



Waste Management Strategy

Table of contents

1	Executive Summary	3
2	Introduction.....	6
3	Working with our partners	7
4	'Our aim is zero waste'	8
5	Saving resources.....	9
6	Connecting with the community	15
7	Protecting the environment	21
8	Supporting our businesses	265
9	Benchmarks and targets.....	287

1 Executive Summary

- 1.1 We envisage a society for Greater Manchester where all our resources are recycled or the energy is recovered, and nothing is wasted put simply our aim is zero waste'. To understand the steps we must take in delivering this goal we have defined this as:

We will do everything we can to save resources (by preventing waste at source and recycling more) and producing green energy. We will not landfill anything we can use.

- 1.2 We aim to waste less and recycle more, only burn waste to produce electricity or heat when we cannot recycle it, and send nothing to landfill unless we have to. We will deliver this working alongside our District Council partners (Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Stockport, Tameside, and Trafford) and our contract partner Viridor Laing (Greater Manchester) Limited (VLGM), and finally but crucially, the communities we service across Greater Manchester.
- 1.3 We have developed eight core policy objectives that support the delivery of 'our aim is zero waste' across four key themes: saving resources; connecting with the community; protecting the environment; and supporting businesses.

Saving Resource

- 1 *Reduce residual household waste to 400 kg per household by 2025 (equivalent to a 50% reduction across Greater Manchester against a 2008/09 baseline), through waste prevention, re-use and recycling.*

We will drive an increase in waste prevention, reuse and recycling by prioritising above energy recovery through a combination of education and increased access to services e.g. Waste Electrical and Electronic Equipment (WEEE) reuse delivered directly by us, or through the third sector. By doing this we will provide communities with the knowledge to act and more ways in which they can prevent, reuse and recycle wastes.

- 2 *To meet the 50% recycling target across Greater Manchester by 2015, stretching to 60% by 2025, focusing on providing quality materials for closed loop recycling, thus promoting resource efficiency and supporting the economy by providing access to secondary raw materials.*

We will deliver by District Council partners providing a four stream kerbside collection system that will enable residents to separate pulpables (paper, card and tetra), mixed recyclates (glass containers, plastic bottles and cans), and organics for recycling. We will also increase the recycling rates at the household waste recycling centres, alongside mechanical separation of metals at residual waste treatment facilities. We will support the economy by only collecting materials where there is market demand for them to be closed loop recycled.

- 3 *To reduce the amount of residual waste landfilled to the minimum that can be technically and economically achieved, using a combination of prevention, reuse, recycling and recovery with a target to achieve 90% diversion from landfill by 2015.*

We will deliver this by increasing prevention, reuse and recycling, and treating residual waste streams using the most appropriate of our technologies. That is,

Mechanical and Biological Treatment for kerbside collected wastes and Thermal Recovery for bulky waste, prior to landfill.

Connecting with the Community

- 4 *To increase understanding of the actions that individuals can take to prevent, reuse, recycle and recover wastes through education leading to a sense of community ownership.*

We will deliver this through increasing access to information, raising general awareness and building on our education service for schools. We will seek to increase performance through specific campaigns in geographical areas where low recycling rates indicate that knowledge and understanding can be improved.

- 5 *To support behavioural change through a combination of measures that increase the opportunity and motivation to prevent, reuse and recycle wastes, and reduce the opportunity to throw away wastes that have not been separated.*

We will deliver this by developing all aspect of our services including collection and communication to makes it easier to recycle than to throw away unsegregated wastes. We will back up this work with communication campaigns that are designed to motivate our communities to recycle more.

- 6 *To utilise the wider community sector to communicate with residents and businesses, and to financially back the best community sector innovations to deliver services that will reduce, reuse and recycle wastes.*

We will deliver ‘face to face’ communication campaigns through community and voluntary groups. The community waste sector will be supported by providing access to wastes, encouraging communities to use third sector organisations, and financially backing innovative ideas that reduce, reuse and recycle wastes.

Protecting the Environment

- 7 *To improve the environmental management of waste by using the waste hierarchy (supported by life cycle assessment) to identify the most appropriate way to treat wastes, thus saving material resources or replacing fossil fuels..*

We will continue to protect the environment through active monitoring and management of our sites, and applying the best available techniques. We will assess the life-cycle impacts to guide us in choosing the most appropriate way to treat specific wastes, and enable us to consider the impact of our actions upstream and downstream of waste processing. In most cases this will mean managing wastes according to the waste hierarchy as we currently do, but it will also help us identify waste streams that should receive more focus to derive the best environmental benefits, and circumstances where it is better to produce green energy.

Supporting business

- 8 *To support business to reduce, reuse, recycle and recover waste, and increase understanding of the actions government and business can take to develop increased producer responsibility.*

We will expand our sphere of activity working with regional partners to promote leaner production, better business waste management and smarter procurement. In doing so we will seek to expand our services to offer recycling services to businesses through District operated commercial collections and trade waste recycling facilities.

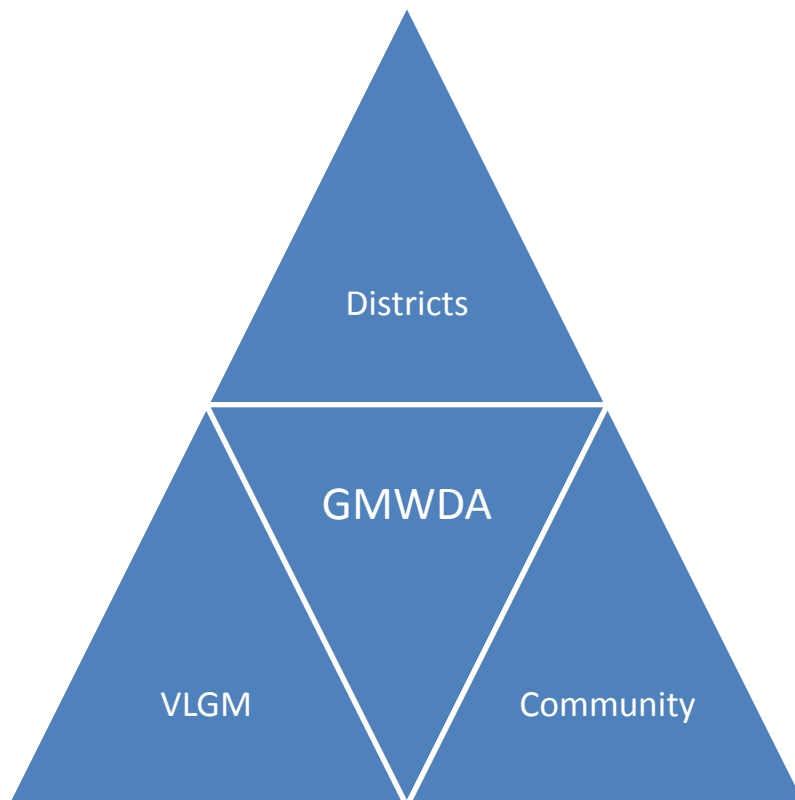
2 Introduction

- 2.1 This strategy updates the Municipal Waste Management Strategy (MWMS), which was first developed in 2004, and then updated in 2006. The 2006 update was accompanied by a Strategic Environmental Impact Assessment (SEA), as it formed the output specification of our recently signed contract (April 2009), and therefore impacted on development. Since facilities have been developed to treat the conurbations waste for the next 23 years, then this 2011 update will not materially impact on development and therefore a further SEA is not considered necessary.
- 2.2 A separate baseline report has been written which contains the evidence, which informs this strategy. This can be found at: <http://www.gmwda.gov.uk/publications>.

3 Working with our partners

- 3.1 The delivery of the aims and objectives of the strategy are dependent on the Authority working with our partners. The diagram below shows the key players in the delivery of the contract - VLGM, Waste Collection Authorities, and the residents/community of Greater Manchester.

Figure 1: The Delivery model



4 'Our aim is zero waste'

- 4.1 'Our aim is zero waste' succinctly describes our aim for Greater Manchester, whereby we will create a Society that maximises the sustainable use of resources. In doing so, we will reduce the wider impacts of resource use by promoting prevention, reuse and recycling above energy recovery, which will reduce both waste that we see when we no longer want something, and the waste we don't see that is produced during the production process.
- 4.2 We want nothing to be wasted in Greater Manchester that means we must reduce landfill to the minimum possible. Some materials are easy to separate for recycling and the benefits to the environment are clear cut. Our Recycling and Waste Management Contract (Contract) is built on maximising composting and recycling from kerbside collection of household waste. However, some materials are more difficult to separate, and it is not always more beneficial for the environment to recycle them. When the material contains a lot of energy then turning that to heat or electric is often the best solution, which conserves our fossil fuel resources.
- 4.3 To clearly understand what we want to achieve we have defined 'our aim is zero waste' as:

We will do everything we can to save resources (by preventing waste at source and recycling more) and producing green energy. We will not landfill anything we can use..

- 4.4 Our aim will be delivered by through four key themes that will enable resources to be managed better, providing greater protection of the environment and benefiting society.

Figure 2: The four key themes of the Strategy



5 Saving resources

- 5.1 We will tackle waste in Greater Manchester by directly acting to prevent it occurring in the first place, and provide the citizens of Greater Manchester with modern services that enable them to reuse and recycle. We will promote prevention, reuse and recycling above energy recovery by making a commitment to halve the amount of residual waste against a 2008/09 baseline. This will be delivered by equally promoting prevention, reuse and recycling.

Policy objective 1

Reduce residual household waste to 400 kg per household by 2025 (equivalent to a 50% reduction across Greater Manchester against a 2008/09 baseline) through waste prevention, reuse and recycling.

Waste prevention education

- 5.2 We will place greater emphasis on waste prevention as the most environmentally sound practice. This will help to combat the additional waste that will be created as a result of new households equivalent to a new town that are planned in Greater Manchester, and enable the authority to manage waste within the limits of our current facilities. In order to meet the above target each household will need to reduce waste between 15-30% depending on the extent to which housing grows. Central to achieving this will be helping the citizen's of Greater Manchester to understand the actions they can take to waste less, and give them the confidence to do it.
- 5.3 Understanding waste prevention requires access to in depth information so that individuals can understand what they can do, and the services that are available to them. The Recycle for Greater Manchester website provides the best mechanism to achieve this, as it has the flexibility to provide the range of advice required. We have already made significant strides with the development of the Recycle for Greater Manchester website and mobile phone applications. These will continue to develop as a focal point of waste prevention advice, and importantly more work will be carried to raise awareness of the site.
- 5.4 We will continue to support individuals to learn new skills that will enable them to carry out activities that prevent waste. Literature will be made available through website to support the development of these skills, and targeted practical training such as cooking demonstrations or repairing clothes will add value.
- 5.5 Traditional communication methods such as leaflets are still one of the most effective means of communicating with residents, but may not necessarily provide the in-depth information required. Leaflets are already produced across Greater Manchester to promote recycling collections so waste prevention messages may be tagged on to these cost effectively.

Food waste reduction

- 5.6 We will continue to drip feed the successful ‘Love Food Hate Waste’ campaign messages that have delivered a significant reduction over recent years. We understand that food waste is a significant proportion of the household waste bin, and evidence would suggest that a lot of edible food is thrown away. The main focus will be on building greater awareness of meal planning, as well as what to do with leftovers. Importantly, the citizens of Greater Manchester will become more aware of the food they waste as a result of the separate collection of food waste, which will provide an opportunity to link up the messages.

Junk mail

- 5.7 We already promote a number of methods to reduce junk mail. Currently it may be reduced by signing up to the Mailing Preference Service, Your Choice Preference System, and Royal Mail’s Door-to-Door opt-out service. From April 2012 a new simplified national system will be launch, which we will promote through the Recycle for Greater Manchester website. The website also provides further advice on how to reduce local junk mail.

Smarter shopping

- 5.8 One of the most important ways to reduce waste is through smarter purchasing behaviour, which in turn leads to greater demand for products with less waste. Therefore, we will encourage residents to purchase products that are reusable, and last longer. In particular, we will focus on materials such as packaging, food waste, and single use carrier bags that have a short life-span, and are created on a frequent basis.

Furniture collection

- 5.9 We will support the reuse of furniture in Greater Manchester by working with charitable organisations. There are numerous organisations which collect and sell furniture that are better placed than ourselves to understand what can and cannot be reused. These organisations have already done the groundwork in developing markets and some cases collection systems, and moreover provide additional social benefits to the community. We will therefore focus on supporting these organisations by signposting residents to them, providing them with access to segregated household furniture, and encouraging residents to use them.

Promoting markets for second hand goods

- 5.10 Waste prevention services such as furniture, WEEE and bike reuse hinge on being able to secure markets. Over the last decade the second hand market has diminished with the increasing availability of cheap goods. However, recent headlines would indicate that disposal incomes have fallen, and products are becoming more expensive with sharp rises in inflation. This points towards a potential increase in demand for cheaper second hand goods. This provides an opportunity for developing markets further.
- 5.11 In some resident’s eyes second hand goods may have a ragged image that does not befit the quality available, so we will support organisations by using our communication channels to raise the awareness of the quality available. We will support these organisations by helping to link markets for second hand goods that may be influence by local authorities such as social housing providers. Our branding and marketing will reflect the ‘previously loved’ theme.

Preparing waste electrical and electronic equipment for reuse

- 5.12 Electronic equipment is a challenging waste stream to reuse, with many reuse organisations not having the expertise to deal with it. We have explored opportunities to reuse electronic equipment in a way that ensures it is safe, and the necessary checks have been carried out to make it useable. The British Standards Institute have introduced a Publicly Available Specification (*PAS141:2011 Reuse of used and waste electrical and electronic equipment (UEEE and WEEE). Process Management*). This provides the assurance that the equipment can be used again, safely, and helps to establish market confidence. There are a limited number of local organisations that refurbish electronic goods to meet the specification. Presently, the focus is on specific equipment, namely, washing machines, tumble dryers, fridges and cookers. We will encourage expansion of the electronic refurbishment sector to cover a wider range of electronic good e.g. computers.

Repair services and equipment hire

- 5.13 There are a multitude of organisations across Greater Manchester that provide repair services for household goods, or equipment hire. We will promote greater awareness of those companies by setting up a repair network that will be accessible through the Recycle for Greater Manchester website.

Donating items for reuse

- 5.14 The vast majority of Greater Manchester's citizens are already familiar with donating items to Charity that they no longer need. This means there is no need for a separate network or collection, particularly textile recycling where a large number of organisations offer collect. We will therefore support charities by doing what we can to increase the availability of those materials to them, and encourage residents to donate. We will also seek to develop under-represented areas, such as reuse schemes for items of small electrical equipment.

Selling and swapping items for reuse

- 5.15 Most people are well aware of the opportunities to sell or swap unwanted items such as those provided by internet selling sites, and car boots sales so there is little that needs to be done in that respect apart from encouraging people to do so. Some communities may want set up specific swap shops and advice will be provided on how to do this.

Paint reuse

- 5.16 Although paints only represent a small proportion of waste they are difficult to handle making reuse a preferred waste management method. There are some community paint reuse schemes in Greater Manchester that we will seek to build links with our Household Waste Recycling Centres.

Washable nappies

- 5.17 We will continue to provide advice on the purchase and use of real nappies, signposting residents to a network of real nappy experts in Greater Manchester. We will also work to build on linking this existing network to organisations such as the National Health Service (NHS) where parents can be educated of the benefits of real nappies when their child is young, and prior to the habit of wearing disposable nappies is formed.

Rechargeable batteries

- 5.18 Batteries contain valuable materials and undergo energy intensive recycling processes so residents will be encouraged to use rechargeable batteries, rather than dispensable ones. We will promote responsible disposal of used batteries - so that they are redirected away from the residual bin and into the recycling collection system provided via (most) retailers.

Preparing bikes for re-use

- 5.19 There is potential to reuse bikes that have been either outgrown, replaced or are simply not used anymore. The frame of the bike will typically outlast the ancillary parts of the bike which can be replaced relatively easily, but it is a labour intensive process. Bike schemes already exist in Greater Manchester linked to charitable and social enterprises which provide a good service to the community. Therefore, there isn't a need provide alternative services but these organisations shall be supported through communications.

Home composting

- 5.20 Home composting will be supported by providing information on how to do it correctly, and where to purchase home composting bins. We will encourage as many people as possible to home compost, in particular focusing on hobby gardeners that are more likely to maintain the practice.

Policy objective 2

To meet the 50% recycling target across Greater Manchester by 2015, stretching to 60% by 2025, focusing on providing quality materials for closed loop recycling thus promoting resource efficiency, and supporting the economy by providing access to secondary raw materials.

- 5.21 In 2010/11 we achieved 37.7% recycling, so we are well on the way to achieving the 50% recycling target. The recycling target will be achieved by collection of recyclables at the kerbside and at Household Waste Recycling Centres. Kerbside collected recyclables will contribute around 40% (as a percentage of total waste), while the remaining 10% will come from the household waste recycling centres.

Kerbside collections

- 5.22 We collect three recycling streams at the kerbside:

- paper and card;
- Commingled (glass bottles and jars, all cans, foil, aerosols, and plastic bottles); and
- Organics garden/food waste.

The findings of the recent waste compositional analysis showed that around 75% of kerbside collected waste could be recycled by this system. This shows that we can achieve the 50% recycling target with the current collection and processing system, and moreover, that we could stretch that target to try and achieve 60% in the long term. This is confirmed by the fact that Stockport, one of our Districts, has already achieved above that level.

- 5.23 All councils have comprehensive coverage across Districts. Last year, however, food waste was not fully rolled out in all Districts so we should expect a step change in performance in 2012/13 as food waste food waste collections are embedded. Food waste is an important fraction representing 23% of waste collected at the kerbside, but is also the fraction where performance can vary greatly depending on the application of best practice. This has shown far higher food waste is where residual waste capacity is restricted and all households are provided with kitchen caddies, biodegradable liners, and all household that do not have garden waste collection are given caddies.
- 5.24 Following complete roll out of the services then small incremental gains may only be expected through slight modifications to collections e.g. improvements to recycling facilities in flats and houses with multiple occupancy (HMOs). Participation in the recycling services will become the single most important factor in determining whether the target can be achieved. This is covered in policy objectives four and five.

Household Waste Recycling Centres

- 5.25 A 60% recycling target at the Household Waste Recycling Centres is considered achievable based on the implementation of best practice. The best performing sites can achieve 70-80% recycling. The Household Waste Recycling Centres are strategically located across Greater Manchester near to centres of local populations to enable easy access. They are designed to offer the maximum separation of materials in the easiest way possible, and operators are on hand to offer support to residents in separating their waste. Allowing for differences in the demographics of the populations that are served by the sites a 60% target should still be achievable. It is important to note, however that the roll out of kerbside recycling systems will impact on Household Waste Recycling Centre performance. More recyclates (particularly garden waste) will be diverted to the kerbside system. Also, the recycling rate may appear low when in fact there are large quantities of aggregates that are being recovered.

Recycling on the go

- 5.26 We support the introduction of recycling facilities in streets, shopping centres, leisure facilities, and work places, which mirror the three bin kerbside recycling system in Greater Manchester. Whiles these may not deliver significant quantities of waste they will help to embed the recycling message.

Support the UK economy

- 5.27 The quality of recyclates will be maintained by only collecting materials where there are definite markets, and adequate separation technologies. The primary sorting stage is carried out at our own facilities where the process is optimised and rejection rates monitored, which provides assurance that minimal materials are rejected, and the materials leaving the plants are used predominately in closed loop applications providing raw materials to the manufacturing industry.
- 5.28 This policy objective recognises we should both seek to protect the environment and at the same time promote sustainable growth of the economy and jobs. Access to affordable raw materials is critical to the economy and society as a whole, and we can support the economy through separating products such as furniture, WEEE and paints that will provide the starting point to develop the reuse sector. Likewise, we will support the economy by separating quality materials that can be closed loop recycling, and will put in place measures to separate the secondary raw materials that are demanded by industry.

- 5.29 In order to achieve this then we need to think beyond tonnage based and environmental targets, and to consider those materials that are likely to impact on the economy. There are already some materials such as aluminium with a high economic value which are separated in Greater Manchester, but in the near future there is likely to be a shift towards materials used by high tech industries due to global supply issues, and demand for electronic goods leading to an increased need to recover the components. We will therefore ensure collection services and communication activities are geared towards separating the materials required by industry, and engage through the third sector to extend the range of materials that can be separated for recycling.

Policy objective 3

To reduce the amount of residual waste landfilled to the minimum that can be technically and economically achieved, using a combination of prevention, reuse, recycling and recovery with a target to achieve 90% diversion from landfill by 2015.

- 5.30 The nature and composition of residual waste can vary greatly, and we believe that by optimising the waste flows through the facilities, so that the most appropriate residual wastes are treated by the most suitable technologies then 90% diversion from landfill can be achieved. This opportunity from mid 2013 when all the residual waste treatment facilities have been built. This will enable the majority of residual waste to be processed through the Mechanical and Biological Treatment - Anaerobic Digestion (MBT-AD) Plants, followed by energy recovery of the solid recovered fuel (via a very efficient combined heat and power (CHP) plant) leaving only a relatively small proportion that will be directly incinerated or landfilled. At the same time we plan to modify the existing thermal recovery facility (TRF) at Bolton to treat a broader range of wastes, with higher calorific values.
- 5.31 To maximise the amount of waste going through each facility we plan to direct as much of the small residual waste fraction through the MBT plants as possible. This will free up capacity in the thermal recovery facility, which will be modified to enable a broader range of larger, bulky wastes with higher calorific values to be treated. That spare capacity in the thermal recovery facilities can then be used to treat residual wastes that are not suitable for the MBT plants.
- 5.32 To maximise diversion we will also need to change the way we collect wastes, by asking members of the public to separate residual waste into combustible and non-combustible fractions at Household Waste Recycling Centres, and mechanically separate identifiable combustible waste at Transfer Loading Stations.
- 5.33 We expect the above actions will maximise the use of the residual waste treatment facilities resulting in 90% diversion from landfill, which we believe is the maximum that can be technically and economically achieved at present. In the short to medium term some residues such as fly ash are expected to go to landfill. We will continue to try and reduce these fractions but this will be dependent on technically and financially viable solutions being brought forward by industry.

6 Connecting with the community

- 6.1 Waste prevention, reuse and recycling all start with individuals taking and sustaining action, placing residents at the heart of the Waste Management Strategy.

Policy objective 4

To increase understanding of the actions that individuals can take to prevent, reuse, recycle and recover wastes through education leading to a sense of community ownership.

- 6.2 Every household in Greater Manchester will have access to prevention, re-use and recycling services. This means that these households also need to know how to use the services that are provided for them. Evidence would suggest that there isn't a single approach to delivering education, but rather it is the co-ordination of the approach that is important. In Greater Manchester this will include.

Access to information

- 6.3 A key component of educating households is to ensure that the information is available to them when they need it. Clearly, it is not possible to continually send information to every household. Web provides a key tool in keeping households up to date. Individual Councils provide information on their websites relating to their services including what they can put in the bins, collection days, assisted and bulky collections. Information on Household Waste Recycling Centres, and more detailed information to encourage reuse, prevention, and promote recycling such as where the material goes is provided through the Recycle for Greater Manchester website. Leaflets remain one of the most effective means of communication, with recycling leaflets or calendars sent out annually to every household, backed up by open lines of communication with the public.

Service changes

- 6.4 Changes to services are an important juncture where access to information and awareness of what is happening can impact on the early success of the scheme. It can aid understanding, alleviate concerns, and reduce the number of queries that may need to be dealt with through contact centres. Districts will generally precede any change to service with awareness raising. Where a major service change takes place then all of the households affected will receive leaflets detailing the changes. Alternatively, minor changes to the service, such as changes to opening times at Christmas, will usually be disseminated via more cost effective methods like press releases, adverts and website.

Awareness raising

- 6.5 Awareness raising is important to maintain the profile of waste services, increase understanding of waste prevention, reuse and recycling, and prevent a plateau, or even fall in recycling participation. The public lead busy lives and are bombarded with information every day, so naturally will only scan for the information which is relevant or interesting to them. The profile of prevention, reuse, and recycling will be maintained through:
- Press release to promote interesting facts, figures and service developments;
 - Drip feed communication messages through organisation e.g. companies, housing associations;
 - Development of social media (You Tube, Twitter and Facebook);
 - Liaison groups;
 - Updating leaflets;
 - Events e.g. demonstrating quality furniture for reuse;
 - Household Recycling Centre Notice boards;
 - Developing and promoting the Recycle for Greater Manchester website;
 - Awareness raising weeks e.g. Waste Prevention Week, Composting Awareness Week; and
 - Increasing visibility and acceptability through promotion and advertising opportunities.

Education service

- 6.6 The Greater Manchester education service is a vital tool to encourage waste prevention, and recycling behaviours across Greater Manchester. The education services are available to schools and community groups, but greater emphasis is given to schools to prepare Greater Manchester for the future by instilling the importance of dealing with waste at an early age. It also provides an opportunity to further engage with families.
- 6.7 Research has demonstrated that families are more likely to participate in recycling compared to other groups, and therefore are likely to be receptive to the message if brought home by children. Some activities at the centre are designed to be taken home to encourage children to speak with their parents that deal with the waste.
- 6.8 We have just opened our fourth education centre, and through the network across Greater Manchester can offer different types of waste experience. The education centres are situated on waste sites so that groups can have a day/half day session with a tour of the facility. The facility tours include:
- Landfill site and energy recovery at Pilsworth Bury;
 - Material Recovery Facility (MRF) at Sharston (Longley Lane);
 - TRF at Bolton; and
 - Mechanical and Biological Treatment for residual waste at Bredbury.
- 6.9 A variety of interactive group activities and teaching aids have been designed with the support of teachers. These include interactive games and videos to develop an understanding of what can be recycled, and how waste is treated. Alongside the education centres support materials have been developed to help teachers in the classroom to deliver lessons related to environmental and waste issues.
- 6.10 The service provides a targeted outreach program to ensure equality of service to all schools that may not have the necessary funds to reach the education centres, and in areas in which performance levels are generally low.

Specific campaigns

6.11 We will also develop specific campaigns to increase the reuse, prevention and recycling of specific materials/products. The campaigns will include:

- Understanding of what can be recycled to improve recyclate quality and meet specifications;
 - Develop awareness of specific services such as battery recycling or IT reuse;
 - Target geographical areas with low-medium participation rates, which have the potential to improve;
 - Specific tailored campaigns that reflect the nature of the community e.g. students, ethnic origin; and
 - Target specific materials that have low capture rates.
- A number of different ways of communication will be used depending on the specific area e.g. tailored calendars, campaigns developed within the community, door knocking. Many local authorities use door knocking and consider it to be one of the most effective means (although costly) of communicating.

Policy objective 5

To support behavioural change through a combination of measures that increase the opportunity and motivation to prevent, reuse and recycle waste, and reduce the opportunity to throw away wastes that have not been separated.

6.12 The delivery of behavioural change is more than just education. While education plays a part behavioural change goes deeper requiring a more holistic approach to identifying all parts of the service where citizens can be supported and motivated to prevent, reuse and recycle wastes.

The design of kerbside collection systems

- 6.13 The design of kerbside collection systems is key to supporting changes in behaviour. It is reasonable to conclude from the councils that are performing best that increasing the frequency, volume and availability of recycling collections will encourage residents to recycle more. At the same time decreasing the frequency, volume and availability of residual waste collection systems will encourage residents to separate waste for recycling.
- 6.14 We therefore support Districts that provide more frequent kerbside collection of recyclates, and importantly, Districts that reduce the volume and/or frequency of kerbside collected residual wastes, which has the strongest link to increased performance. Therefore, we support measures such as the introduction of fortnightly collections, reducing the volume of the bin from 240L to 180L or 140L, or measures such as the differential charging of replacement bins to encourage the purchase of smaller bins. We also support policies that seek to reduce the number of additional residual waste bins and no side waste policies that are applied to residual waste.
- 6.15 Likewise participation is likely to increase in the long term where the service is made as simple as possible by considering consistent collection dates, making sure the colour of the bins corresponds with those used across Greater Manchester, and most importantly, all residents have access to the service.

The design of recycling facilities for flats

- 6.16 The same principal applies to recycling in flats (high rise, low rise and HMOs), where there are shared waste collection facilities. It is important that Districts increase the availability of recycling bins, placing them in easily accessible and frequently used locations. Residual waste bins should not be located in areas which make it easier to simply throw away un-segregated waste rather than recycle. As a minimum there should be an equal opportunity to recycle waste. Given that an average of around 75% of the bin is recyclable then it is logical to increase the number of bins available to recycle waste, and correspondingly decrease those available for disposal.

Addressing situational barriers

- 6.17 Barriers to recycling can be categorised into understanding, motivation and situational. We need to work with the Districts to identify the situational barriers that are preventing people from recycling, and therefore how the operations can be improved to address them.
- 6.18 Situational barriers such as a lack of bin capacity need to be addressed as a priority, as these can prevent citizens from recycling even if they are willing to do so. The Districts should therefore address situational barriers prior to carrying out communication campaigns. This may, amongst other factors, mean increasing the frequency of collections, providing biodegradable bags to aid the separation of food waste, or the introduction of other similar recycling aids.

The design and operation of household waste recycling centres

- 6.19 Household waste recycling centres are designed and operated to increase the opportunity to recycle wastes. Whilst it is accepted that some residents will need to bring residual waste to the sites, they are predominately designed to encourage the separation of waste. Examination of the measures that can increase recycling at sites shows the availability of operators to support and direct the public is the most important factor. We will therefore provide additional focus to the meet and greet policy, and educating householders at Household Waste Recycling Centres.

The design of quality control systems

- 6.20 Contamination of the rescales is addressed through the application of Hazard Analysis and Critical Control Points. In this system each point where quality can be controlled is identified, and limits set on the acceptable level of contaminants at that point. If those limits are exceeded action needs to be taken to reduce the contamination. Collection is the first point in the system where quality can be controlled by visually checking bins prior to loading. The second quality control point is at the transfer loading station where a visual check (or sampling) can be undertaken when the waste is emptied from the collection vehicle. If contamination is identified at stage two it is necessary to trace the load back to the collection area and carry out increased visual checks to identify the households responsible.
- 6.21 When individual households are identified then they need to be educated about how to recycle properly. This may involve placing a sticker on the bin, and preferably, a follow up visit or further communication. In cab technology can play a crucial role in controlling contamination by enabling cost effective targeted communications. Where residents continue to contravene the advice given then it may be necessary to remove bins, or fine the householder.

- 6.22 Importantly, evidence shows that one of the most common reasons why residents do not recycle is because they are confused about what they can do, so addressing the quality of recyclates will also increase the confidence to recycle.
- 6.23 Where bins are removed then the householder should be re-visited in a given time period to see whether their attitude has changed or the resident has moved, because the policy of removing bins will, over-time, reduce the coverage of the recycling scheme.

Developing more options to prevent, reuse and recycle

- 6.24 To improve waste prevention, reuse and recycling more pre-set options will be developed to enable residents to participate more easily. Although some residents may, for example, recycle coat hangers through a limited number of retailers they are more likely to participate if the option is presented and made more widely available to them. Developing the range of recycling options will require working with partner organisations as discussed under policy objective six. We will publicise more widely all the prevention, reuse and recycling options that address the full range of household wastes such as battery recycling that may be less familiar to the public.

Increasing visibility and acceptability

- 6.25 Behavioural change experts often refer to the social norm, which essentially describes an action that people carry out because everyone else also does it routinely. The ultimate aim, therefore, is to make waste prevention, re-use and recycling a normal routine. In the short term this means increasing visibility and awareness, which is particularly important in areas of high transience where the routine behaviour may be slow to develop and disrupted by residents moving on. We will therefore carry out additional campaigns in areas of high transience to increase visibility and acceptability.

Addressing our own environmental impacts

- 6.26 The public are more willing to reciprocate good acts so we will disseminate our achievements more widely, and address its own waste impacts.

Motivation

- 6.27 To increase pro-recycling behaviour then messages will be developed that not only provide information but motivate residents to act. In order to do this then the message needs to be made salient to people's own lives (e.g. explain how their community or they will benefit), make them feel good about themselves (e.g. reduced environmental impacts) or simply contain a novel or exciting element.
- 6.28 It is also important to consider who delivers the message and whether the community will be receptive to that person. Generally, it is considered that residents will be more receptive to the message if it comes from a celebrity or trusted member of the community, and are less likely to take notice of officials. Using the community has the added advantage that the messages can be developed from within with sensitivity to the needs of communities.

- 6.29 In areas that have had properly communicated collections for some considerable time, but still have low recycling rates, suggests there is a need to provide an incentive. There is some debate about the effectiveness of incentives schemes, and whether individuals will continue to engage if a financial incentive can no longer be provided. With this in mind the incentive schemes will be designed with the principle aim to provide feedback to the community on their performance. This can be combined with a reward to a local school, community group, or neighbourhood forum rather than individual rewards, so that the main focus of the campaigns will be communicating the message, using the incentive as an anchor for publicity and promotion, rather than paying residents to recycle.

Policy objective 6

To utilise the wider community sector to communicate with residents and businesses, and to financially back the best community sector innovations to deliver services that will reduce, reuse and recycle wastes.

- 6.30 We recognise the need to work with other organisations to deliver changes in the way our communities view and manage wastes. There are already numerous organisation that are either working with waste, have ideas and ambitions to prevent, re-use and recycle waste, or are working within our communities to improve the lives of residents.

Connecting with the third sector

- 6.31 We will continue to work with the community to develop relationships with organisations that support the delivery of our aims. There is a vast array of organisations working across Greater Manchester that reuse and recycle waste such as furniture re-use, and bike reuse schemes that also deliver additional social benefits. Often their primary aim will be to deliver the wider social or environmental benefits, which means a new way of working with them is required, developed from the bottom upwards that fully recognises the additional social benefits.

Supporting innovative ideas

- 6.32 There are also community groups that have ideas to prevent, reuse and recycle waste. We will therefore galvanise the community sector by providing financial support to develop innovative ideas that are brought forward by the sector. This support will help to fund the development of solutions and innovations that are required to make the transition to 'zero waste' across Greater Manchester. Part of the funding criteria is to ensure that solutions become financially sustainable in the longer term without the need for public sector support.

Engagement through community groups

- 6.33 Community groups can also play a pivotal role in helping residents to participate in actions that prevent, reuse or recycle waste within communities. We will therefore engage with residents through the network of existing groups such as religious groups, neighbourhood forums and social housing groups. We will encourage community groups to come forward that can play an active role in communicating messages, including activities such as roadshows, door knocking, or assisting people that may have difficulties recycling.

7 Protecting the environment

- 7.1 Whilst our function is to appropriately manage the wastes delivered to us by the waste collection authorities to ensure there is a high level of environmental and public protection, the decisions we take also impact on emissions in the supply chain, and downstream of our processing plants, which we cannot see. We therefore aim to reduce all emissions that are associated directly or indirectly with the way waste is treated in Greater Manchester. This objective will integrate our previous Climate Change Action Plan, and the wider Greater Manchester Climate Change Strategy which replaces it, and be the main strategy by delivering increased carbon savings and mitigating against climate change.

Policy objective 7

To improve the environmental management of wastes by using the waste hierarchy (supported by life cycle assessment) to identify the most appropriate way to treat wastes, thus saving materials resources or replacing fossil fuels.

- 7.2 A key part of delivering our objective will be supporting the Greater Manchester Climate Change Strategy, which sets four key objectives:
- Make a rapid transition to low carbon economy
 - Reduce collective carbon emissions by 48% compared to 1990 levels
 - Prepare and actively adapt to a rapidly changing climate
 - Embed carbon literacy into the culture of our organisation, lifestyles and behaviours.
- 7.3 We will continue to protect our local environment and communities by actively managing and monitoring our sites, and using the best available techniques to control emissions. To choose the most appropriate technologies that deliver greatest environmental benefits we will consider the life cycle emissions, using greenhouse gas emissions as proxy indicator.
- 7.4 We will also consider the impact of the way that we chose to manage waste has on emissions created upstream during extraction and manufacturing products, as well as downstream in the recycling of wastes. Waste prevention and reuse are always the most environmentally beneficial waste management options. When wastes cannot be prevented or re-used then there is a need to consider whether the treatment options chosen are delivering the optimal life cycle benefits. Greenhouse gas emissions provide a useful proxy of life cycle impact of waste management options and can be used to choose the waste management option that is likely to deliver the best environmental outcomes.

Carbon benefits

- 7.5 Defra have identified a number of priority materials that have high carbon impacts, namely, paper, food, glass, aluminium, wood, plastic and textiles that should be targeted to deliver reduction in Greenhouse gas emissions. These are dealt with in table 1 below.

Table 1: Priority materials based on greenhouse gas emissions.

Paper and card	The kerbside collection scheme will aim to capture the majority of paper and card waste arising in Greater Manchester. This will lead to a reduction in greenhouse gas emissions because paper can be recycled using less energy than extracting the raw material and diverting it from landfill saving the greenhouse gas emission that would have resulted.
Food	Food waste will be separately collected for composting. However, separate collection is expensive and relatively new to residents so it is likely that a significant proportion will still be left in the residual

	<p>waste. The remaining food wastes will go through the MBT-AD plants where highly putrescible materials like food will be anaerobically digested with a high reduction in greenhouse gas emissions compared to landfilling the material.</p>
--	---

Metals and aluminium	The system takes every opportunity to extract as much metal as possible from all processes, delivering the best environmental option as neither landfill or energy recovery of metal is beneficial for reducing greenhouse gas emissions. Cans, aerosols and foils are collected at the kerbside, separately from residual waste, and a series of magnet/eddy current are used to remove any metals that remain in the residual waste. Household Waste Recycling Centres also have separate bays for scrap metals.
Wood	Wood is not energy intensive to grow, so processes that recycle wood may not result in better carbon savings than using the wood to displace fossil fuels or alternative sources of biomass. Therefore, energy from waste is usually the best environmental option, and separated wood wastes are sent directly for energy recovery.
Plastics	<p>A reduction in greenhouse gas emission will achieved by using a combination of mechanical recycling and energy recovery to treat plastics. Recycling is the best option for source separated clean plastics which can be closed loop recycled. However, the best option for mixed plastics may be recycling or energy recovery depending upon the degree of mechanical separation and cleaning required, as well as the energy intensity of the recycling process, itself. For example, recycling plastics to park benches is energy intensive resulting in a worse environmental outcome than using wood.</p> <p>Plastic bottles will be separated for mechanical recycling as this is proven to be the best environmental option for the clean easily segregated material. However, mixed plastic packaging will be sent for energy recovery, as the environmental benefits for further separation and recycling have yet to be justified.</p>
Textiles	Textile recycling has very high carbon benefits, and high greenhouse gas emissions if landfilled. The strategy for recycling textiles must concentrate on upfront separation as textiles tend to become trapped in mechanical machinery making automated methods unsuitable. There is already significant demand for textiles, particularly from the charity sector, so there is no need to provide residents with a separate collection. The strategy will therefore support charities through communicating to householders that all textiles can, and should be recycled, through local charities.
Biodegradable wastes	Wastes such as paper, card, food, garden etc are associated with high direct emissions when landfilled. A significant proportion of Local Authority Collected Municipal Waste (around 70%) is biodegradable, so it has a significant impact overall on Greater Manchester's direct greenhouse gas emissions. Therefore, the Strategy specifically focuses on recycling and recovering energy from these materials. The separate collection of paper and card for recycling, and the separate collection of garden and food waste for composting, significantly reduces carbon emissions compared to landfill. There is no recycling system, however, that will collect 100% of wastes, so the remaining organic waste will have its energy recovered by going through the residual waste system described below.

Residual wastes	Residual waste will be treated using mechanical separation, and anaerobic digestion to produce a Solid Recovered Fuel that will be used in a Combined Heat and Power plant to displace fossil fuels with the worst greenhouse gas emissions. Recovering the heat and the power ensures that much higher carbon benefits are derived compared to direct incineration or landfill. A smaller fraction of waste which is unsuitable for the mechanical and biological treatment process will undergo thermal recovery to produce power.
------------------------	--

Resource scarcity

- 7.6 A key focus of the strategy is to promote a circular economy saving resources that are needed for industry. Therefore resource scarcity must form a significant part of the assessment used. This is broadly linked to the waste hierarchy but also requires consideration of materials that are in demand by industry, or their supply is likely to be limited in future years.

Table 2: Resource Scarcity

Paper and card	The quantity of paper and card reduced in recent years, and a consequence paper fibre is increasingly in demand. Part of our strategy will therefore be to recover the maximum quantity of paper and card.
Rare earth metals/WEEE	The increased use of technology has driven demand for rare earth metals, so we will maximise the reuse and recycling of electronic materials.
Phosphates	The strategy will focus on conserving plant nutrients and returning organic matter to agricultural use.
Metals	Metals continue to be a valuable resources so we will maximise recycling and extraction from residual wastes.

Hazardous materials

- 7.7 Specific materials that are hazardous to the environment such as batteries, WEEE components, paints etc will be specifically targeted with communication campaigns to encourage householders to separate these at Household Waste Recycling Centres and to not place them in the residual waste. We will educate householder on the responsibilities of manufacturers, and retailers, encouraging them to return items directly to the retailer.
- 7.8 We will keep under review the potential to introduce door step collections through third parties for materials such as small WEEE and batteries that some householders e.g. those without cars, may not be able to take to household waste recycling centres.

Climate change mitigation

- 7.9 The potential impacts of climate change are already integrated into the risk considered as part of the contract, which consider how site are adopted to impacts such as floods, and how operation may change as result of such occurrences.

Supporting the renewable energy industry

- 7.10 We will make a significant contribution to supporting the renewable energy industry through Anaerobic Digestion, Thermal Recovery and the production of Solid Recovered Fuel for Combined Heat and Power. Overall, our target is to produce around 50MWe and 64 tonnes per hour of steam.

- 7.11 Our Mechanical Biological Treatment Plants produce two predominant waste fractions: a large high calorific value SRF fraction and small organic rich fraction. The organic rich fraction is anaerobically digested to produce up to 8MW gross, which is used on-site to dry the fuel with any excess being exported to the grid.
- 7.12 The Solid Recovered Fuel used to produce electricity and steam at the Ineos Chlor chemical plant in Runcorn will replace fossil fuels. The site has a significant energy demand, equivalent to around 0.7% of the UK's electricity demand. To meet the site's energy demand a 750k tpa facility is being developed in two stages. The first stage, linked to our contract, is a combined heat and power facility with a 375k tpa capacity that will produce approximately 35MW electricity gross and 64 tonnes per hour steam.
- 7.13 The existing thermal recovery facility has a capacity of approximately 115 ktpa of mixed waste, with the potential to generate around 10.0 MW electricity gross (the equivalent of supplying 4,000 homes).
- 7.14 In the future we will seek to improve the environmental performance of our waste treatment processes. We know our thermal treatment process could be improved by using the heat, but no nearby energy intensive demand for has been identified to date. As technologies develop such as injecting biogas into the grid to improve the environmental outcomes these will be considered. Developing technologies that replace transport fuels are likely to have the best environmental benefits as these directly replace fossil fuels.

8 Supporting our businesses

- 8.1 We will work with business to help them reduce their waste and increase recycling through development of a work program with our partners. Moving towards ‘zero waste’ will require us to support small business that have difficulties dealing with waste and influence the supply chain to produce more sustainable products.

Policy objective 8

To increase support business to reduce, reuse, recycle and recover waste, and increase understanding of the actions government and business can take to develop increased producer responsibility.

Sustainable consumption and production

- 8.2 Sustainable consumption and production can be considered as three separate elements: leaner production, smarter purchasing by households, business and government and waste recovery. Clearly we are already deeply involved in sustainable consumption and production in recovering household waste and encouraging smarter household purchasing. We will therefore review the extent to which we need to expand our work into leaner production, recovery of business waste and smarter procurement.
- 8.3 Key to the development of our work program will be integration with the work of Greater Manchester’s Environment Commission. The Greater Manchester Climate Change Strategy includes a delivery theme on Sustainable Consumption and Production (SCP), which is being developed into a delivery programme supported by us. It is expected that the program will have a significant focus on developing sustainable purchasing for local government.
- 8.4 The development of SCP will require local close work via Enworks, the body changed by the Environment Commission to lead on SCP. The five key themes of the Environment Commission’s work programme supported by us are:
- Transforming resource use and consumption;
 - Accelerating sustainable production;
 - Maximising waste as a resource;
 - A thriving low carbon and environmental goods and services sector; and
 - The public sector acting as an exemplar.

Supporting local business

- 8.5 It is likely that landfill tax rises will impact disproportionately on small businesses, which should therefore be the main focus of any support. Local businesses may be supported through access to trade waste recycling services. Districts already offer trade waste collection, and one District has trialled offering the three bin recycling system to businesses. We therefore encourage Districts to provide recycling capacity to trade waste customers, and will investigate potential businesses models to offer a trade waste recycling collection services.
- 8.6 We will assess the potential to develop trade waste recycling facilities at Household Waste Recycling Centres. Significant spare capacity has developed across the network of facilities which could be utilised for trade waste recycling.
- 8.7 We will also use the Recycle for Greater Manchester website to offer general advice to businesses on the action they can take to reduce, reuse and recycle wastes.

Supporting wider industry

- 8.8 Our District partners are a key link between business and householders, and will therefore continue to work with them to develop consistent collection systems across Greater Manchester that provide the certainty of consistent secondary raw materials to be used by industry, which then enable business to design and develop products that can be more easily reused and recycled. We will develop a facilitating role working through organisations such as National Industrial Symposium Program (NISP) to match waste producers to companies that can use the wastes.

Supporting government

- 8.9 We recognise that the delivery of 'our aim is zero waste' is dependent on innovation within industry to enable a greater proportion of waste to be reduced, reused and recycled. Likewise developing SCP requires consumer to be given better environmental choices which will need to be driven forward by design standards and information requirements. The Authority will therefore seek to influence the supply chain to produce more sustainable goods and services.
- 8.10 European legislation dictates that the producer should take responsibility for the waste that they produce. We will therefore support the government in the development of producer responsibility legislation, and responsibility deals, by providing advice on how these should be implemented to reduce household wastes.

9 Benchmarks and targets

Overall policy aim

‘Our aim is zero waste’

- 9.1 ‘We will do everything we can to save resources (by preventing waste at source and recycling more) and producing green energy. We will not landfill anything we can use.’

	Policy objectives	Benchmarks/targets
1	Reduce residual waste to 400 kg per household by 2025 (equivalent to a 50% reduction across Greater Manchester against a 2008/09 baseline) through waste prevention, reuse and recycling.	Residual Local Authority Collected Municipal Waste (LACMW) per household (contract tonnage)
2	To meet the 50% recycling target across Greater Manchester by 2015, stretching to 60% by 2025, focusing on providing quality materials for closed loop recycling, and support the economy by providing access to secondary raw materials.	Percentage of LACMW recycled. (contract tonnage)
3	To reduce the amount of residual waste landfilled to the minimum that can be technically and economically achieved, using a combination of prevention, reuse, recycling and recovery with a target to achieve 90% diversion from landfill by 2015.	Percentage of residual LACMW landfilled. (contract tonnage)
4	To increase understanding of the actions that individuals can take to prevent, reuse, recycle and recover wastes through education leading to a sense of community ownership.	Communication Key Performance Indicators (KPIs)
5	To support behavioural change through a combination of measures that increase the opportunity and motivation to prevent, reuse and recycle waste, and reduce the opportunity to throw away wastes that have not been separated.	Communication KPIs
6	To utilise the wider community sector to communicate with residents and businesses, and to financially back the best community sector innovations to deliver services that will reduce, reuse and recycle wastes.	No of community sector organisation supported.
7	To improve the environmental management of wastes by using the waste hierarchy (supported by life cycle assessment) to identify the most appropriate way to treat wastes, thus saving resources or replacing fossil fuels.	Carbon benefits -Metals captured -Textiles in residual waste - Biodegradable waste diverted - Carbon metrics ¹ Energy -50 MWe -64 tonnes per hour steam Resources

¹ Carbon metrics are currently being developed by the Environment Commission, and Defra. Once these have been developed a carbon metric will be included to replace the material specific proxy indicators (metals, textiles and biodegradable wastes).

		-WEEE recycled (Waste composition every three years)
8	To support business to reduce, reuse, recycle and recover waste, and increase understanding of the actions that government and business can take to develop increased producer responsibility.	Events held Environment Commission SCP KPIs Trade waste recycled in Greater Manchester