Stoke Orchard, Nr. Cheltenham.

Hempsted landfill site is likely to close within the first five years of this contract, meaning that in the longer-term only transfer facilities (as well as a HRC) will be available at this site.

At the end of the contract term Gloucestershire County Council (or GWP) will need to re-procure these services.

10.5 Residual Waste Treatment (Diversion from Landfill)

It is estimated that even with the implementation of waste minimisation schemes, enhanced recycling & composting collection schemes and a good communication programme, we will still generate in the region of 150,000 tonnes of residual waste in 2020. However, in the worse case scenario, we may generate up to 270,000 tonnes of residual waste in 2020.

It is clear that even a high recycling and composting strategy will require a residual waste treatment solution by 2014/15 in order to meet our LATS targets, and avoid reliance on trading Landfill Allowances or being heavily fined.

Excluding landfill, there are three broad technologies available for the treatment of residual waste:

- Mechanical Biological Treatment;
- Autoclaving technology; and
- Thermal Treatment (energy from waste, gasification, pyrolysis).

The first two technologies offer pre-treatment of the residual waste and require outlets for the materials created by the processes. This includes a “refuse derived fuel” that can be used as a substitute for fossil fuels and some recyclables such as metals. Energy from Waste still remains the only proven technology for residual waste treatment, and now qualifies as an eligible source of Renewable Energy if used for generating both heat and power in sufficient quantities. However this technology has not always been acceptable to the general public.

Gloucestershire County Council is developing a residual waste management project to plan in more detail how we will deal with our residual waste. This will build upon the initial findings of our options appraisal (contained within volume 4) and SEA work (volume 6). We intend to publish a residual waste management business case in 2007, which will determine:

- the preferred technology that will meet Landfill Directive BMW diversion targets;
- the preferred location(s);
- how we will deliver and finance this technology; and
- the timeline, commissioning, reliability, and sustainability of markets for output materials.

The current cost benefit and environmental assessment suggests that each residual waste treatment technology offers a varying range of benefits and dis-benefits. All technologies will

divert biodegradable waste from landfill however; the performance of MBT and autoclaving is dependent on finding outlets for the materials produced.

Therefore we are planning to:

- Evaluate a range of waste treatment technologies.
- Define an approach to procuring a residual waste solution by 2007 that will;
 - extract additional recyclables and further value from residual waste;
 - provide residual waste management treatment capacity;
 - reduce the amount of active biodegradable waste from landfill at least in line with the requirements of the Landfill Allowance Trading Scheme (see targets) to:
 - 107,428 tonnes by 2009/10;
 - 71,555 tonnes by 2012/13; and
 - 50,069 tonnes by 2019/20;
 - seek and/or develop markets for recovered materials generated by the preferred waste treatment technology; and
- Provide landfill capacity for waste that cannot be recovered.

10.6 Risks

Resources – The affordability of the selected waste treatment technology is a huge risk. These are large scale, specialist and capital-intensive facilities. Many are also relatively new technologies that are not fully proven within the UK.

Land - Securing land for the siting of the waste treatment infrastructure is key. The facility needs to be easy to access and a wide range of environmental and land-use related criteria will have to be met. The facility will need to accord with the statutory 'Development Plan', including;

- Policies in the Regional Spatial Strategy
- Saved policies and sites in the adopted Waste Local Plan
- Waste Development Plan Documents – as they are adopted

Planning permission – Gaining planning permission has historically been a huge problem for the waste industry (a number of waste PFI projects negotiated by County Councils have subsequently failed to be awarded planning permission). Delays in obtaining planning permission will have huge cost impacts in terms of our composting performance and landfill diversion

Waste growth – The capacity of new waste facilities will be designed around our waste forecasts. If waste growth is higher than forecast we may need greater capacity (and more facilities) than anticipated. If waste growth is less than forecast we might have new facilities that are not operating to capacity.

Performance of recycling & composting services – Similar to waste growth, the forecast performance of collection schemes might result in either higher or lower tonnages of residual waste to be treated.

Public expectations – The public demands waste facilities that are safe, economical and environmentally sound. Consultation is needed to hear the public's view on our plans.

11. Organisation, Partnership and Resources Action Plan

11.1 Introduction

Through close cooperation and coordinated planning, GWP will be able to implement these action plans and successfully meet the performance targets. Community involvement and the development of stronger links with the private, community & voluntary sectors will also aid the delivery of this Strategy. We recognise that we need to continue to develop a stronger Gloucestershire Waste Partnership and use this partnership to access funding opportunities (such as the WRAP Changing Behaviour Fund and the DEFRA Local Authority Support Unit fund).

11.2 Action Plan

11.2.1 Organisation

GWP will continue to lead the strategic planning of the seven waste authorities and will monitor and review the delivery of the Strategy. We will ensure that the partnership develops and maintains the right calibre of suitably qualified personnel to deliver this Strategy. The structure of GWP will be maintained to ensure the correct level of political and managerial involvement. In addition the role of the partnership and other groups working on waste will be developed. A Joint Improvement Board, made up of senior management from local authorities in Gloucestershire, will also review the status of joint working in the county. This review may result in future changes to the organisational structure.

The Gloucestershire Local Government Association has acted as a waste champion throughout the public consultation. Going forward, the Gloucestershire LGA (and Joint Improvement Board) will provide strategic leadership to GWP, setting a framework within which to delegate decisions. The Gloucestershire LGA will offer lobbying and advocacy functions. It will have an overview of progress and help to “unlock” the difficult issues that arise from time to time within a partnership.

The organisation and accountability of the Officer groups supporting GWP will be developed and maintained with respect to terms of reference, roles, membership, accountability and communication with other groups.

GWP members will also support each other as service changes are made in order to develop best practice, share learning and to ensure a consistent level of service to Gloucestershire residents. A joined up approach is needed between the waste management and land use planning roles at each authority.

11.2.2 Wider Partnerships and Leadership

We will maintain and develop partnerships with other public, private and voluntary sector organisations that share our goal of making waste management more sustainable. This might include the development of service delivery partnerships with other local authorities and the private sector, buying services from or providing grants to waste based community and voluntary groups, and partnering with retailers to reduce waste.

We will also continue to work closely with the Waste Planning Authority in the development of their Waste Development Framework to ensure our Strategy both informs and is informed by their framework.

In the long term we will explore how the GWP can facilitate waste reduction, recycling and composting opportunities for non-municipal waste streams such as commercial waste.

11.3 Resources/Funding

Without sufficient resources this Strategy will not be delivered effectively. Affordability is a huge issue for all local authorities but we realise the importance of investing in services to improve our environmental performance.

Gloucestershire has established an excellent track record in recent years in bidding for and successfully delivering against government funding opportunities. The have included:

- DEFRA National Waste Minimisation and Recycling fund awards;
- DEFRA incentives scheme funding;
- WRAP Behaviour change local fund awards;
- WRAP home composting programme.

We will continue to explore and develop future funding opportunities.

We will continue to explore efficiency savings within our services including, for example, integrating district council's collection rounds to reduce costs and waste miles. We will also consider ways of sharing whole system costs, so that the costs of waste collection borne by District Councils and waste disposal costs met by the County Council are not considered separately but as one overall cost to the taxpayer.

11.4 Monitoring, and Review of the Strategy

This document sets out the strategic direction for the management of Gloucestershire's municipal waste up to 2020. The GWP will prepare a three-year rolling business plan to implement this Strategy. The business plan will feature annual action plans. The GWP will monitor performance and progress against our action plans on a regular (quarterly) basis.

Performance measures and targets will be identified, against which progress can be measured. Each action will have an identified lead officer, who will be responsible for reporting progress. The key risks for each action will be identified and these will be collated into a risk register. The risk register will contain measures for mitigating each risk and will be reported quarterly to GWP along with a progress report on the Strategy action plan.

Financial reporting will, for the foreseeable future, be through each local authority's own budget management systems, although a pooled fund specifically for joint working is currently held by Gloucestershire County Council on behalf of the GWP. Spending of this fund will be managed by a waste officers group and reported quarterly to GWP.

The following rolling timetable for monitoring and reviewing the Strategy will be used:

Table 3 – Rolling Monitoring and Review GWP timetable

Month	Action
April	Commence implementation of agreed annual action plan
July	First quarter reporting to GWP
October	Second quarter reporting to GWP Preparation of following year's action plan and resource plan for consideration in local authorities' budget setting process

February	Third quarter reporting to GWP Finalisation & agreement of following year's action plan and resource allocation.
April	Year-end reporting to GWP. Commence implementation of agreed annual action plan. Complete the Annual Monitoring Report

An annual Monitoring & Review Report will be produced. This will measure our performance and will allow us to update our Strategy and respond effectively to changes in our environment (such as new legislation, new technology or changing social trends). It will be co-ordinated with the Waste Development Framework Annual Monitoring Report (to be confirmed). A fundamental review of the Strategy will be undertaken every five years, however, we are aware that a flexible approach is needed as circumstances may change, requiring modification of our strategic objectives.

11.5 Consultation

A full public consultation on this draft Strategy was conducted in Autumn and Winter 2006. This included consultation documents, workshops and a community panel, as well as a "Great Gloucestershire Debate" on waste, facilitated by the local media.

Evaluation of comments took place during early 2007 and informed a final consultation Draft Strategy which was further consulted upon in Summer 2007 prior to adoption.

We will continue to involve residents of Gloucestershire during the implementation and fundamental review of this Strategy. We will consult using appropriate techniques such as surveys, questionnaires, panels and stakeholder events.

11.6 Risks

Resources – Affordability of the overall Strategy is a key risk. The apportionment of costs between the local authorities making up the GWP needs to be agreed.

Public expectations & consultation – The Strategy has been developed with a strong environmental ethos, balanced by a duty to provide best value. However, updates to the Strategy may be needed as a result of further public consultation in the future.

Appendix 1 Glossary of terms

Anaerobic digestion	A controlled biological process that breaks down, stabilises and sanitises biowaste in the absence of oxygen. The process is carried out in-vessel, and produces a liquid fertiliser (“digestate”) and biogas, a renewable energy source.
Autoclave	A process of sterilisation via a pressurised, high temperature steam process. It is sometimes called Mechanical Heat Treatment. This helps sanitise and reduce residual waste to ‘fibre’ like material, with metals, plastics and glass partially cleaned for extraction as recyclables, but may melt some plastics making these more difficult to recycle.
Best Value	The duty on local authorities under the Local Government Act 1999 to deliver effective, economic and efficient services and seek continuous improvement in the quality and standard of their service provision.
Biodegradable Municipal Waste (BMW)	This is waste that is able to decompose through the action of bacteria or other microbes. It includes materials such as food and garden waste, paper and cardboard. Under the definition of BMW in the Waste and Emissions Trading Act, this also includes fifty percent of all textiles. The UK government currently estimates the biodegradable content of municipal waste to be 68% ¹ .
Biowaste	Food waste and garden waste, and some soiled paper, and cardboard.
Bring Site	Containers or “recycling banks where householders can deposit recyclables such as paper, glass, card, cans, textiles etc for recycling.
Bulky Waste	An item of waste that weighs more than 25 kg or any item that does not fit in a householder’s bin; or if no container is provided a cylindrical receptacle of 750mm in diameter and 1m high.
BVPIs	Best Value Performance Indicators. A series of mandatory performance measures that councils record and publish.
Capture Rate	The quantity of material recycled in a scheme as a proportion of the overall quantity of that material in the total waste stream.
Commercial waste	Waste from premises used for trade, business, sport, recreation or entertainment, but excluding municipal and industrial waste.

¹ Landfill Allowances Trading Regulation 2003

Composting	The degradation of organic wastes in the presence of oxygen to produce a compost, fertiliser or soil conditioner. This can either be an enclosed process (in-vessel) or operated as an 'open windrow' process.
Controlled Waste	Is defined by the Controlled Waste Regulations 1992. Comprised of household, industrial, commercial, hazardous and sewage waste which require a waste management license for treatment, transfer and disposal. The main exempted categories comprise mine, quarry and farm wastes. The government is currently consulting on the extension of controls to farm wastes. However, materials used for agricultural improvement, such as manure and slurry, will not become controlled. Radioactive and explosive wastes are controlled by other legislation and procedures.
Depollution	The removal of hazardous substances and materials, and any other substances and materials that could become polluting during their lifetime, from the waste stream prior to further treatment or disposal.
Dry recyclables	Materials such as paper, textiles and cans that can be recycled in to new materials.
Energy from Waste	This is a controlled burning of waste in the presence of oxygen, either to reduce its volume or toxicity, whose current high emission standards are stringently controlled. Ash residues can be recycled or landfilled.
Environmental Report	A document required by the Strategic Environmental Assessment Directive (2001/42/EEC) as part of an environmental assessment, which identifies, describes and evaluates the likely significant effects on the environment of implementing a plan or programme.
Gasification	Gasification is the process whereby carbon based wastes are heated in the presence of air or steam to produce a solid (which is low in carbon) and a gas. The technology is based on the reforming process that used to produce 'town gas' from coal in the early 1900s.
Green or garden waste	Vegetable waste from household gardens, tree cuttings, branches, grass, and leaves.
Home Composting	Compost can be made at home using a traditional compost heap, a purpose designed container or a wormery.
Household Recycling Centres	Civic Amenity Sites operated by the Waste Disposal Authority (under the Environmental Protection Act 1990) or the local authority (under the Refuse Disposal (Amenity) Act 1978) where residents within a specified area can dispose of their household waste, in particular bulky waste, free of charge.
Household waste	Waste from domestic properties including waste from

	Household Recycling Centres, material collection for recycling and composting.
In vessel composting (IVC)	The composting of biodegradable material in a closed reactor where the composting process is accelerated by optimising air exchange, water content and temperature control.
Kitchen waste	Waste that comes from the preparation of food and consists of fruits/vegetables scraps, dairy, meats and breads and other starchy foods generated from households.
Landfill	The deposit of waste onto and into land in such a way that pollution or harm to the environment is prevented and, through restoration, to provide land which may be used for another purpose.
Landfill Allowance Trading Scheme (LATS)	A scheme devised by Government whereby disposal authorities have targets to divert biodegradable municipal waste from landfill to meet EU targets. The scheme can involve trading between English authorities and was implemented by the Waste and Emissions Trading Act 2003.
Landfill Tax	A tax introduced in 1996 by HM Custom and Excise on waste deposited in licensed landfill sites, with the aim of encouraging more sustainable waste management methods and generating funds for local environmental projects.
MBT or Mechanical Biological Treatment	MBT systems combine the mechanical sorting of materials for recycling and the bio treatment of the remaining waste that will have a high organic content. The bio treatment rapidly composts the waste, in an enclosed facility. Anaerobic Digestion (<i>see above</i>) is part of the family of MBT technologies.
Municipal Waste	This includes all waste under the control of local authorities or agents acting on their behalf. It includes all household waste, street litter, waste delivered to council recycling points, civic amenity site waste and some commercial waste from shops and smaller trading estates where local authority waste collection agreements are in place.
Participation rate	Participation rate is the measure of the number of households in a scheme area putting material out for collection within a specified monitoring period.
Pyrolysis	The heating of waste in a closed environment (i.e. in the absence of oxygen) to produce a secondary fuel product.
Recycling	The segregation, collection and reprocessing of waste

	materials into new materials (these may be the same products or different ones).
Reduction (or minimisation)	Reducing the amount of waste generated. Reduction can be accomplished within a manufacturing process through more efficient use of raw materials and improved production processes. It can also be carried out by householders through actions such as home composting, re-using products and buying goods with reduced packaging.
Refuse-Derived-Fuel (RDF)	Refuse-Derived-Fuel (RDF) is a fuel made from (municipal) solid waste. Refuse-derived fuel (RDF) typically consists of pelletised or fluff MSW that is the by-product of a material recovery operation whereby the majority of the non-combustible materials such as rocks, glass, and metals are removed, and the remaining combustible portion of the solid waste is chopped or shredded. The resulting material is then sold as RDF. Both the RDF processing facility and the RDF Incineration facility are usually located near each other, if not on the same site.
Renewable energy	Energy obtained from sources that are essentially inexhaustible or are replaced rapidly by natural processes. Examples include solar, geothermal, wind and biomass energy. Fossil fuels such as oil, gas and coal are non-renewable energy resources.
Reprocessing	A mechanical process that converts recyclables such as paper, card, plastics and glass into products for re-use or sale.
Residual Waste	The elements of the waste stream that remains after recycling or compostable materials have been separated or removed.
Re-use	The reuse of materials in their original form, without any processing other than cleaning or repair. Can be practised by the commercial sector with the use of products designed to be used a number of times, such as re-useable packaging. Householders can purchase products that use refillable containers, or re-use plastic bags. The processes contribute to sustainable development and can save raw materials, energy and transport costs.
Source Separation	Separation of materials for recycling or composting (e.g. paper, cans, glass, textiles, garden waste, household organics, plastic, steel, etc.) at the point of collection. The separation either takes place within the household (or business/institution) through the use of different containers, or parts of containers, for individual materials, or at street level when collectors sort materials into compartments on the collection vehicle.
Special Areas of	Designation made under the Habitats Directive

Conservation (SAC)	(92/43/EEC) to ensure the restoration or maintenance of certain natural habitats and species some of which may be listed as 'priority' for protection at a favourable conservation status.
Special Protection Area (SPA)	Designations made under the EC Directive 79/409 on bird conservation (The Birds Directive), the aim of which is to conserve the best examples of the habitats of certain threatened species of bird the most important of which are included as priority species.
Stakeholder	Anyone who is interested in, or may be affected by the planning proposals that are being considered.
Strategic Environmental Assessment (SEA)	<i>Local Planning Authorities must comply with European Union Directive 2001/42/EC which requires a high level, strategic assessment of local development documents (DPDs and, where appropriate SPDs) and other programmes (such as a Municipal Waste Management Strategy) that are likely to have significant effects on the environment.</i>
Sustainable Waste Management	Means using material resources efficiently, to cut down on the amount of waste we produce. And where waste is generated, dealing with it in a way that actively contributes to economic, social and environmental goals of sustainable development.
Swap site	A waste exchange website for unwanted items that can be re-used.
Treatment	Involves the chemical or biological processing of certain types of waste materials for the purposes of rendering them harmless, reducing volumes before landfilling, or recycling certain wastes.
Void space	The remaining capacity in active or committed landfill or landraise sites.
Waste arisings	This is the amount of waste produced in a given area during a given period of time.
Waste Collection Authority	A Local Authority responsible for the collection of Municipal Solid Waste. Duties are set out within the Environmental Protection Act 1990.
Waste Disposal Authority	A Local Authority responsible for the disposal of Municipal Solid Waste and the provision of Civic Amenity Sites. Duties are set out within the Environmental Protection Act 1990.
Waste Hierarchy	Suggests that: the most effective environmental solution may often be to reduce the amount of waste generated – reduction. Where further reduction is not practicable, products and materials can sometimes be used again, either for the same or a different purpose – re-use.

	Failing that, value should be recovered from waste, through recycling, composting or energy recovery from waste. Only if none of the above offer an appropriate solution should waste be disposed.
Waste Local Plan	A statutory land-use plan. Its purpose is to set out detailed land-use policies in relation to waste management development in the County.
Waste Planning Authority	A Local Authority responsible for the preparation of a Waste Local Plan and the determination of planning applications for waste management and disposal.
Windrow composting	An open-air method of composting in which biodegradable materials are placed in long piles, which are turned periodically to aid the composting process. The term originates from the farming practice of piling hay in rows so that it will dry out in the wind.

Appendix 2 Waste Technologies: a simple overview

Materials Recovery Facilities (also Bulking Facilities)

Materials Recovery Facilities (MRF) receive sorted or unsorted waste, which is then separated into recyclable and non-recyclable components. Facilities that receive segregated materials are often referred to as 'clean MRFs' and those that accept unsorted materials are referred to as 'dirty MRFs'. Bulking facilities are simpler; segregated materials are stored in bays and baled before onward transfer for reprocessing. Useful materials are processed into new products and non-recoverable materials go for further treatment or final disposal.

Composting (In-vessel or Windrow)

Composting is a natural biological process in which organic matter is broken down by micro-organisms in the presence of oxygen to produce a stable, nutrient rich, organic material known as compost. The composting process generates heat raising the temperature within a compost heap to up to 60 to 70 degrees.

Anaerobic Digestion (AD) or Biogas technology

AD is also a natural biological process which degrades/breaks down organic matter. Unlike composting where oxygen is needed, the degradation is carried out by bacteria that thrive in anaerobic conditions (no oxygen). This process creates a nutrient rich, stabilised sludge or 'compost' and a biogas composed of methane and carbon dioxide, which can be converted into electricity and heat.

Energy from Waste

Energy from waste is a thermal process that uses oxygen to combust mixed municipal waste once dry recyclables and organic wastes have been separated at the kerbside. This is carried out at typically 850-1300°C and creates energy that can be converted into electricity and heat. An ash residue is also produced. Metals can be recovered from the ash and recycled.

Pyrolysis and Gasification

Thermal degradation of material can be carried out without oxygen using a process known as pyrolysis. It produces a char and oils that can be converted into electricity. This is carried out at high temperature ranges of 400 to 800°C. Similarly, thermal breakdown of material can be carried out using just a little oxygen and/or steam (gasification) to produce gases such as hydrogen, carbon monoxide and methane, which can be converted into electricity and heat. The energy generated using these technologies is classified as renewable.

Mechanical Biological Treatment (MBT)

MBT is a process that can include a variety of mechanical and biological technologies to treat the remaining mixed municipal waste once dry recyclables and organic wastes have been separated at the kerbside. The mechanical processing step is used to remove further recyclables such as steel or aluminium from the mixed waste using equipment such as screens and mills. The biological treatment step aims to breakdown down and stabilise the material using either an aerobic (composting) or anaerobic (AD) process. This step can be limited to simply 'biodrying' the material which uses the heat generated by the micro-organisms to dry out and stabilise the waste. This process can produce a number of products including a refuse derived fuel, metals, soil conditioner, glass, plastics and stones. This is a pre-treatment technology only and therefore outlets are required for the materials produced by the process.

Autoclave

Autoclaving has more traditionally been used to treat clinical waste and other wastes generated at university/research establishment laboratories. The process sterilises the material, killing micro-organisms found in the waste. Interest has increased in this technology for the pre-treatment of household waste. Autoclaves use wet steam under pressure to clean materials, soften plastics and convert biodegradable material into a fibre. The process is almost like pressure-cooking and results in the mix of materials being easier to separate out for recovery. This is a pre-treatment technology only and therefore outlets are required for the materials produced by the process.

Landfill

Landfill is the traditional method used for final disposal of household waste. Here, waste is buried in a hole and covered over by soil and rubble. A landfill site is engineered to minimise the effects on the environment. Under current regulations, landfills are required to have liners and leachate treatment systems to prevent contamination of ground water and surface waters. In addition, there are systems in place to capture a proportion of the methane gas generated during the breakdown of biodegradable waste. This methane gas can be used to generate electricity. Once full landfills are capped (typically with clay) to prevent water entering the site.



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