

GREATER MANCHESTER MUNICIPAL WASTE MANAGEMENT STRATEGY

REVIEW 2006

Strategic Environmental Assessment and Sustainability Appraisal

Draft Environmental Report Non-Technical Summary

**GMWDA
April 2006**

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SEA Environmental Report - Non Technical Summary

- 1. Introduction**
- 1.1 The GMWDA has commenced a revision of the MWMS for Greater Manchester. This takes into account the implications of new legislation, technical developments in waste management systems and technologies and a much improved database on municipal waste streams, together with implementation of new guidance on municipal waste management strategies.
- 1.2 The GMWDA serves approximately 958,000 households and a resident population of 2.230 million (2004/05) with municipal waste arisings for 2004/5 amounting to over 1.4m

- tonnes. The environmental impacts of this waste are considerable. Current waste management practices and performance will not achieve legislative and policy targets for management of this waste or accord with long term sustainable development.
- 1.3 The revision of the MWMS is designed to ensure that adopted action plans and options have been updated in the light of both SEA and SA obligations. The detailed business plans will be informed by the SEA and the wider considerations of the SA and will address all aspects of the MWMS implementation.
- 1.4 The SEA identifies the environmental implications of the MWMS, so that impacts can be identified, eliminated or minimised whilst at the planning stage. The SEA is being developed alongside the revision of the MWMS. The Environmental Report is subject to stakeholder and public consultation and its results and the outputs of the consultation incorporated into final decision making and documented in the revised MWMS.
- 1.5 The Draft Environmental Report is subject to a 12 week public consultation.
2. Review of Other Plans and Programmes
- 2.1 The SEA review of other plans and programmes requires a comprehensive survey of the objectives, requirements and targets contained in statutory policy and other relevant strategy documents which may influence the scope of, and options for, the GMMWMS. In order to establish a clear scope for the SA it is necessary to review and develop an understanding of the wider range of policies, plans and strategies that are of relevance to the GMMWMS.
- 2.2 The review has covered all relevant waste management legislation and municipal waste management policy guidance including;
- The national waste strategy, Waste Strategy 2000 plus amendments
 - The national waste strategy consultation review 2006
 - Planning policy statement PPS10 and guidance
 - NW Regional spatial strategy (Consultation Drafts),
 - Existing Adopted Plans and Joint Waste Development Plan Document (JWDPD) for Greater Manchester currently in the early stages of preparation
 - The UK strategy for sustainable development, (Securing the Future)
 - The regional sustainable development framework
 - The Kyoto Protocol on Climate Change and WHO guidelines; associated EU and national legislation on air quality and its impact on human health
 - The principal EU Directives including those relating to environmental protection and quality (such as the Habitats, Birds and Noise Directives, and the Water Framework Directive); and all principal waste-related Directives (Waste Framework, Landfill, Hazardous Waste, Waste Oils, etc.).
 - Key EU and UK waste sector legislation and strategy on waste (including WS2000, Waste Not Want Not, the recent European Thematic Strategy on the Prevention and Recycling of Waste, and the principal regulations transposing the EU Directives into UK law).
 - A range of Planning Policy Guidance and Statements issued by ODPM19
- 2.3 Summary of principal themes (objectives) identified in the review
- Reduction of the output of greenhouse gases
 - Effective protection of the natural environment
 - Development of waste infrastructure so that risks of human health impacts of activities believed to have adverse effects are controlled and minimised
 - Moving treatment processes 'up' the Waste Hierarchy

- Sustainable use of resources, using waste materials as a resource (after treatment) including specific actions to increase recycling rates
- Effective mechanisms to intercept materials before they become waste
- Specific controls on certain impacts that are particularly associated with waste management, including noise, dust, odours and vermin
- Reduction in the volume of material sent to landfill
- Improved waste collection processes
- Improve the range of information available about waste management and its impacts
- Improve scope of public involvement in decision-making and awareness

3. Baseline information

- 3.1 Baseline information includes identification of the current situation and its likely evolution without the MWMS. Identification of the environmental issues for waste management in the Greater Manchester area provides the focus for the SEA and informs the development of appraisal criteria and the development of the waste management options for consideration and assessment.

Environmental Issues Associated with Municipal Waste Management

- 3.2 In moving to a more sustainable pattern of waste management in Greater Manchester a number of key environmental issues must be addressed. These aspects include impacts on the environment from the production and use of raw materials and the downstream management of materials which are discarded as waste. Issues include the likely significant effects on the environment, including issues such as biodiversity, population, human health, fauna, flora, soil, water pollution, air pollution, global climate change, cultural heritage including architectural and archaeological heritage, landscape, local amenity and the interrelationship between the above factors. These issues are complex in themselves, since they also interact with each other and with the wider sustainability issues that are considered under social and economic terms. The cumulative effects of these issues are included in the assessment of alternatives.
- 3.3 The main environmental impacts of municipal waste and its management and disposal are summarised below. The most significant environmental emissions from waste management have been identified as emissions of methane and CO₂ from landfills. Methane emissions from waste deposited in landfill originating in Greater Manchester accounts for around 5% of all greenhouse gases generated from municipal waste in England.
- 3.4 On a local level, other detrimental effects to the environment can be observed. The nature of materials handled in waste management means that pollution incidents can have serious local consequences. For example, over 10,000 fly-tipping incidents were reported in Greater Manchester in 2004/05, costing local authorities nearly £0.8m in remediation.
- 3.5 For Greater Manchester, specific issues that must be addressed include the large total quantity of waste produced from the conurbation and the current situation in which most of this waste is currently disposed of to landfill outside of the Greater Manchester area. The expectation under recent Government guidance (PPS10) is that most of the MSW will be managed and treated within the metropolitan area (residual waste may still be disposed of to landfill outside of the Greater Manchester area but this should in future account for only a small proportion of the total).
- 3.6 Stronger regulation, stricter enforcement and improved technologies have reduced these risks. Wastes regulation requires materials to be controlled and contained at all stages of

their management, thus reducing their environmental impacts. In its review of the National Waste Strategy 2000 the Government concludes that, when viewed nationally, waste regulation has been effective in mitigating potentially acute effects to a satisfactory level.

4. Alternative Options and Strategies for Municipal Waste Management and their Assessment

- 4.1 The approach taken in this MWMS review is sequential in accordance with the priorities established by the waste management hierarchy. Thus the options for each tier of the hierarchy are considered in sequence and the options for lower tiers are based on managing residual waste which cannot be dealt with by preferred management methods.

Waste Reduction and Minimisation

- 4.2 Investment in waste reduction can be made independently of other model components. Decisions on the options are essentially about which initiative will prove most effective in local circumstances and what level of investment can be afforded.

- 4.3 Options and alternatives for action on waste reduction and minimisation include:

- Relying on national/UK initiatives – WRAP etc
- Participating in regional or national educational and promotional campaigns
- Promoting waste minimisation and recycling in schools, e.g. ‘Eco Schools’;
- Providing incentives for public participation in minimisation and composting
- Using the procurement practices of the local authority as examples of how to promote waste minimisation and recycling;
- Developing home composting
- Working with business and commerce to reduce and minimise waste
- Working with major local retail outlets.

Reuse Recycling and Composting

- 4.4 Options for waste recycling and composting through source segregation turn essentially on choices of systems of waste collection (collected household waste) and delivery (“bring sites” and Household Waste Recycling Centres etc.) as well as the types of materials segregated as recyclate.

Household Waste

- 4.5 The two principle variants for collected household waste are kerbside sorting of pre-segregated dry recyclable materials or sorting and packaging for transportation at a clean “MRF”.

- 4.6 The collection system assumed can be summarised over time as follows;

- develop recycling infrastructure and management systems on HWRC sites;
- focus on improving participation in existing kerbside collection schemes;
- implement multi-material kerbside collection programmes for dry recyclables;
- introduce ‘high density bring’ and other schemes for multi-occupancy dwellings;
- introduce collection services for source separated garden “green” waste and eventually kitchen waste; and,
- introduce systems for capturing bulky waste, street sweepings and schools waste for recycling and composting

- 4.7 Modelling a number of systems shows that, collecting most recyclable materials mixed together and sorting them at central Materials Reclamation Facilities (MRFs) would have a lower net cost per tonne than sorting material at the kerbside.

Residual Waste Treatment Options

- 4.8 The primary aims of residual treatments are to reduce weight, volume and toxicity/pollution potential of residual waste. These ends are broadly achieved through either breaking down the residual waste materials biologically ('composting'), thermally and mechanically or combusting it (or converting it into more combustible compounds) or in various combinations.
- 4.9 Residual waste treatment processes considered in the scenarios are Mechanical-Biological Treatment (MBT) with Refuse Derived Fuel (RDF) used for energy recovery and traditional EfW. Landfilling of residual waste is included as a scenario in the residual options for comparison as it is the current method of disposal.

Cumulative and synergistic impacts of waste management options

- 4.10 Given the scale of infrastructure growth the greatest risk of localised cumulative impact is the possibility that co-locating waste sites, or building them in close proximity will create excessive impacts, such as:
- Noise – from site operations;
 - Traffic – particularly if co-location results in greatly increased vehicle movements;
 - Dust and odour – the scale of operations and risks are directly linked;
 - Pollutants – the greater and closer the scale of operations at two or more sites, the greater the risks that emissions will combine to exceed air quality thresholds within the surroundings.
- 4.11 Defra¹ have undertaken a study into cumulative impacts of the revision of the National Waste Strategy (NWS) and have calculated that in the cases of land area taken for the waste management facilities and carbon equivalent emissions all of the scenarios assessed result in a decrease relative to 2002/03, both in 2010 and 2020. The proposals in the GM MWMS are consistent with the NWS and therefore it can be interpreted that there will be similar net reductions.

Development of the Preferred Waste Management Options

- 4.12 GMWDA preference is to move waste management as far up the waste hierarchy as practicable. This means that waste reduction and minimisation heads the hierarchy and will have priority in the strategy followed by source segregation, waste recycling and composting.
- 4.13 After removal of materials for recycling and composting, residual material will remain that cannot be easily and effectively recycled or composted. Achievement of the challenging targets for recycling and composting targets **will not avoid** the need for a significant amount of **residual waste** to be dealt with.
- 4.14 The conclusion of the evaluation of scenarios is that the scenario based on source segregated recycling and composting with residual waste treatment by Mechanical

¹ Review of England's Waste Strategy Environmental Report under the "SEA" Directive February 2006

Biological Treatment (MBT) with Refuse Derived Fuel (RDF) produces the preferred option. An alternative with the scenario based on EfW would also meet LATS and recycling targets. The key issues that separated the scenarios in the overall assessment were essentially the process outputs, in terms of maximising recycling and recovery, together with costs. (Public acceptability was also a significant factor in the scenario based on EfW as well as flexibility and cost).

- 4.15 Development and implementation of this strategy will therefore be based on prescribing the outputs required from the treatment process (maximising recycling and recovery from residual waste) rather than a specific prescription of the process technology. These outputs from the residual waste treatment process will be consistent with those projected within the scenario based on MBT type treatment with RDF production. The solutions should not therefore exclude the potential to utilise new and emerging technologies that meet these outputs whilst maintaining or bettering the assessed level of performance in terms of SEA and SA as presented in this report.

- 4.16 Table 1 below sets out a summary of the proposed MWMS and alternative options.

Table 1 GMWDA Municipal Waste Strategy - Summary of Proposed Methods and Options

		Alternative methods
Growth reduced to 2% before 2010 0% by 2020 and nil growth to 2030	Waste minimisation campaigns and awareness raising (accompanying increased recycling system provision) Developer design awareness Home composting	Do nothing
A recycling & composting led approach to waste management with no restriction to the development of recycling and composting The target for 2005/6 is recycling and composting 20% of household waste and 33% for 2010 Targets of recycling and composting 50% of household waste for 2020.	Kerbside recycling schemes (dry recyclables) Green waste collection Kitchen waste for centralised composting (closed vessel) Develop and integrate waste collection, processing, treatment and disposal systems to ensure "Best Value" is delivered from WCA and WDA services Material Recovery Facilities (MRF) Improved Civic amenity (CA) sites for segregated reception and recycling Promote increased reprocessing Capacity Develop markets for recycled materials	Retain status quo in % of material recycled Reduce segregated collection and thus reduce collection costs Mechanical separation recyclable materials from unsegregated mixed waste Do nothing - Inadequate infrastructure for processing and end markets for recycle end compost
Meeting landfill permit allowances and bio-diversion targets through implementation of residual waste treatment processes with use of refuse derived	Secondary and tertiary treatment including thermal treatment facilities as part of an integrated approach. Taking account of new and emerging technologies including:	Alternatives all have prohibitive drawbacks in terms of meeting the required bio-diversion. Potential Alternatives

	<p>MBT processes producing refuse derived fuel (RDF)</p> <ul style="list-style-type: none"> ▪ RDF as supplementary fuel in existing process (potential in power stations/cement kilns etc) ▪ RDF in purpose built plant for power and or heat generation <p>Energy recovery from mass burn incineration</p> <p>New treatment technologies under research and development may be considered</p> <p>Working with external agencies and partner authorities to develop and provide facilities and markets for waste derived materials in accordance with the Best Practicable Environmental Option for Greater Manchester and the region as a whole</p>	<p>include:</p> <ul style="list-style-type: none"> ▪ Increasing % of MSW recycled and composted ▪ Intensified MBT treatment and landfill of stabilised residues ▪ Physical and mechanical treatment of residual waste to produce cellulose fibres as a raw material for manufacturing and other recyclable materials instead of RDF ▪ Gasification and pyrolysis to produce a product of organic intermediates for chemical processing of fuel <p>Trapping and burning landfill gas reduces the green house gas impacts of methane. However, efficiency of energy recovery is poor when compared to other energy recovery methods</p>
<p>Landfill of biologically active residues not to exceed quantities permitted under LATS</p>	<p>Treated biologically active residues, Inert residues Thermal treatment residues</p>	<p>Landfill above LATS ceiling allowances with fines of £150/tonne</p>

5. Prediction of the Significant Effects of the MWMS and Identification of Sustainability Issues

Environmental Effects

- 5.1 The assessment of performance against the objectives and criteria indicates that the MWMS proposals for sustainable waste management would have a strong positive impact on key environmental indicators. The principal indicators where the assessment has shown a significant positive difference are:-
- in minimisation of waste and its production.
 - increasing recycling and recovery of energy from renewable resources off setting the use of natural resources and raw materials.
 - reduction in landfill resulting in reduced emissions to air, water and the global consequences of greenhouse gas emissions.
- 5.2 Potential negative environmental impacts are predicted from increased vehicle use and emissions from waste transportation. However emissions from waste transportation are

estimated to account for only a minor proportion of emissions from waste management activities as a whole.

Social and Economic Effects

- 5.3 Social and economic indicators are generally positive although the impacts are at a lower level of significance. Positive impacts are in increased investment in sustainable waste management facilities, in new jobs and in community involvement.

Biodiversity, Culture, Heritage and Landscape

- 5.4 The potential for negative impacts identified during the assessment process relates to the appropriate location of facilities (in relation to criteria for biodiversity, landscape and the built environment) and to the potential for emissions from specific facilities. The MWMS proposals are not prescriptive in terms of the specific location of facilities. The proposals provide for the potential use of existing waste management sites and for the preferential development of new facilities in appropriate brownfield and industrial development contexts.

Expansion of Infrastructure

- 5.5 The viable scenarios assessed in this SEA require an expansion of infrastructure for sorting, treating and disposing of wastes within Greater Manchester. This growth necessitates mitigation measures to reduce the perceived and actual risks, and incidence of pollution events as defined in the environmental baseline as the new sites are brought into use. These measures will be set within the procurement requirements of the GMWDA and reinforced by the existing framework of planning controls and PPC/waste management licensing
- 5.6 Table 2 give a summary of the criteria and objectives with commentary on the impacts and mitigation measure.

Table 2 Strategic Environmental Assessment and Sustainability Appraisal of Greater Manchester Municipal Waste Management Strategy (Review 2006)

Key

++	Strongly positive impact	+	Positive impact	0	No impact or relationship	-	Negative impact	-	Strongly negative impact	+/- ?	Positive or negative impact of low significance	?	Uncertain - Impact unknown
													Impact
	1.To reduce economic disparities within Greater Manchester and with the NW region												?
													The MMWMS will result in new job opportunities at all levels. It is uncertain how this would impact on disparities within Greater Manchester. Voluntary sector opportunities may be created for niche market recycling and reprocessing through the voluntary and community sector

2. To exploit the growth potential of business sectors in key sectors of Greater Manchester's economy and to help develop the Greater Manchester Knowledge base	Municipal waste management turnover set to at least double (to indicative £200m/annum by 2020) with investment and revenue costs focused in the GM area leading to establishment of recycling and processing businesses. This will require new skilled manual through to professional level workforce and represents an opportunity to develop the knowledge base.	++
3.To develop and market Greater Manchester's image	The MWMS presents an opportunity to exhibit best practice to lower performing authorities, including site visits and training. The image of waste management facilities in the public mind needs to be improved to offset historic perceptions	+?
4.To deliver urban renaissance. Will the strategy improve economic, social and environmental conditions, the quality of the built and historic environment or the quality of public open space?	More sustainable waste management with new facilities that meet strict environmental permitting standards should result in local environmental improvements, Appropriate site selection and preferential brownfield development of new waste management facilities in particular for recycling, reprocessing and treatment will be essential	+
5. To secure economic inclusion, including the employment needs of local people and the accessibility to places of work	Introduction of new recycling facilities and waste treatment technologies should increase the diversity and opportunities for jobs and business start ups. Many new jobs, particularly in waste collection and recycling, require basic skills and will be filled by local people. Accessibility by public transport will be a site specific issue although the distribution of facilities will be primarily influenced by the logistics of waste transport and minimisation of costs and environmental impacts	+
6. To develop and maintain a healthy labour market	New jobs in the waste management and recycling industries will include unskilled through to professional levels. Increased investment in waste management will result in additional employment in services and supply sectors such as construction, transport, engineering and professional and administration services	+
7. To reduce the need to travel, improve choice and use of sustainable transport modes	The increasing segregation of waste streams and diversity of waste management will increase the vehicle traffic through increased waste movements. Increased employment opportunities may increase journeys to work by car. Optimisation of logistics will minimise impacts.	-
8. To improve physical health and mental health and reduce health inequalities	Inadequate waste collection services and problems with fly-tipping, primary containment and frequency of collection would present serious public health risks. Defra has reported that the probable impacts of emissions from waste management on human health are very small in comparison to other common hazards to health. New facilities can be designed to higher standards required by improved regulatory regimes	?
9. To improve access to good quality affordable and resource efficient housing	No direct impact but source segregated recycling will promote new housing and redevelopments to include built in ease of waste storage for segregation of materials for recycling	0
10.To reduce crime, disorder and the fear of crime	An adequate capacity and convenient location of waste management services discourages the fly-tipping of household waste. Local authorities will be encouraged to support these provisions with enforcement against fly-tipping and rapid clean-up to discourage additional accumulations	+
11. To enable groups and communities to contribute to decision making	The MWMS will be subject to public consultation and transparency of process. All communities will have to be engaged with the requirements and techniques of recycling, including input to decision making processes to meet the specific needs of local communities.	+
12.To develop strong and positive relationships between people from different backgrounds and communities	Waste awareness campaigns, together with appropriate recycling and waste collection services, can be focused on the requirements of different communities and different ethnic backgrounds	?

13.To improve access to and use of basic goods, services and amenities for all groups	Recycling facilities including bring sites & HWRCs are essential services and amenities. Basic access to 3 stream recycling will be provided. Cultural, sporting & leisure facilities will be encouraged to provide facilities for recycling their wastes	+
14.To protect enhance and manage Greater Manchester's rich diversity of cultural and built environment and archaeological assets	Preference for development of brownfield sites and sites within existing industrial developments. No requirements foreseen to develop facilities that would impact on cultural, built environment and archaeological assets.	0
15.To protect and enhance the biodiversity, local character and accessibility of the landscape across the region	Reduce pressure on the environment by reducing the land-take for new landfill sites – (current landfill capacity is provided outside of the Greater Manchester area both within and remote from the NW region). Open windrow composting in rural areas can have local environmental impacts. These however are site specific and will be subject to appropriate regulatory controls in site selection and operation.	+
16.To protect and improve local environmental quality Will it reduce light and noise pollution and graffiti?	Increased provision of recycling and waste treatment capacity will have some impact on local light and noise pollution. However, such facilities will be subject to planning controls and conditions as well as waste management permit controls which will be designed to minimise and mitigate any potential impacts. Security lighting can be designed to minimise light pollution.	?
17.To protect and enhance the viability of endangered species, habitats and sites of geological importance	The MWMS proposals require facilities that can be developed in the context brownfield and existing industrial developments and have no requirements to develop significant scale waste management facilities that would impact on the viability of endangered species, habitats and sites of geological importance. Open windrow composting in rural areas should avoid locations which give rise to risks to these sites.	0
18.To protect and improve the quality of inland waters	Reducing the pollution potential of landfill sites is one of the motives for reducing reliance on landfill of untreated mixed waste which is at the core of national strategy and the GM MWMS. New waste management facilities should not have any significant impact on water quality, subject to high standards of operation and regulatory control.	++
19.To protect and improve air quality	A primary impact of the strategy is to reduce emissions from landfill sites which in scale are by far the largest impact of current municipal waste management practice. Increased provision of recycling and waste treatment capacity will have some impact on local air quality. Emissions from waste treatment facilities can normally be controlled largely by good site design and management. Waste combustion processes need to be properly designed and controlled to minimise emissions, and to make sure that there are no significant environmental effects. Facilities will be subject to planning controls and conditions as well as waste management permit controls which will be designed to minimise and mitigate any potential impacts Increased vehicle movement will increase local air quality issues associated with transport. Emissions from waste transport are estimated to account for only a minor proportion of emissions from waste management	++
20. To restore and protect land and soil	New recycling and waste processing and treatment facilities will be preferentially sited in existing industrial and brownfield settings Compost manufactured from waste can be used as a soil conditioner, as a substitute for virgin peat and to enhance soils that have become degraded in organic content	+
21. To mitigate and adapt to climate change and reduce or minimise greenhouse gas emissions?	Reducing methane (with a global warming potential some 21 times higher than CO ₂)emissions from landfill sites is the primary driver (EU Landfill Directive) for reducing the amount of biodegradable waste that is landfilled	++

Will it reduce or manage flooding?	<p>Landfill gas is also the main source of emissions to air of carbon dioxide from waste management.</p> <p>Waste management processes which generate electricity will result in an offset to direct carbon dioxide emissions due to the avoidance of generation of electricity from fossil fuels. This may result in a net overall benefit in reduced carbon dioxide emissions.</p> <p>Recovery of energy from RDF will replace fossil fuel consumption and more than offset any increased fuel use through additional transport requirements.</p> <p>Flood risk from any new waste management site development must be considered on a site by site basis subject to proposed location.</p>	
22. To ensure the prudent use of natural resources and the sustainable management of existing resources and promote the use of recycled and secondary materials	Increased recycling and composting will reintroduce materials into manufacturing processes and thus reduce the demand for raw materials. Compost derived from waste can replace peat in horticulture. Promotion of markets for recycled and secondary materials is a key element of the strategy as by 2020 some 800,000 tonnes of recyclable and compostable materials will be collected per annum – 4 X the current (2004/5) quantity	++
23. To minimise the requirement for energy use, promote efficient use and increase the use of energy from renewable resources	After maximising source segregated re-use and recycling, residual waste will be treated to extract additional recyclate and material that can be best used to recover energy (RDF). Approximately 25% of household waste arisings will be ultimately used for energy recovery. Use of RDF would provide a substitute for fossil fuels. Most of the energy value will come from renewable biological derived organic material. The use of combined heat and power from RDF would maximise energy efficiency	++
24. To manage waste sustainability, minimise waste production & increase re-use, recycling & recovery	The MWMS will triple the current performance in recycling and composting and will reduce landfill to a minimum for non recyclable or non treatable residues	++

