

Chapter 5 - Management of Other Waste Streams

In addition to household wastes, the Partner Authorities have duties in relation to other municipal waste streams. These merit individual attention within this Strategy due to their hazardous nature or specific waste management requirements.

Abandoned Vehicles

Abandoned Vehicles have been classified as Hazardous Waste under the European Waste Classification since January 2002. Services for the collection and disposal of abandoned vehicles are currently managed by the North London Boroughs under delegation from the North London Waste Authority and the requirements of the Refuse Disposal (Amenity) Act (1978). Under these arrangements, the Partner Authorities share information on the number and types of vehicles arising.

During 2006/07 5,648 abandoned vehicles were destroyed in North London. This figure is reduced from 6,398 in 2005/06 and 11,324 in 2004/05.

The End of Life Vehicle Directive (2000/53/EC) requires increased levels of reuse and recycling of components from End of Life Vehicles and their dismantling in Authorised Treatment Facilities, where they can be de-polluted of their hazardous components in a controlled manner. From 1st January 2007 it has been a requirement that all End of Life Vehicles are to be collected for dismantling at no cost to the owner (See Appendix 2).

The End of Life Vehicles Directive is implemented in UK law by the End of Life Vehicles Regulations 2003, which came into force in England and Wales on 3rd of November 2003.

The North London Waste Authority conducted a Best Value Review of Abandoned Vehicles and Dumped Tyres in 2002. The review encouraged the North London Boroughs to review their inspection and collection processes in line with best practice developed in the London Borough of Camden, and challenged whether the current arrangements offer best value for the Partner Authorities. The review concluded that Government regulations on the requirements for (and therefore the likely scarcity of), the Authorised Treatment Facilities where de-pollution would occur would determine whether much greater co-ordination between the Partner Authorities would be required. If treatment facilities were scarce then joint arrangements may offer Best Value for the Partner Authorities. However, contractors to the Boroughs were readily able to provide such facilities, so no further integration of services was necessary.

In October 2003 the Association of London Government (now London Councils), on behalf of the London boroughs and supported by the Home Office Anti-Social Behaviour Unit, launched an initiative 'Operation Scrap-it' to remove nuisance vehicles within 72 hours of reporting. The other elements of the scheme included a free take-back service and a commitment by boroughs to crush any untaxed and unregistered vehicles found on borough roads. The scheme received funding of £13.4 million over two years and was scheduled to run to October 2005. The funding was conditional on all boroughs signing up to the delivery of the target and delivering the service to the agreed level. As there was a small amount of Home Office funding left at the end of the period, this was then used to keep the Free Take Back scheme running until March 2006 and to provide some further training for borough officers in relation to the new Clean Neighbourhoods and Environment Act powers. The scheme has now finished.

The Partner Authorities will keep the current arrangements for dealing with abandoned vehicles under review to ensure that the increased number of dumped vehicles and the increased costs of their treatment are minimised in North London.

There may also be a role for the Partner Authorities to play in encouraging the improvement of existing, and introduction of new, dismantling facilities in North London and encouraging the public to use new authorised facilities. This may be through publicity and awareness-raising campaigns, promoting good practice through abandoned vehicle amnesty events, and developing regeneration projects for reuse and recycling of vehicle components.

5.A1 The Partner Authorities will continue to share information and best practice on abandoned vehicle arisings to ensure an integrated approach to provision of inspection, collection and disposal services across North London.

5.A2 The Partner Authorities will review their arrangements for managing abandoned vehicles to ensure that the number of vehicles that arise and the costs of their treatment are minimised.

5.A3 The Partner Authorities will encourage the introduction of Authorised Treatment Facilities in appropriate locations in North London, will ensure that the general public are encouraged to use them appropriately, and will seek to secure sufficient facilities within the proposed North London Waste Development Plan Document.

Asbestos

Asbestos is recognised as an extremely hazardous waste and is therefore separated from the mixed waste stream. Household bonded asbestos is collected under controlled procedures at one of the North London Reuse and Recycling Centres, namely Hornsey Street in Islington. The North London Waste Authority arranges for its disposal under contract.

All North London Boroughs are participants in the joint Household Hazardous Waste Collection and Disposal Service operated by the Corporation of London. This service enables residents to request collections of household asbestos up to three times a year. There is a small charge for larger quantities. Additional and separate arrangements are in place for householders to take asbestos waste to the Hornsey Street site in Islington. The site acts as a central location to which residents from across North London are able to bring double-bagged material, from which it is transferred via separate arrangements to a hazardous waste landfill site in Essex. The number of suitable landfill sites in the South East region has decreased with the implementation of the Landfill Directive's requirement to stop landfilling hazardous and non-hazardous wastes in the same landfill sites. The cost of asbestos disposal to the Partner Authorities is therefore expected to increase significantly in the period of this Strategy.

The Partner Authorities recognise the importance of providing easily accessible collection services for the safe disposal of asbestos, even given the likelihood of increased costs of disposal due to the implementation of the Landfill Directive.

5.B The Partner Authorities will continue to provide an easily accessible collection service for household asbestos and a means of disposal for commercial asbestos throughout the period of this Strategy.

Batteries and Accumulators

Household batteries and accumulators are classified as hazardous waste under the European Waste Classification. Although a small part of the waste stream, they have considerable polluting potential when treated through incineration or sent for disposal to landfill. It is estimated that only 4% of household batteries are currently recycled, although approximately 90% of car lead acid batteries are recycled. The European Union Directive on Batteries and Accumulators (91/157/EEC), the Battery Directive, is set to come into force in the UK by September 26th 2008. It requires that 25% of the UK's waste portable batteries must be collected *and recycled* by 2012, *rising to 45% in 2016* and requires battery manufacturers to pay for the collection and recycling of household and non-household batteries. As well as collection and recycling targets, the new Directive will restrict the use of hazardous substances such as cadmium and mercury in making new batteries. It will also oblige battery manufacturers to provide clearer labeling on batteries to show how long the life of each battery is – to help consumers make the choice between batteries with differing environmental impacts.

The Partner Authorities collect motor vehicle lead acid batteries for recycling at Reuse and Recycling Centres. Household batteries are collected in three of the seven North London Boroughs at the kerbside, and from two Boroughs at Reuse and Recycling Centres, but currently have to be sent abroad for reprocessing following the recent closure of the last battery recycling plant in the UK. The London Borough of Camden is currently participating in a WRAP trial to investigate the most effective method of collecting household batteries in order to meet the requirements of the Batteries Directive.

5.C The Partner Authorities will work to increase the level of recycling of household batteries in North London wherever practicable.

Bulky Waste

The Partner Authorities all operate bulky waste collection services from residents, in some cases free of charge or alternatively for a reasonable fee, and all are required to provide a civic amenity provision where bulky waste can be disposed of free of charge by householders. Several of the North London Boroughs also operate community skip services and community “clear-ups” where containers are provided on a temporary basis to enable residents to discard furniture and other bulky wastes.

The Mayor’s Municipal Waste Management Strategy (2003) includes a proposal that the Partner Authorities should provide well-advertised bulky waste services to minimise dumping of bulky waste, and should offer free collections if a problem with fly-tipping of bulky waste develops. The Partner Authorities are currently experiencing no significant problems with fly-tipping of bulky waste and consider their services to be advertised effectively.

However, the Partner Authorities have recognised that a proportion of bulky waste is potentially recyclable, particularly metal, wood and construction wastes. The North London Waste Authority therefore requested that LondonWaste Limited conduct trials to separate these materials from mixed bulky waste and establish the potential contribution that this could make to the Partner Authorities’ recycling and composting standards. LondonWaste Limited subsequently built a bulky waste recycling facility at Edmonton, which receives waste from the Reuse and Recycling Centres and some separately-collected bulky wastes from the partner Boroughs, and retrieves large items of recyclable or compostable waste.

Some of the North London Boroughs screen bulky wastes for reuse before they collect them for disposal by the North London Waste Authority, or have separate arrangements in place for door-to-door collections of furniture, employing not-for-profit organisations that additionally offer employment and skills development for previously unemployed people. The North London Waste Authority has facilitated and supported this wherever possible.

5.D1 The Partner Authorities will provide effective and well-advertised bulky waste collection services throughout the period of this Strategy.

5.D2 The Partner Authorities undertake to maximise the potential of reusing and recycling materials from the bulky waste stream with the aim of providing a more sustainable service in partnership with community sector or commercial organisations.

Clinical Waste

Clinical Waste consists of all hazardous human or animal tissues or fluids and equipment contaminated with these materials. Household clinical waste is collected free of charge by the North London Boroughs from households, with some also providing commercial clinical waste services from doctors' surgeries and veterinary practices for a reasonable charge.

In 2006/07 904 tonnes of household clinical waste was collected by the North London Boroughs and sent for disposal by the North London Waste Authority in the clinical waste treatment facility operated by LondonWaste Limited's subsidiary company - Polkacrest Limited - at Edmonton in Enfield.

The clinical waste facilities in North London are an important strategic resource for the whole of London, and the Partner Authorities recognise the need to safeguard sufficient clinical waste treatment and transfer capacity within the North London Waste Plan.

The Mayor of London has proposed that London local authorities will be required to work in partnership with other stakeholders, especially Primary Care Trusts, to reduce the occurrence of fly-tipping of clinical waste, especially syringes and other sharp items. Some good practice already exists in North London but the Partner Authorities welcome the Mayor of London's proposal to develop best practice for clinical waste collection services.

- 5.E1 The Partner Authorities will continue to provide high-quality household clinical waste collection services free of charge throughout the period of this Strategy.
- 5.E2 The Partner Authorities will review the Mayor of London's best practice advice once this is developed and will implement any appropriate changes that improve services to North London residents.

Non-Household Waste

Non-household waste in North London is primarily composed of “trade” waste collected from commercial premises by the Boroughs and “industrial” construction waste collected from civic amenity sites or from Boroughs’ highway maintenance activities. No commercial waste is currently collected at Reuse and Recycling Centres in North London. In 2006/07, approximately 144,576 tonnes of commercial waste was collected in the area and 9,707 tonnes of construction waste.

Commercial waste is usually collected mixed with household waste, and therefore an apportionment between each element is necessary. When the first draft of the North London Joint Waste Strategy was published in September 2004 the non-household element was calculated using a methodology based on a survey carried out in 1995. From 2008/09 non-household waste is charged directly to the North London Boroughs based upon the volume of non-household waste they collect from their contracted customers. The remainder of waste is determined to be household waste and the North London Waste Authority’s costs are recovered through the levy using the Levying Bodies regulations.

The Mayor’s Municipal Waste Management Strategy includes a proposal requiring London local authorities to identify ways to minimise the amount of unpaid-for commercial waste entering the household waste stream. All the North London Boroughs have enforcement teams with responsibility for ensuring that this practice is minimised; for example, the London Borough of Barnet operates an appointment system for vans delivering waste to Summers Lane Reuse and Recycling Centre, with a monitoring officer checking any loads suspected of being commercial waste. However, it is important to note that activities aimed at improving the street environment may inadvertently increase the amount of unpaid-for waste collected in street cleansing and refuse collection services, although the new non-household charging system to be implemented from 1st April 2008 will discourage this.

As noted earlier, work is on-going to exploit any opportunities to improve value for money by integrating non-household recycling and composting services with similar household waste services.

- 5.F1 The Partner Authorities will implement the new method of assessing non-household charges from the 2008/09 financial year based on the volume of waste each North London Borough collects from contracted customers and agreed volume:weight ratios.
- 5.F2 The Partner Authorities will take rigorous enforcement action to minimise the amount of unpaid-for commercial and industrial waste entering the municipal waste stream.

Construction and Demolition Wastes

The Mayor's Technical Assessment for Waste Management in London (2003) identified 28 construction and demolition facilities in the North London area. (A more recent list of waste sites was also produced for the London Plan; however, this did not specify the nature of the waste activity taking places on these sites.) Any construction and demolition facilities are an important waste management resource.

The Partner Authorities use one of these sites - Camden Plant Limited - for the reuse of household-derived construction waste arising from collections at Reuse and Recycling Centres and from North London Borough highway maintenance activities. This material cannot contribute directly to statutory recycling standards.

5.G1 The Partner Authorities will continue to support the provision of sufficient construction and demolition reprocessing facilities in the North London region.

5.G2 The Partner Authorities undertake to separate and reuse or recycle as much municipal construction and demolition waste from the municipal waste stream as is practicable.

Liquid Wastes

The North London Boroughs, as Waste Collection Authorities, are required under the Environmental Protection Act 1990 to collect from cess-pools, and under the Highways Act 1990 to clear waste from gullies. Street washing and sweeping activities also generate liquid detritus and two Boroughs also have housing stock served by the "Garchey" waste disposal system, where liquid-born household waste is collected in tankers from properties of multiple occupancy. The Partner Authorities are not required to dispose of any non-household liquid wastes, and direct private organisations to reputable waste management companies who can provide these services.

Cess-pool collections are the responsibility of the Partner Boroughs. This material is delivered for disposal to a Thames Water Services treatment facility in Stanstead Abbots. LondonWaste Limited receives waste from Partner Boroughs' street washing and sweeping activities for disposal under the main waste disposal contract with the North London Waste Authority.

Under the new European Hazardous Waste List, some types of detritus waste have become classified as Hazardous Waste. However, this does not apply to the types of gully waste and street cleaning waste which is collected by the Partner Authorities. These wastes are still defined as non-hazardous waste. However, the North London Waste Authority did specify a purpose-built detritus bulking facility at the new Hornsey Street Waste and Recycling Centre in Islington.

5.H The Partner Authorities will continue to provide statutory collection services for liquid household wastes during the period of this Strategy, and will develop such new facilities as may be required to manage waste in accordance with new legislation.

Fly-tipped Waste and Litter

Fly-tipping - the unauthorised or illegal dumping of waste - and littering are persistent and anti-social waste enforcement problems that the North London Boroughs are in the process of taking concerted action to address. An increase in the number and quantity of fly-tipping incidents followed the introduction of the Landfill Tax and the number of dumped tyres from old cars increased following the collapse in scrap metal prices. The introduction of new legislation, for example through restricting the commercial disposal of newly-defined hazardous wastes, also has the potential to increase fly-tipping. The North London Boroughs have invested significantly in improving the street scene in recent years, providing improved litter clearance and fly-tipping services and greater enforcement activities. In addition, many North London Boroughs have educational projects that target an anti-litter message at children.

5.I The Partner Authorities undertake to take integrated and concerted action to tackle fly-tipping and littering, ensuring that each aspect of waste enforcement is co-ordinated to avoid displacement of waste problems.

Hazardous Waste

Hazardous waste, previously known in the United Kingdom as Special Waste, is waste that can cause harm through being toxic, corrosive, flammable, radioactive or poisonous and typically composes approximately 1% of all municipal waste.

The definition of hazardous waste has widened as a result of changes to the European Waste Catalogue and associated Hazardous Waste Lists, and its disposal is also becoming increasingly more difficult due to the requirements within the Landfill Directive that hazardous waste be disposed of only in dedicated hazardous waste landfill sites. The number of hazardous waste landfill sites has significantly reduced since July 2004 as a result of this legislation, with very little treatment capacity being available in the South East Region. The combined effect of this wider definition of hazardous waste, which will require more separation of hazardous wastes, and the restriction in disposal capacity will mean that the cost of hazardous waste management is expected to increase significantly in the period of this Strategy.

The Household Hazardous Waste collection and disposal service provided to North London residents by the Corporation of London on behalf of the Partner Authorities enables residents to obtain up to three collections of hazardous waste per year. These are normally free, although large quantities of waste may incur a charge. The Corporation of London has ensured that the service has the capacity to accept the newly-defined hazardous waste materials. An exception is fluorescent tubes and fridges, which are also classified as waste electrical and electronic equipment and which can therefore also be taken to a Designated Collection Facility, such as any of the North London Reuse and Recycling Centres.

The Partner Authorities welcomed the Mayor of London's review of the Corporation of London's household hazardous waste collection and disposal service, and recognise that the service will need to be promoted to a greater degree than currently if hazardous materials are to be effectively removed from the waste stream.

The Mayor of London has also proposed that all Reuse and Recycling Centres should provide facilities for household hazardous waste collections. Many North London Reuse and Recycling Centres already provide collections of waste oil and lead acid batteries. Since 1st July 2007 all the North London Reuse and Recycling Centres also collect waste electrical and electronic equipment. However, available space at these sites is at a premium, and the increased separation necessary may be better accommodated at shared facilities across North London where hazardous wastes can be managed safely and efficiently. The Partner Authorities undertake to review the provision of household hazardous waste services to determine which collections will offer best value for the Partners.

- 5.J1 The Partner Authorities will continue to provide or procure an effective household hazardous waste service for North London residents throughout the period of this Strategy.
- 5.J2 The Partner Authorities will support and promote the Corporation of London's current Household Waste Collection and Disposal Service and make appropriate arrangements for the separate collection of fluorescent tubes.
- 5.J3 The Partner Authorities will continue to collect the maximum range of household hazardous waste and waste electrical and electronic equipment at their Reuse and Recycling Centres.

Ozone Depleting Substances

The Ozone Depleting Substances Regulations came into effect in January 2002, requiring the extraction of all ozone depleting substances from fridges and freezers, whereas previously only the refrigerant liquids were extracted before recycling.

The Partner Authorities agreed that a joint disposal arrangement would offer best value, and the North London Waste Authority therefore arranged for a Variation to its waste disposal contract with LondonWaste Limited to co-ordinate the disposal of all fridges and freezers in North London from August 2002. From 1st July 2007, however, the collection and reprocessing for all waste electrical and electronic equipment from local designated collection facilities (including all local Reuse and Recycling Centres) was taken over by the North London Waste Authority's appointed producer compliance scheme, currently DHL, who do this free of charge under new legislation. Fridges are sent to EMR Limited in Willesden for reprocessing. A total of 2,453 tonnes of fridges and freezers were recycled during 2006/07.

5.K The Partner Authorities undertake to support appropriate projects promoting the reuse of fridges, and will ensure that the remaining fridges are reprocessed and ozone depleting substances and metals recovered throughout the period of this Strategy.

Packaging wastes

The Producer Responsibility Obligations (Packaging Waste) Regulations 1997 and subsequent updates (latest 2007) implemented the European Directive on Packaging and Packaging Wastes (1994/62/EC and 1997/129/EC) in the United Kingdom. The regulations require producers of packaging to recycle and recover energy from packaging at increasingly higher rates, and to demonstrate compliance each year through a combination of their own recycling and recovery efforts and via the purchase of Packaging Recovery Notes for material recycled from accredited reprocessors of packaging. A consultation on a range of new packaging recycling and recovery targets was published in 2007 which proposed higher and more challenging targets; these have now been confirmed as outlined below.

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The table below shows the business recovery and recycling targets for packaging in Great Britain (these are the targets used by businesses to calculate their obligations for 2008 – 2010):

	2008	2009	2010
Paper	67.5%	68.5%	69.5%
Glass	78.0%	80.0%	81.0%
Aluminium	35.0%	38.0%	40.0%
Steel	68.0%	68.5%	69.0%
Plastic	26.0%	27.0%	29.0%
Wood	20.5%	21.0%	22.0%
Recovery	72.0%	73.0%	74.0%

The updated targets are aimed at the UK meeting the European Directive targets.

It was thought that Local Authorities might benefit directly from increased prices for collected materials, or from direct investment in collection services as a result of the legislation, but most of the benefit of the new income has fallen to accredited reprocessors. Local authorities and obligated companies are increasingly both implementing recycling systems to meet their own recycling and recovery targets, as evidenced by the replacement of local authority recycling banks on some retailers' car parks with the retailers' own facilities focussing on obligated packaging streams.

Initially, the recycling target levels under the regulations were proportionally low compared to the amount of energy recovery required, which enabled LondonWaste Limited to benefit as an accredited energy recovery facility under the regulations. As the recycling targets have moved up, the market for energy recovery Packaging Recovery Notes has fallen away, and possible changes to European waste definitions concerning the reclassification of Energy-from-Waste as disposal rather than recovery mean that this trend is likely to continue.

5.L The Partner Authorities will seek to work with companies obligated under the Producer Responsibility (Packaging) Regulations to maximise their investment in the municipal recycling infrastructure that is required to enable the companies and the Partner Authorities achieve their respective targets.

Polychlorinated Biphenyls (PCBs)

The Environmental Protection (Disposal of Polychlorinated Biphenyls and Other Dangerous Substances) (England and Wales) Regulations 2000 implement a European Directive requiring the phasing out of these substances, which are highly toxic, persistent and build-up in animals to levels hazardous to health.

The Mayor's Municipal Waste Management Strategy requires the Partner Authorities to confirm the status of any equipment they hold containing these substances by registering with the Environment Agency each year.

5.M The Partner Authorities confirm that equipment containing Polychlorinated Biphenyls will be registered with the Environment Agency where required under the Environmental Protection (Disposal of Polychlorinated Biphenyls and Other Dangerous Substances) Regulations 2000.

Special Events

The Mayor's Municipal Waste Management Strategy includes a proposal that London Local Authorities should make it a requirement of issuing a licence for special events, that the organisers of such events should have to develop a waste management plan including requirements for minimising waste and maximising recycling. The Mayor of London has proposed that London Local Authorities issue the Mayor with a list of such events and their plans for waste management at these events.

The Partner Authorities recognise that the site of part of the Olympic Stadium falls within the North London area and that the Olympics are likely to cause significant increases in recyclable and non-recyclable wastes before, during and after the event. This may require additional or improved municipal waste infrastructure, for which the Partner Authorities will lobby the Mayor of London, the London Development Agency and Government for dedicated support.

5.N1 The North London Boroughs will individually issue the Mayor with lists of the special events taking place within their areas and setting out plans for waste management at these events.

5.N2 The Partner Authorities will lobby relevant parties to ensure that, if successful, the London Olympic Bid organisers minimise waste arisings and then maximise recycling and then recovery of energy value from all wastes generated by the event.

Waste Electrical and Electronic Equipment

The requirements of this Directive have been detailed earlier within Chapter 3 of this Strategy.

5.O The Partner Authorities undertake to continue working with relevant stakeholders to meet any statutory requirements imposed on local authorities under the regulations that implement the European Waste Electrical and Electronic Equipment Directive.

Chapter 6 – Identifying the Best Option for North London

When the 2004 draft of the North London Joint Waste Strategy (NLJWS) was first produced the Government then required local authorities to identify the “Best Practicable Environmental Option” when making decisions on the appropriate waste management infrastructure for their local area, and had issued guidance (Office of the Deputy Prime Minister, 2003) indicating the way that it expected this process to be carried out.

The Best Practicable Environmental Option was defined within the 12th Report of the Royal Commission on Environmental Pollution as being:

“the outcome of a systematic and consultative decision-making procedure, which emphasises the protection of the environment across land, air and water. The Best Practicable Environmental Option procedure establishes, for a given set of objectives, the option that provides the most benefits or the least damage to the environment as a whole, at acceptable cost, in the long term as well as the short term.”

However, because the NLJWS was not formally adopted by 22nd July 2006, the requirements of the Strategic Environmental Assessment (SEA) Directive¹ and the accompanying Environmental Assessment of Plans and Programmes Regulations 2004 (the ‘SEA Regulations’), became applicable. (SEA has now replaced BPEO as the principle decision-making tool supporting waste management strategy preparation.) This meant that it was necessary to carry out a retrospective Strategic Environmental Assessment (SEA) of the NLJWS in addition to the original BPEO assessment.

Independent consultants carried out a formal ‘screening’ assessment of the North London Waste Authority’s forthcoming Procurement Strategy and concluded that SEA was not required for the Procurement Strategy, provided that a retrospective SEA was undertaken on the NLJWS and Appropriate Assessment of the effects on European Sites for nature conservation interest under the Habitats Directive does not apply. The Authority’s Legal Adviser also identified that it would be necessary to carry out a retrospective SEA of the NLJWS and this was approved by the North London Waste Authority in December 2006.

This chapter identifies the outcomes of the SEA process and highlights the differences where relevant between the original BPEO assessment which was carried out in 2004 and the subsequent SEA review which has been carried out in 2007. A copy of the 2004 ‘Mayor’s Draft’ of the North London Joint Waste Strategy, including the original BPEO assessment, can be found on the North London Waste Authority website at www.nlwa.gov.uk.

This chapter also provides details of updated financial modelling for the different scenarios that were originally assessed in 2004, as well as the new additional procurement scenario that has subsequently been developed from the partnership approach which was identified as a preferable option for managing municipal waste in North London in 2004.

¹ Directive 2001/42/EC – the Strategic Environmental Assessment (or ‘SEA’) Directive

Scope

The focus of the SEA process is on environmental effects; however, it was decided to broaden the assessment to cover social and economic effects in order to make the SEA process being carried out for the North London Joint Waste Strategy more consistent with the Sustainability Appraisal (SA) process used by the Mayor of London on his strategy documents, and also with the SA process being undertaken by the North London planners for land-use planning for waste in the area. This means that the SEA is broader in scope than the previous BPEO analysis. For the SEA review the process also included an assessment of five alternative options for the Strategy using the Environment Agency's WRATE (Waste and Resources Assessment Tool for the Environment) model, this is an updated version of the Environment Agency's WISARD (Waste Integrated Systems for Recovery and Disposal) Tool which had been used in the previous assessment for BPEO. A third difference between the previous BPEO assessment and the more recent SEA is that SEAs include a requirement to provide an environmental report for consultation with the environmental authorities and the public, alongside a copy of the draft plan which is being assessed. The environmental report must describe and evaluate the likely significant environmental effects of implementing the strategy in question. The environmental report produced as a result of the SEA process *is listed as an appendix to this Strategy but is separately available as it is over 200 pages long; details of the consultation process are in the environmental report, but a report on the full outcomes of the consultation process cannot be finalised until the final Strategy document is adopted.*

A full description of the BPEO process can be found in the 2004 'Mayor's Draft' of the North London Joint Waste Strategy, available on the North London Waste Authority website at www.nlwa.gov.uk or in hard copy by writing to the Authority. The rest of this chapter, however, summarises the findings of the retrospective SEA process.

Retrospective Strategic Environmental Assessment

A Strategic Environmental Assessment process must involve the following stages:

- Stage A – Setting the context and objectives, establishing the baseline and deciding on the scope
- Stage B – Developing and refining options assessing effects
- Stage C – Preparing the environmental report
- Stage D – Examination
- Stage E – Monitoring

As in the previous BPEO assessment, the North London Waste Authority arranged for the work to be carried out on behalf of the Partner Authorities. The initial stages of the work were completed in-house with technical consultants appointed to carry out the modelling and options assessment work and to prepare the environmental report. Technical consultants Ramboll, with sub-consultants AEA Technology, were appointed to carry out the modelling in accordance with Government guidance. They employed the Environment Agency's new life cycle assessment tool WRATE, which has replaced WISARD, the tool which was used in the previous assessment. WRATE also uses life cycle assessment to identify and quantify all the emissions and impacts from managing waste - from the type of containers used, such as wheeled bins, right through to final recovery or disposal and including all the transport methods used to transfer the waste. However, WRATE includes more data than WISARD, in particular, it includes a larger number (24) of recycling, treatment and recovery (43) processes therefore enabling a more up-to-date assessment using newer waste management technologies to be carried out.

Ramboll and AEA Technology also again used AEA Technology's own, in-house performance model – WASTEFLOW which models the flows of waste between processes and facilities and estimates the costs of providing the service. Another technical consultancy, ENTEC, was appointed to write the environmental report and review the initial stages of the work carried out by the in-house North London Waste Authority team. The work was conducted between September and December 2007 and the following sets out the conclusions resulting from the analysis and retrospective review of the Strategy.

Stage A – Setting the context, establishing the baseline and developing the SEA objectives

A scoping report was prepared setting out the context for carrying out the SEA, identifying other relevant policies, plans and programmes and environmental objectives; collecting baseline information, identifying sustainability issues and problems and developing the SEA framework. The scoping report was then sent to the statutory consultees for review and comment. In England the statutory consultees are English Heritage, the Environment Agency and Natural England. Following consultee comments, the scoping report was amended and this amended scoping report then set the framework for producing the SEA Environmental Report.

Attached is a copy of the SEA Environmental Report together with a copy of the revised scoping report.

The table following sets out the problems and issues facing the Partner Authorities in the form of strengths and challenges for the North London Waste Authority area. The subsequent table at the end of this chapter outlines the SEA objectives which were set for the review, together with relevant appraisal criteria and possible indicators to be used.

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Challenges & Issues Faced in North London Relative to the Different SEA Objective Categories		
Category of SEA Objective	Strengths	Challenges
Population and Human Health	All boroughs' populations have increased over the last 20 years Average age across all boroughs is lower than national average	Reducing the existing health inequalities between the boroughs
Biodiversity	The North London area has a number of habitats and species of local, national and international importance.	Parts of three of the Sites of Special Scientific Interest (SSSIs) are in unfavourable condition including areas which fall within European designated sites.
Soil		Maximising the use of previously developed land
Water	Quality of rivers is generally good. Only one river failed its River Ecosystems Targets	Water consumption – The Thames region is the most populated region in the UK and consequently water is scarce Some areas at risk of groundwater pollution. Some high levels of nitrate concentrations
Air	Emissions reducing in some boroughs as a result of the introduction of the London congestion zone	Reducing nitrogen dioxide and particulate matter pollutants across the North London area
Climatic Factors		Inner boroughs more susceptible to temperature rises as a result of high densities Risk of flooding from the Lee flood plain
Material Assets/Resources	Average waste growth over the last 5 years of just 0.2%	Meeting statutory targets for recycling, recovery and landfill diversion
Built and Historic Environment	The area has a number of historic parks and gardens, listed buildings and conservation areas Large amount of high quality open and greenspace	Protecting a number of listed buildings 'at risk' due to neglect and decay Protecting land from new urban developments (predominantly urban area)
A Stable Economy	The green/environmental industry sector provides a potentially high employment source for local communities in the future	Maximising employment opportunities arising from implementing the North London Joint Waste Strategy
Accessibility and participation	Access to all services is generally good	Recycling and waste services provided to households vary greatly from borough to borough Improving access to recycling centres

The SEA objectives largely follow Government guidance and the example provided by the Mayor of London's Business Waste Strategy (as this represents the most recent regional strategy relating to waste for which SEA has been undertaken), with minor amendments necessary for circumstances specific to the North London Joint Waste Strategy.

Stage B – Developing and refining options; assessing effects

The next stage of the SEA process involves testing the North London Joint Waste Strategy objectives against the SEA framework, as outlined in the table above and at the end of this chapter; developing the North London Joint Waste Strategy options or alternatives for action; predicting the effects of the North London Joint Waste Strategy, based upon the different options evaluated; and then considering ways of mitigating adverse effects and maximising beneficial effects and providing recommendations for monitoring the environmental effects of implementing the plan or programme.

Government guidance states that it is necessary to test the objectives of the plan being reviewed by the SEA process against the SEA objectives and against each other. Appendix B of the SEA Environmental Report provides the results of the assessment which was carried out to review the 'implementation actions' or objectives of the North London Joint Waste Strategy against the 20 SEA objectives. **This assessment concluded, see section 4.1 of the Environmental Report, that the North London Joint Waste Strategy objectives were compatible with each other as were the SEA objectives with themselves and further amendments were not considered necessary.** i.e. The SEA process concluded that it was not necessary to amend the objectives of the North London Joint Waste Strategy as a result of the SEA process.

The next stage of the process as required by the SEA Directive is that the nature of the options being considered for the North London Joint Waste Strategy must be outlined and similarly assessed against the SEA framework. The previous BPEO assessment had reviewed four options or alternatives for action put forward in the North London Joint Waste Strategy:

- a minimum compliance scenario involving doing the minimum possible to achieve recycling targets and targets to divert waste away from landfill disposal; this scenario was modelled to meet a 33% household recycling rate by 2015 and carried a risk of needing to purchase landfill allowances at whatever price they are selling for at the time
- a borough-led scenario, which was based upon each of the seven constituent boroughs developing services and facilities locally; more localised waste treatment facilities of a type each borough thought might be most appropriate for their area, along with kerbside sorting of recyclables handled via local bulking facilities
- a partnership scenario, based upon a shared approach to meeting targets; fewer, more strategic waste treatment facilities to maximise economies of scale, along with central sorting of recyclables at materials recovery facilities.

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- a Mayor's aspirational scenario based upon what was then the Mayor of London's draft higher recycling and composting rates for household waste (these were subsequently reduced downwards in the published version of the Mayor of London's Municipal Waste Management Strategy)

As part of the SEA process the original four scenarios were reviewed on the basis of the requirements that they be realistic, achievable and workable. In the light of this review it was decided that:

- None of the scenarios would be realistic in 2007 unless they achieved the new national English Waste Strategy 2007 target of 50% recycling and composting by 2020. In the modelling it was assumed that this would be achieved through recycling or composting of kerbside collected material. Recycling contributed through residual waste treatment is in addition to that. So each scenario was re-modelled to reach a minimum of this level. Scenario 4, the Aspirational Model, goes beyond this to achieve 54.8% recycling by 2020.
- Because it was more certain and therefore workable, it was also assumed that in all four scenarios current recycling and collection arrangements (i.e. commingled or kerbside sorting) remain unchanged in future, i.e. with four out of the seven boroughs collecting dry recyclable waste commingled and subsequently sorting it at a materials recovery facility, and three of the seven boroughs collecting dry recyclable waste and sorting it at the kerbside. This is different from the previous BPEO modelling which assumed different mixes of commingled or kerbside sorted systems being put into place in the future.
- Thirdly, the borough-led scenario was also remodelled. In the original BPEO assessment it was assumed that this scenario would involve the Edmonton EfW plant no longer being available in 2015 and being replaced by a mix of new and emerging technologies – two pyrolysis or gasification plants, two mechanical biological treatment plants and three biological mechanical treatment plants with a total capacity of 710,000 tonnes capacity per annum. In the new assessment this scenario assumes six new plants, rather than seven and specifies that two of these are gasification plants as outlined in the table below.
- Finally a fifth new scenario was added based upon the North London Waste Authority's reference project being used for the Procurement Strategy – a theoretical mix of facilities being used to provide costings for the procurement process for providing services and facilities post 2014, when the Authority's current contract with its main waste disposal contractor comes to an end. This scenario is a further development of the partnership approach *included in the* previous BPEO process. It should not be assumed that this is the mix of facilities which the North London Waste Authority will be procuring as it is a theoretical mix of facilities currently being used for costing and planning purposes, but it provides a further scenario for assessment.

Scenario summaries and residual waste technologies modelled for the SEA Process

Scenarios	Technology	Capacity (ktpa)
Sc 1 – Compliance	EfW	450
Sc 2 – Borough led	Gasification (2 facilities)	Total 250
	MBT-AD (2 facilities)	Total 270
	MBT-RDF (2 facilities)	Total 385
Sc 3 - Partnership	EfW	450
	MBT-AD	250
Sc 4 - Aspirational	EfW	270
	MBT-AD	200
Sc 5 - Procurement Strategy	EfW	540
	MBT-RDF	250

All scenarios assume 3 materials recovery facilities at a total of 165,000 tonnes per annum. All scenarios assume composting of kitchen and green garden waste of 180,000 tonnes per annum based upon 40,000 tonnes of green garden waste being open windrow composted and 140,000 tonnes of mixed garden and kitchen waste being composted in-vessel.

Key:

EfW – energy from waste incineration
MBT – mechanical biological treatment
AD – anaerobic digestion
RDF – refuse derived fuel

- It is assumed that recycling of commercial waste collected by boroughs will be introduced by 5 boroughs achieving 10% by 2020. Camden and Hackney already provide some recycling collection for commercial waste; hence they have been modelled to achieve 15% recycling of commercial waste by 2020.
- Three MRFs have been modelled to be provided by NLWA – two MRFs each with 60,000 tonnes per annum capacity starting in 2011, and a third MRF being introduced by 2015 with 45,000 tonnes per annum capacity.
- New residual treatment facilities start operation in 2015/16. It is assumed that the contract with Edmonton EfW would cease after 2014/15

- Modelling is based on waste compositions used for the Procurement Strategy - household waste, CA waste, commercial waste, street sweepings and bulky waste were added in with a composition based upon a survey carried out in Wales (The composition of municipal solid waste in Wales, MEL, WRc, AEA for the Welsh Assembly, 2003).
- It is assumed that the amount of green garden and kitchen waste which is composted is the same in all five scenarios.

The development of alternative options for the Strategy was carried out when the draft NLJWS was prepared in 2004 and was informed by the Best Practicable Environmental Option (BPEO) assessment undertaken at the time. Although SEA has replaced BPEO as the principle decision-making tool supporting waste management strategy preparation, SEA also requires development of alternative options. As the SEA was carried out retrospectively, however, the approach is slightly different to that prescribed by the Office of the Deputy Prime Minister SEA guidance. Specifically, because it was a retrospective SEA which was being carried out for the NLJWS, it was not considered appropriate to develop a range of additional scenarios to be modelled, other than the fifth procurement reference project scenario, but rather to carry out a new assessment of the original four options considered, updated as outlined above. The SEA was carried out on the 2004 draft NLJWS with the intention that the SEA process would inform an update of the Strategy prior to final adoption.

Stage C – Preparing the Environmental Report

The Environmental Report attached details the results of the strategic environmental assessment, including the results of an appraisal of the implementation actions within the North London Joint Waste Strategy, comparison of significant effects, how environmental issues were considered in choosing the preferred strategic alternatives, other alternatives considered and why they were rejected. The report also summarises the significant effects and proposed mitigation measures to offset the environmental effects.

The comparison of the different scenarios or options for the North London Joint Waste Strategy was carried out using a mixture of qualitative and quantitative assessment, in much the same way as the original BPEO assessment. This assessment included the use of:

- **Professional judgement:** members of the Entec waste management and planning and environmental appraisal group were consulted in order to appraise the options. They have considerable experience of waste strategy development and implementation and Strategic Environmental Assessment of Waste Strategies and Waste Local Development Frameworks;

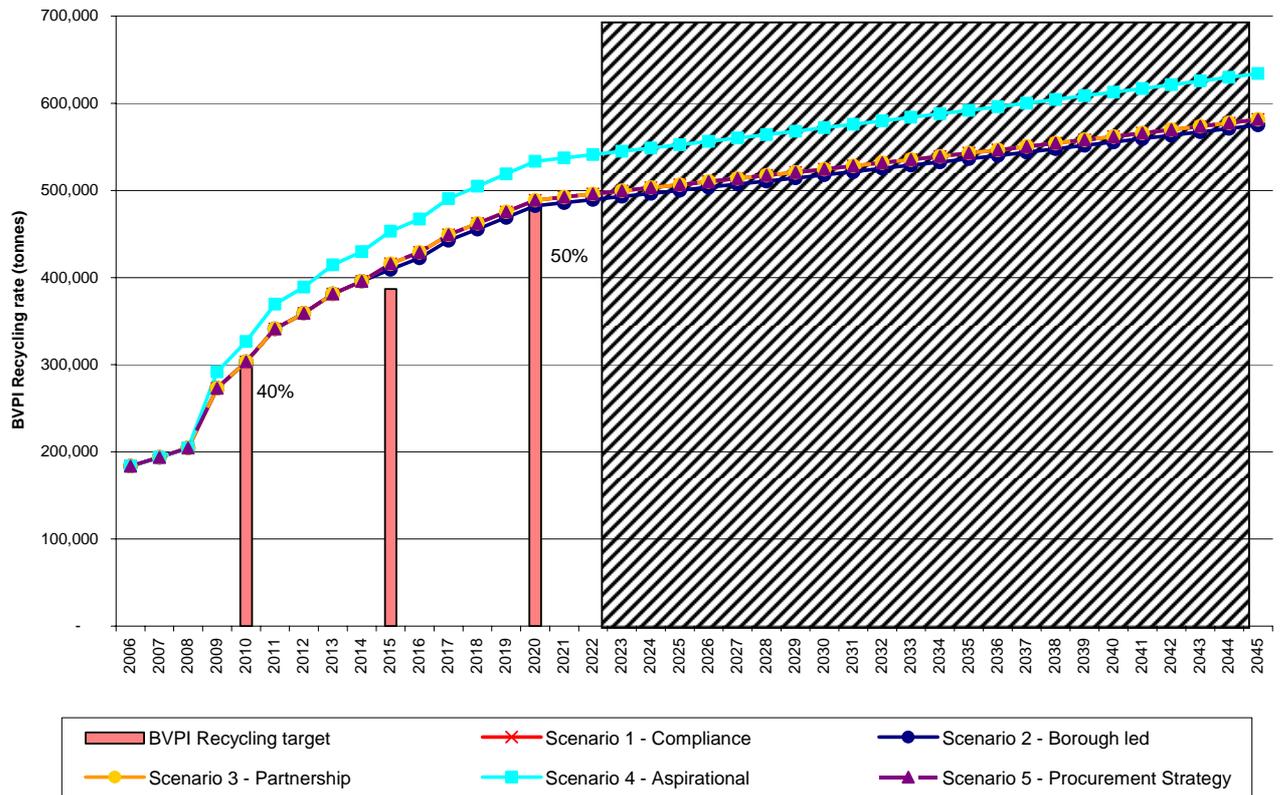
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- **WRATE model:** The Environment Agency's life cycle assessment tool, 'WRATE', was used to model the potential environmental impacts of the options. WRATE has been specifically developed to include a full range of environmental and climate impacts of wastes management options;
- **WASTEFLOW model:** AEA Technology's performance model which models the flows of waste between processes and facilities and estimates the costs of providing the service; and
- **Technical guidance:** – for example DEFRA's 2004 Review of Environmental and Health Effects of Waste Management; DEFRA's Waste Management Technology Briefs (2007).

The following graphs show the performance of the different scenarios for recycling and composting and diversion of biodegradable waste from landfill from the WASTEFLOW model. All scenarios hit the 50% recycling and composting target by 2020, with the aspirational scenario going beyond this as already outlined. Compared to the BPEO assessment of the previous scenarios developed when the North London Joint Waste Strategy was first produced, there is much less difference between the performance of the different scenarios in terms of recycling and composting achievement. However, when it comes to landfill diversion performance it can be seen that the compliance and aspirational scenarios do not meet the landfill diversion targets after 2014.

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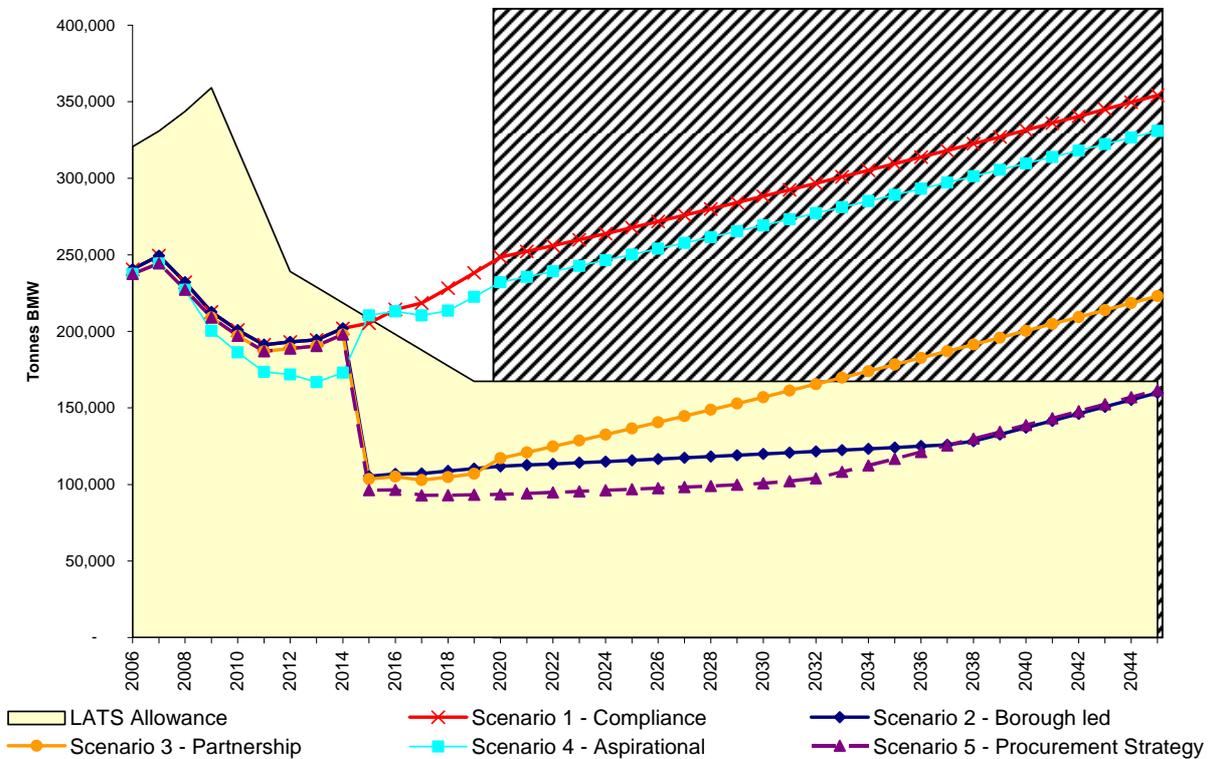
Scenario Recycling and Composting Performance showing the tonnes of household waste in North London which would be recycled and composted each year under the different scenarios



Note that as the North London Joint Waste Strategy only runs until 2020 and the original four scenarios - compliance, borough led, partnership and aspirational - had only been modelled up to 2020, this Strategy and the accompanying strategic environmental assessment has primarily focused upon the relative performance of the five scenarios up to 2020, although where relevant, comments beyond this date are made.

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Scenario Landfill Diversion Performance – showing the amount of biodegradable municipal waste which would be landfilled under each scenario and the landfill allowance trading scheme (LATS) limit for biodegradable municipal waste from 2006 to 2045



Note that as the North London Joint Waste Strategy only runs until 2020 and the original four scenarios - compliance, borough led, partnership and aspirational - had only been modelled up to 2020, this Strategy and the accompanying strategic environmental assessment has primarily focussed upon the relative performance of the five scenarios up to 2020, although where relevant comments beyond this date are made.

Costs

Costs of the different scenarios were also compared within the WASTEFLOW model, and the following table indicates the relative projected revenue costs (incorporating capital financing) for the different scenarios in key years. It is important to note, as already mentioned, that the original four scenarios in the Strategy were not originally developed beyond 2020.

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From the table below it is evident that all scenarios cost the same amount in the short term. However, by 2014 the borough-led and Mayor's aspirational scenarios are approximately £1 million per annum more expensive than the other three options. In the medium and long term the costs of the different scenarios start to diverge, with the procurement scenario predicted as being the least expensive of the scenarios by 2045 and the borough-led scenario the most expensive, £33 million per annum more than the procurement scenario in 2045. In 2020 at the end of the Strategy period, the partnership is performing the best

Scenario	Projected total costs (at 2006 prices) for waste collection and disposal (£million / year)				
	2006	2010	2014	2020	2045
Minimum Compliance	100	118	126	157	185
Borough – Led	100	118	127	187	213
Partnership	100	118	126	156	181
Mayor's Aspirational	100	117	127	169	197
Procurement	100	118	126	157	180

Note that the costs of collection and disposal also include enforcement and promotion costs.

When the cumulative costs of the different scenarios are calculated, the results show that the partnership scenario is the least expensive overall by 2045; however, this scenario does not meet the landfill diversion targets required as already outlined. The procurement scenario, which does meet the landfill diversion targets required, is the second least expensive of the five scenarios evaluated. Again the borough-led scenario is calculated as being the most expensive of the five scenarios by the end of the period.

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Scenario	Projected cumulative costs (at 2006 prices) for waste collection and disposal in £million from and inclusive of 2006				
	Baseline cost 2006	Overall cost to 2010	Overall cost to 2014	Overall cost to 2020	Overall cost to 2045
Minimum Compliance	100	553	1,046	1,935	6,227
Borough – Led	100	553	1,048	2,121	7,159
Partnership	100	553	1,046	1,938	6,131
Mayor’s Aspirational	100	551	1,045	2,003	6,586
Procurement	100	435	1,046	1,947	6,184

Transport

It is worth noting that in the assessment of the different scenarios, some assumptions had to be made for modelling purposes about the potential location of future waste facilities included within each scenario. The locations used for modelling purposes were either locations of existing waste facilities used by the North London Waste Authority or a notional central point within the boroughs without existing facilities.

The additional assessments carried out as part of the SEA process also reviewed the different scenarios in WRATE, the Environment Agency’s life cycle assessment tool which measures the potential environmental impact of different strategies and plans. Professional judgement was also used to evaluate each scenario from an environmental, social and economic perspective against the 20 SEA objectives. The table below shows the results of that analysis using the following marking system. The results of the WRATE analysis are included in the appendix to the SEA environmental report:

SEA Marking System (based on degree of influence on achieving the objectives)						
- - Move away significantly	- Move away marginally	+ Move towards marginally	++ Move towards significantly	/ No relationship	Neutral 0	? Uncertain

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SEA Objective		Scenario 1. Minimum Compliance	Scenario 2. Borough Led	Scenario 3. Partnership	Scenario 4. Aspirational	Scenario 5. Procurement
		EfW (450ktpa)	Gasifier (250ktpa)/ MBT-AD (270ktpa)/ MBT-RDF (385ktpa)	EfW (450kt)/ MBT-AD (250ktpa)	EfW(270ktpa) /MBT- AD(200ktpa)	EfW (540kt)/MBT- RDF(250ktpa)
O1	Biodiversity	+?	++	+?	+?	++
O2	Health	++	++	++	++	++
O3	Soil	0	0?	0?	0?	0?
O4	Air	++	++	++	++	++
O5	Water Quality	+?	++	+?	+?	++
O6	Water resources	?	?	?	?	?
O7	Addressing Climate Change	+	++	++	++	++
O8	Adapting to climate change	?	?	?	?	?
O9	Production of waste	/	/	/	/	/
O10	Reuse, recycling and recovery	-?	++?	++?	-?	++
O11	Consumption of resources	++	++	++	++	++
O12	Waste disposal	+?	+?	+?	+?	+?
O13	Built environment.	?	?	?	?	?
O14	Infrastructure	?	?	?	?	?
O15	Land use	++?	-?	+?	+?	+?
O16	Deprivation	+?	++?	++?	++?	++?
O17	Stable economy.	?	?	?	?	?
O18	Economic performance.	+	++	+	+	+
O19	Accessibility	+?	+?	+?	+?	+?
O20	Civic participation	?	?	?	?	?

The table above indicates that overall all five scenarios scored positively for the majority of the SEA objectives. There were differences, however, between the scenarios which are summarised below.

Option 1, The Minimum Compliance Scenario was the worst performing option as it scored negatively against objectives for reuse, recovery and recycling as a result of the option only proposing an Energy-from-Waste facility with a capacity for 450,000 tonnes of waste. It will therefore not produce any soil improvers like other options. This scenario is predicted to have positive effects on most other aspects of the environment, based on the WRATE modelling, and will also result in efficient use of land as the option will not require a large amount of land to be developed.

Option 2, The Borough-Led Scenario performs well against the majority of the objectives as a result of the number of facilities being provided and the types of technology proposed. This option proposes six facilities using technologies including gasification, MBT with anaerobic digestion (AD), MBT with refuse-derived fuel, and in total these facilities will treat 905,000 tonnes of waste. The technologies proposed will reduce greenhouse gas emissions, recover energy and have beneficial effects upon air, and water, and will address climate change. In addition, the number of facilities will have positive effects upon economic performance and deprivation as they would create employment. The negative effects of this option, however, were assessed to be in relation to the efficient use of land, as six facilities will require a large amount of land to be developed. In addition, on the cost indicator already outlined, this scenario performed least well of the five options.

Options 3 and 4, The Partnership Scenario and Mayor's Aspirational Scenario score positively for effects upon health, air, climate change, reuse, recycling and recovery, resource consumption, due to the technologies they are proposing. These include EfW, MBT and anaerobic digestion facilities. Under Option 4, however, overall recovery levels are lower and therefore more biodegradable municipal waste is going to landfill up to 2020.

Option 5, The Procurement Scenario is similar to Option 2 and will have a similar environmental effect; as both option 2 and option 5 treat 700,000 plus tonnes of waste (scenario 5 treats 790,000 tonnes) and include MBT technology. For most aspects of the environment, option 5 scores very well due to the large capacity of the EfW and other facilities included within it, which can divert large amounts of waste from landfill and which will help meet LATS targets in the long term and provide other beneficial effects to biodiversity, health and water. In addition, the large capacity of the EfW facility will enable the recovery of energy and reduction in the consumption of natural resources. There are no significant negative effects identified, although there are some uncertainties as the location of future facilities is not known. Option 5 is the best performing option as a result of its choice of technologies, the high volume of waste it will be able to treat and its high recycling targets. It also performs well on cost. The down-side of this scenario is that it proposes energy-from-waste incineration, which the Mayor of London does not favour.

For all the options there was uncertainty regarding their effects upon water resources; adapting to climate change; the built and historic environment; whether waste would be disposed of at the nearest appropriate installation; the economy; civic participation; and equality. This is because effects upon these aspects of the environment will only be known at the options implementation stage when specific sites and technologies are chosen for the new facilities. However, it is proposed that these aspects can be assessed by Environmental Impact Assessment when facilities are actually proposed.

Stage D – Examination

The SEA regulations require public review and assessment of the SEA process and specifically:

- Public participation on evaluating the preferred options of the North London Joint Waste Strategy and Environmental Report
- Appraising significant changes
- Appraising significant changes resulting from the representations
- Making decisions and providing information

A separate report outlines the results of the public consultation phase which was undertaken between 6th May and 17th June 2008 and outlines how the comments made were appraised and then considered in the development of the final Strategy. Comments made by the statutory consultees and the Greater London Authority at the scoping stage of the SEA process were incorporated into a revised SEA Scoping Report which is enclosed as Appendix A of the SEA Environmental Report. ~~The results of this stage cannot be pre-judged and this section of the North London Joint Waste Strategy will be written when the public consultation process has been carried out.~~

Stage E – Monitoring

The SEA process requires that baseline information is collected at the start of the process, as outlined in the scoping report, and then that a series of indicators is developed and used to monitor the impact of the Strategy upon the environment over time against the SEA objectives. The SEA Directive requires consideration also of the likely evolution of the environment without the implementation of the plan or programme.

The series of indicators outlined at the end of this chapter were selected as part of the SEA process to monitor the potential impact of the Strategy against the SEA objectives.

Conclusions

The results of the Ramboll-AEA Technology Ltd. WASTEFLOW analysis and WRATE modelling, combined with the review and assessment of the different options for the Strategy carried out by ENTEC as part of the SEA process, result in the following conclusions for the Strategy period:

The Minimum Compliance Scenario (Scenario 1) offers the cheapest solution, but scores poorly because of the relatively lower environmental performance, inability to meet landfill diversion targets in the short-term (and long-term) and the high level of risk in depending upon a high level of landfill and the availability of Landfill Allowances to purchase from other authorities. Because this option only relies on energy-from-waste, unlike the other four options, it will also not produce any soil improvers.

Although the Borough-Led Scenario (Scenario 2) performs well from an environmental perspective and is also predicted to have positive effects on economic performance and deprivation as a result of the number of facilities proposed, which would create employment, this is the least beneficial option assessed. This is largely due to the high number of facilities that would be necessary under this scenario, which has an impact on costs, making it the most expensive of the five options assessed (an extra £30 million per year in 2020 compared to the procurement scenario for example). Having many close facilities offers proximity principle benefits, but the local environmental impacts of the many sites required (and the planning uncertainties associated with the same), also outweighs this advantage and is a major concern in terms of the deliverability of this scenario.

The Partnership Scenario (Scenario 3), which was the scenario selected by the Partner Authorities in 2004 as representing the Best Practicable Environmental Option for North London, offering the best combination of environmental performance, socio-economic advantage and operational practicality, continues to score well from the new analyses, particularly in cost terms (being £1 million per year less expensive than the procurement scenario in 2020). However, it doesn't perform as well as the procurement scenario on the water quality or biodiversity indicators.

The Mayor's Aspirational Scenario (Scenario 4) scored well on socio-economic factors, but as the size of the facilities proposed under this scenario is relatively low, it scores poorly overall. In particular, it also fails to deliver the necessary landfill diversion required up to 2020.

The Procurement Scenario (Scenario 5) scores better than the partnership scenario, which had been previously selected as the best practicable environmental option, on the full range of environmental indicators included in the SEA analysis. It also meets landfill diversion targets, both in the short, medium and long term (beyond the Strategy period). However, the procurement scenario is slightly more expensive than the partnership scenario, which is the next best option from a cost point of view (the cheapest option of minimum compliance is excluded for the reasons outlined above).

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The Partner Authorities recognise that Energy-from-Waste incineration, which is included in this scenario, offers the only energy recovery treatment technology that is currently proven at the scale, cost and efficiency necessary for delivery of the Procurement Scenario, but also recognise that this may change before any final procurement decisions are taken, and at this stage no technology choices have been fixed. Consideration will also need to be given to the Mayor of London's preference for new and emerging waste technologies when making final technology choices in relation to residual waste treatment.

The modelling includes mechanical and biological treatment, anaerobic digestion and gasification facilities across the scenarios, demonstrating their potential contribution. It is the Authority's preferred strategy to proceed with a technology neutral procurement process, and as new and emerging technologies develop in terms of deliverability and affordability the Partner Authorities will be pleased if the contribution of these technologies in delivering the Strategy can commence.

Accordingly the Strategy implementation action 6B which follows has also been amended to reflect this.

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|-----|--|
| 6.A | The Partner Authorities consider the best option for North London to be a Partnership approach involving the greater integration of collection and disposal services and the development of shared facilities for recycling, composting and treatment of residual wastes. |
| 6.B | The best option for North London will involve achievement of 50% household waste recycling and composting rates by 2020, with treatment of the residual waste not being landfilled provided initially through the existing Energy from Waste incineration facility, and later through processing capacity, giving preference to advanced conversion technologies, especially where the products of waste treatment could be used as fuels, that are the best overall option taking account of net environmental impact, deliverability, reliability and affordability, looking at implied collection services too. |

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SEA Objectives, Appraisal Criteria and Indicators Proposed			
Category of Objective	SEA Objective	Appraisal Criteria	Possible Indicators
Biodiversity Objective	"To conserve and enhance natural habitats and wildlife, especially priority habitats and species"	Will the NLJWS protect local biodiversity? Will the NLJWS enhance local biodiversity?	Biotic index before and after facilities are built Population of BAP priority habitats and species relevant to each waste facility (species to be identified on a site by site basis)
Population and Human Health Objective	"To maximise the health and well-being of the population"	Are the new facilities proposed by the NLJWS going to create unnecessary noise? Are the new facilities as proposed by the NLJWS going to create odour and dust problems? Will the new facilities proposed by the NLJWS lead to an increase in litter and vermin generation? Will the new facilities proposed by the NLJWS affect local infrastructure such as road movements? Will emissions from the NLJWS's new facilities impact upon health of the local community?	Number of complaints received by contractors operating municipal waste facilities in North London Lifecycle assessment of human health impacts (WRATE output)
Soil Objective	"To conserve and enhance natural soil structure and composition"	Will the NLJWS conserve and enhance soil quality? Is compost generated by the facilities proposed in the NLJWS being used locally?	Percentage of North London compost (product made from North London's waste) used within the NLWA area Percentage of North London compost used outside of the NLWA area
Air Objective	"To improve air quality"	Will the NLJWS improve local air quality?	Lifecycle assessment of air acidification (WRATE output) Facility emissions as reported for pollution prevention control permits (PPC) as appropriate Air quality in terms of NOx, SOx and particulates
Water Objectives	"To improve water quality"	Will the NLJWS improve the water quality of groundwater and surface water?	Life cycle assessments of water eutrophication (WRATE output). Life cycle assessment of freshwater aquatic eco toxicity (WRATE output) Number of notifiable water quality incidents
	"To achieve the wise management and sustainable use of water resources"	Will the new infrastructure impact upon water supplies?	Net Water usage for waste facilities (amount of water 'in' minus amount 'out')

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<p>Climate Change Objectives</p>	<p>"To address the causes of climate change."</p>	<p>Will the draft NLJWS minimise emissions of greenhouse gases? Will it increase the proportion of energy both generated and purchased from renewable and sustainable sources?</p>	<p>Life cycle assessment of climate change (WRATE output) Percentage of waste transported by road, rail and water Tonnes of waste transported by road, rail and water Amount of energy produce and used by facilities proposed Per capita reduction in CO₂ emissions (National Indicator No. 186)</p>
	<p>"To adapt to the unavoidable consequences of climate change".</p>	<p>Will the NLJWS's new facilities avoid areas at risk of flooding? Will the NLJWS's new facilities include sustainable urban drainage systems (SUDS)? Will the NLJWS's facilities and services been designed and delivered to cope with climate change impacts (e.g. higher temperatures, increased winter precipitation)?</p>	<p>Percentage of developments with Sustainable Urban Drainage Systems (SUDS)</p>
<p>Material Assets/Resource Use Objectives</p>	<p>"To minimise the production of waste arising from households and local authority business customers".</p>	<p>Will the NLJWS reduce waste growth relative to the past?</p>	<p>Kg of household waste collected per head Residual household waste per household (National Indicator No. 191)</p>
	<p>"To maximise reuse, recycling and recovery rates by viewing waste as a resource."</p>	<p>Will the NLJWS result in increased diversion of Biodegradable Municipal Waste (BMW) from landfill? Will the NLJWS improve recycling/composting? How and where are the recycled/composted materials being used?</p>	<p>Percentage of household waste sent for reuse, recycling and composting (National Indicator No. 192) Percentage of municipal waste landfilled (National Indicator No. 193)</p>
	<p>"To minimise the global, social, and environmental impact of consumption of resources".</p>	<p>Will the NLJWS conserve natural resources?</p>	<p>Life cycle assessment of resource depletion (WRATE output)</p>

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	"To enable waste to be disposed of in one of the nearest appropriate installations in the management of waste."	Will the NLJWS's new facilities be appropriately located in relation to the main sources of municipal waste?	<p>Number of bring sites per 100,000 people</p> <p>Number of reuse and recycling centres per 100,000 people</p> <p>Percentage of households served by recycling and composting collections</p> <p>Percentage of trade waste customers offered a recycling and/or composting collection service</p>
Built and Historic Environment Objectives	"To enhance and protect the existing built environment including the historic environment including heritage assets and the wider environment."	Will new infrastructure proposed create visual impacts?	Number of waste facilities intrusively visible from historic buildings
		Will new infrastructure proposed conserve and enhance heritage assets and the wider historic environment?	Number of new waste facilities having any unreasonably negative impacts on heritage assets and the wider historic environment
	"To ensure new buildings and associated infrastructure are designed and constructed in a sustainable way."	Will the NLJWS's new facilities take account of good practice in sustainable design and construction?	<p>Number of new waste management facilities designed and built to meet minimum BREEAM standards.</p> <p>Percentage of recycled content material used in any new waste facilities which are built.</p>
	"To improve the efficiency of land use through the sustainable reuse of previously developed land and existing buildings."	Will new infrastructure use previously developed land?	<p>Percentage of new waste infrastructure built on previously developed or industrially used land</p> <p>Tonnage of waste processed per hectare</p>
A Stable Economy Objectives	"To stimulate regeneration and urban renaissance that benefits the most deprived areas and communities"	<p>Will it reduce local levels of deprivation?</p> <p>Will it generate satisfying and rewarding jobs?</p> <p>Will it help stimulate regeneration?</p> <p>Will it reduce overall unemployment?</p>	Percentage of jobs created in areas of above average deprivation of unemployment

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	"To encourage a strong, diverse and stable economy."	<p>Will it expand the green industry sector?</p> <p>Will it improve the resilience of the area's business and economy?</p> <p>Will it help diversify the economy?</p> <p>Will it encourage business start-ups and growth of business in the North London area?</p>	Number of direct jobs in waste services
	"To improve the resilience of businesses and their environmental, social and economic performance."	<p>Will it encourage investment in new technologies and solutions that will contribute to achieving sustainability?</p> <p>Will it encourage ethical and responsible investment?</p> <p>Will the NLJWS improve sustainable business development and increase competitiveness?</p>	Percentage of organisations delivering waste services with a recognised environmental and quality standard accreditation
Accessibility and Participation Objectives	"To maximise the accessibility of services".	<p>Will the NLJWS reduce the overall need for people to travel by improving their access to the environmental services in the place in which they live?</p> <p>Will the NLJWS proposals reduce poverty and social exclusion in local areas that are most affected?</p> <p>Will it promote equality, fairness and respect for people and the environment?</p> <p>Will it promote equality for different communities?</p>	<p>Number of bring sites per 100,000 people</p> <p>Number of reuse and recycling centres per 100,000 people</p> <p>Percentage of households served by recycling and composting collections</p> <p>Percentage of trade waste customers offered a recycling and/or composting collection service</p>
	"To promote civic participation, ownership and responsibility and enable individuals, groups and communities to contribute to improving their environment."	<p>Will it promote social cohesion and encourage engagement in community activities?</p> <p>Will it encourage the involvement and participation of a diverse range of stakeholders?</p> <p>Will it enable participation in environmental services by all North Londoners?</p> <p>Will it demonstrate and encourage all North Londoners to take responsibility for the sustainable management of their waste?</p>	<p>Percentage of residents using waste services</p> <p>Percentage of residents satisfied with waste services</p>