

South London Waste Plan



South London Waste Plan DPD

Evidence Base Study 4:

Technical Report

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Glossary

2008 London Plan - This document was produced by the Mayor of London to provide a strategic framework for the boroughs' Unitary Development Plans. It will now perform this function in respect of Local Development Frameworks. It was first published in February 2004 and alterations have since been published in September 2006 and 2007. It has recently been published in February 2008 incorporating all alterations since 2004. It has the status of a development plan under the Planning & Compulsory Purchase Act.

2008 London Plan Apportionment - The 2008 London Plan provides targets for the amount of Municipal Solid Waste and Commercial & Industrial waste to be managed in London for the years 2010, 2015 and 2020 to ensure maximum self sufficiency for the capital. The 2008 London Plan borough level apportionment allocates to each individual borough a given proportion of this London total (expressed in tonnes) for which sufficient sites for managing and processing waste must be identified within their Development Plan Documents.

Agricultural Waste - Waste generated on farms or other agricultural premises such as market gardens. It consists of a diverse range of both natural (organic) and non-natural wastes including discarded pesticide containers, plastics such as silage wrap, bags and sheets, packaging waste, tyres, batteries, old machinery and oil etc.

Apportionment - See 2008 London Plan Apportionment.

Biodegradable - Biodegradable materials are generally organic, such as plant and animal matter and other substances originating from living organisms. They can be chemically broken down by naturally occurring micro-organisms into simpler compounds. Waste which contains organic material can decompose producing bio-gas, leachate and other by-products.

Biodegradable Municipal Waste (BMW) - Waste that is capable of undergoing natural decomposition such as paper and cardboard, garden and food waste from municipal waste services.

Bulky Materials - Materials that are too large to fit in a dustbin, for example items of furniture, white goods, DIY waste.

Capacity gap – the difference (in tonnes) between the waste currently managed and the amount of waste that needs to be managed (i.e. the apportionment)

Civic Amenity Site (CAS) - Facilities where members of the public can bring a variety of household waste. Materials accepted include for example paper, plastic, metal, glass and bulky waste such as tyres, refrigerators, electronic products, waste from DIY activities and garden waste. These sites are also known as 'HWRCs' Household Waste Recycling Centres, or 'RRCs' Reuse and Recycling Centres.

Climate Change - Regional or global-scale changes in historical climate patterns arising from natural and/or man-made causes that produce an increasing mean global surface temperature.

Clinical Waste - Waste arising from medical, nursing, veterinary, pharmaceutical, dental or related practices, where risk of infection may be present.

Commercial Waste - Waste produced from premises used solely or mainly, for the purpose of a trade or business or for sport, recreation or entertainment.

Commercial and Industrial Waste (C&I) – Waste arising from business and industry. Industrial waste is waste generated by factories and industrial plants. Commercial waste is waste arising from the activities of traders, catering establishments, shops, offices and other businesses. Commercial and Industrial waste may for example include food waste, packaging and old computer equipment.

Composting - A biological process which takes place in the presence of oxygen (aerobic) in which organic wastes, such as garden and kitchen waste are converted into a stable granular material. This can be applied to land to improve soil structure and enrich the nutrient content of the soil.

Construction, Demolition and Excavation Waste (CD&E) - Waste arising from the construction, maintenance, repair and demolition of roads, buildings and structures. It is mostly comprised of concrete, brick, stone and soil, but can also include metals, plastics, timber and glass.

Department for the Environment Food and Rural Affairs (DEFRA) Government - department with national responsibility for sustainable waste management

Development Plan Document (DPD) - These are statutory local development documents prepared under the Planning and Compulsory Purchase Act 2004, which set out the spatial planning strategy and policies for an area. They have the weight of development plan status and are subject to community involvement, public consultation and independent examination.

Draft Replacement London Plan - This document was published by the Mayor of London in October 2009 to update the existing 2008 London Plan (see 2008 London Plan entry). The Draft Replacement London Plan contains new Apportionments of waste as well as new waste projections for the period until 2031.

Energy from Waste (EfW) - Energy that is recovered through thermally treating waste.

Energy Recovery - The combustion of waste under controlled conditions in which the heat released is recovered to provide hot water and steam (usually) for electricity generation (see also Recovery).

Environment Agency (EA) - Environmental regulatory authority formed in 1996, combining the functions of the former National Rivers Authority, Waste Regulation Authorities and Her Majesty's Inspectorate of Pollution.

Exempt Sites - Exempt from Waste Management Licensing.

Greater London Authority (GLA) - The GLA is a unique form of strategic citywide government for London. It is made up of a directly elected Mayor – the Mayor of London - and a separately elected Assembly – the London Assembly.

Green Belt or Metropolitan Open Land (MOL) - Planning designations aimed at preventing urban sprawl, the encroachment into the countryside and the protection of open spaces of strategic importance.

Hazardous Waste - Waste that contains potentially damaging properties which may make it harmful to human health or the environment. It includes materials such as asbestos, fluorescent light tubes and lead-acid batteries. The European Commission has issued a Directive on the controlled management of hazardous waste; wastes are defined as hazardous on the basis of a list created under that Directive.

Household Waste - Waste from a private dwelling or residential house or other such specified premises, and includes waste taken to civic amenity sites.

Household Waste Recycle Centre (HWRC) - A facility provided by the Waste Disposal Authority that is available to the public to deposit work which cannot be collected by the normal household waste collection round. Also known as Civic Amenity Sites.

Incineration - The burning of waste at high temperatures in the presence of sufficient air to achieve complete combustion, either to reduce its volume (in the case of municipal solid waste) or its toxicity (such as for organic solvents). Municipal solid waste incinerators recover power and/or heat.

Industrial Waste - Waste from a factory or industrial process.

Landfill - The deposit of waste onto and into land, in such a way that pollution or harm to the environment is prevented and, through restoration, to provide land which may be used for another purpose.

Landfill Allowance Trading Scheme (LATS) - Process of apportionment, by waste disposal authority, of the tonnage of biodegradable municipal waste that may be disposed of to landfill to meet EU Landfill Directive targets.

Materials Recycling Facility or Materials Recovery Facility (MRF) - A special sorting 'factory' where mixed recyclables are separated into individual materials prior to despatch to reprocessors who wash and prepare the materials for manufacturing into new recycled products.

Mechanical Biological Treatment (MBT) - A combination of mechanical separation techniques and biological treatment – either aerobic or anaerobic, or a combination of the two, which are designed to extract and / or treat fractions of waste.

Municipal Solid Waste (MSW) - Household waste and waste from municipal parks and gardens, fly tipped materials, rubble and street sweepings. This is also known as municipal waste.

Planning Policy Statement 10 (PPS10) - Guidance documents relating to 'Planning for Sustainable Waste Management' which set out a number of key concepts which should be considered and statutory requirements of local and regional planning policy documents.

Pollution Prevention and Control (PPC) - Regulates certain types of business, such as those carrying out power generation, waste management activities, manufacturing and other industrial and agricultural activities. A PPC permit is required by companies carrying out activities covered under PPC. PPC is regulated by the Environment Agency or local council, depending on the activity.

Recovery - The process of extracting a product of value from waste materials, including recycling, composting and energy recovery.

Recycling - Recovering re-usable materials from waste or using a "waste" material for a positive purpose.

Reprocessing - Using materials recovered from waste to manufacture a new product.

Residual Waste - Residual waste is the waste that is left over after the waste sent for recycling and composting has been taken out.

Re-use - The re-use of materials in their original form, without any processing other than cleaning.

Self-sufficiency - Dealing with wastes within the administrative region (such as London) where they are produced.

Solid Recovered Fuel (SRF) - When solid waste is shredded and dehydrated the resultant substance can be used as fuel for various combustion facilities.

South London Waste Partnership (the Partnership) - A partnership between the four South London boroughs (Croydon, Kingston, Merton and Sutton) set up for the purposes of a joint waste procurement exercise. The Partnership will procure and run a joint contract that will cover the treatment and disposal of waste and, the management of the four boroughs' household re-use and recycling centres and the transport of waste. The contract will only cover municipal solid waste.

Sub-Region - A division of a region – London is a region and South London is a sub-region.

Sustainable Waste Management - Using material resources efficiently to cut down on the amount of waste we produce and, where waste is generated, dealing with it in a way that actively contributes to economic, social and environmental goals of sustainable development.

Transport for London (TfL) - An integrated body responsible for the Capital's transport system. The primary role of TfL, which is a functional body of the Greater London Authority, is to implement the Mayor of London's Transport Strategy and manage transport services across London

Waste Arising - The amount of waste generated in a given locality over a given period of time.

Waste Collection Authority (WCA) - Organisation responsible for collection of household waste e.g. your local council.

Waste Disposal Authority (WDA) - Organisation responsible for disposing of municipal waste.

Waste Electrical and Electronic Equipment (WEEE) Directive - Aims to prevent the disposal of electrical and electronic goods and ensure greater levels of recovery and disassembly.

Waste Hierarchy - An order of waste management methods based on their predicted sustainability.

Waste Management Capacity - The amounts of waste able to be managed (recycled or energy recovered) by waste management facilities within South London.

Waste Management Licence (WML) - The licence required by anyone who proposes to deposit, recover or dispose of controlled waste. Licences are issued and monitored by the Environment Agency.

Waste Minimisation - Reducing the volume of waste that is produced. This is at the top of the Waste Hierarchy.

Waste Planning Authority (WPA) - Local authority responsible for waste planning. In South London all four boroughs are the Waste Planning Authority for that area.

Waste Return - Form returned to the Environment Agency quarterly by waste management licence holders detailing the type and quantity of waste processed at each licensed site.

Waste Transfer Station - A facility where waste is delivered for sorting prior to transfer to another place for recycling, treatment or disposal.

1 Introduction

1.1 This document updates the supporting information and the data gathered in building an evidence base for the South London Joint Waste Development Plan Document, known as the South London Waste Plan.

1.2 This is the third Technical Report published during the Waste Plan's development and forms part of the Evidence Base for the Submission version of the South London Waste Plan. The two technical reports previously published are:

- Technical Report 1: 'Building the Evidence Base for Issues and Options' published in September 2008, alongside the Issues and Options consultation documentation.
- Technical Report 2: 'Potential Sites Technical Report' published in July 2009, alongside the Potential Sites and Policies consultation documentation.

1.3 Throughout the Waste Plan's development, it is necessary to reflect changing circumstances which will have an impact on the development of the Waste Plan. This includes local issues (such as the granting of planning permission for new waste management facilities in the area), regional issues (such as the amended waste projections and Apportionments identified in the Draft Replacement London Plan) and any changes to the national context.

1.4 As well as updating information presented in the previous technical reports, this document seeks to add additional information, to give greater context to the South London Waste Plan. This has been added in response to comments received whilst consulting on the Waste Plan's development. To ease understanding and provide as much context within this one report as possible, some parts of the previously published Technical Reports are repeated within this document.

The Regional Context: waste disposal in London

1.5 London is comprised of 33 boroughs. 21 of these boroughs are arranged into four formal Waste Disposal Authorities (WDAs). Through the WDA, separate arrangements are put in place to treat the constituent boroughs' collective municipal waste. The four WDAs operating in London are:

- The North London Waste Authority (Barnet, Camden, Enfield, Hackney, Haringey, Islington and Waltham Forest)
- The West London Waste Authority (Brent, Ealing, Harrow, Hillingdon, Hounslow and Richmond-upon-Thames)
- East London Waste Authority (Barking & Dagenham, Havering, Newham and Redbridge)
- Western Riverside Waste Authority (Hammersmith and Fulham, Lambeth, Wandsworth and the Royal Borough of Kensington and Chelsea).

1.6 The remaining 12 boroughs are unitary authorities; having responsibility for the disposal of their own municipal waste.

1.7 In the South London Waste Plan area, the four partner boroughs¹ have formed the South London Waste Partnership (the Partnership). Although not a formal WDA, meaning that legally, the boroughs are still considered unitary authorities, the Partnership is recognised by the partner authorities as the mechanism by which joint contracts for the treatment of the boroughs' collective municipal waste will be treated.

1.8 In setting the context for the South London Waste Plan it is useful to compare the statistics of the 4 boroughs with that of the other unitary and waste disposal authorities in London (Table 1.1). Croydon is the largest of the 4 South London boroughs by area and has twice as many households as the other South London boroughs. Croydon is the most densely populated of all the unitary authorities in London with 15,000 more households than Bromley which is nearly double the area of Croydon.

Table 1.1: Statistics for London authorities

Unitary Authority	Area	Number of Households	Population
Bexley	60.8km ²	91,000	220,300
Bromley	149.9km ²	129,000	301,900
City of London	2.8km ²	5,000	9,200
City of Westminster	20.9km ²	111,000	244,400
Croydon	86.7km ²	144,000	342,700
Greenwich	46.8km ²	99,000	228,100
Kingston	36.9km ²	63,000	153,000
Lewisham	34.9km ²	107,000	247,500
Merton	37.9km ²	81,000	204,000
Southwark	28.7km ²	110,000	257,700
Sutton	43.9km ²	76,000	177,700
Tower Hamlets	19.9km ²	84,000	213,200
East London Waste Authority	239.9km ²	348,000	888,400
West London Waste Authority	377.8km ²	455,800	1,437,100
North London Waste Authority	292.6km ²	696,000	1,675,200
Western Riverside Waste Authority	88.96km ²	407,000	926,600
South London Boroughs Combined Total	205.4 km ²	364,000	868,100

Capitalwastefacts.com, 2008

¹ Croydon, Royal Borough of Kingston, Merton and Sutton

Regional context: waste planning in London

1.9 Across London, a number of Local Planning Authorities (LPAs) are working together to undertake Joint Waste Plans. Figure 1.1 identifies the current arrangements and the Waste Plan's anticipated adoption dates.

1.10 The South London Waste Plan area is located in outer London and, together with Lambeth, Wandsworth and Richmond, forms the South-West London Sub-Region which is identified in the 2008 London Plan. Progress on waste planning in the surrounding areas is summarised below:

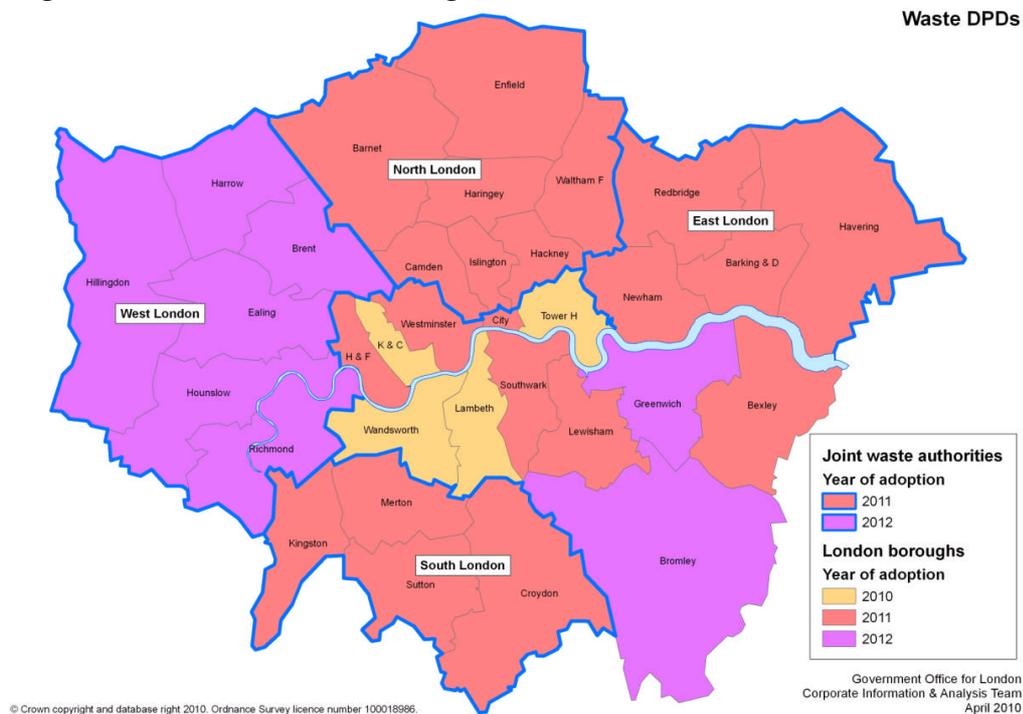
- **Richmond** is part of the joint West London Waste Plan, which lies to the west of the Waste Plan area. At the time of writing, West London is due to consult on its Preferred Strategy in 2010. The West London Plan area has one of the largest concentrations of industrial land in London (c.1,500 ha)² and hosts Park Royal; the largest industrial and business park in London occupying 650 hectares. In terms of *supply* of land suitable for waste facilities, the Mayor of London's waste apportionment identifies that, when compared to other London boroughs, Hillingdon, Ealing and Hounslow particularly have capacity to manage waste within their boundaries³. In light of this evidence, it is considered that the West London Waste Plan will be capable of meeting West London's own waste management needs.
- **Wandsworth's** Adopted Core Strategy identifies the borough must allocate 1.75ha of additional land to meet its waste apportionment. The Core Strategy identifies there is sufficient land available within the borough's 53 hectares of Strategic Industrial Land and specific sites will be identified in the borough's Site Specific Allocations Document.
- **Lambeth's** Adopted Core Strategy identifies a need for an additional 3.4 hectares of land to meet its waste apportionment. The Core Strategy states that sufficient sites to meet this need will be identified in Lambeth's Sites Allocations Development Plan Document.
- To the East lies the **South-East London** Joint Waste Group covering Bexley, Bromley, Greenwich, Lewisham and Southwark. Their joint Technical Report (March 2010) identifies the South East London region has surplus capacity and will provide greater capacity than required by the waste apportionment. This will be provided at 18 strategic safeguarded waste sites across the boroughs.
- To the South, The **Surrey** Waste Plan was adopted in 2008, with amendments made, by order of the High Court in 2009. Policy CW4 (Waste Management Capacity) identifies that planning permissions will be granted to enable sufficient waste management capacity to be provided to both meet the equivalent tonnage of waste arising in Surrey, *as well a contribution to meeting the declining landfill needs of residual wastes arisings exported from London.*

² GLA (2008) *Industrial Land Capacity Supplementary Planning Guidance*

³ GLA (2009) *Minor Alteration to the Draft Replacement London Plan: Borough Level Waste Arisings and Apportionments and Corrections and Clarifications*

1.11 In summary, all neighbouring London boroughs and counties (Surrey) have identified sufficient land to meet their own waste management needs⁴, or have made significant progress in this regard.

Figure 1.1: Waste Plan arrangements in London



Cross-boundary movements of waste

1.12 Across London, Environment Agency data on the movements of waste to landfill reveals that 76% of London’s Municipal Waste which is landfilled goes to landfill sites in the East and South-East England regions. Of London’s commercial and industrial waste which is landfilled, approximately 60% is exported to the East and South East regions (EA, 2010⁵).

1.13 However, unlike the regional context, the majority of municipal waste produced in the South London Waste Plan area has historically been managed *within* the partner boroughs’ boundaries. This is due to the presence of significant landfill and composting facilities at Beddington Farmlands, Sutton.

1.14 In 2008, 90% of the Waste Plan area’s residual municipal waste⁶, was landfilled at Beddington Farmlands (EA, 2010⁷). This trend continues, and since 2008, approximately 200,000 tonnes of municipal waste is annually landfilled at Beddington.

1.15 With regard to the partner boroughs’ recyclable waste, 40% of this (i.e. all kitchen and garden waste) is treated in Viridor’s In-Vessel Composting facility at Beddington Farmlands, Sutton. (EA, 2010).

⁴ In London, ‘need’ is the waste apportionment identified in the Mayor’s London Plan. Surrey’s ‘need’ is identified in the Surrey Waste Plan.

⁵ EA (2010) The State of the Environment in London

⁶ Residual waste is that which is left over, once all the recyclables have been taken out.

⁷ EA data from Waste Data Interrogator, 2008

1.16 The remainder of the partner boroughs' recyclable waste (i.e. the dry recyclables such as tins, plastic bottles, card and paper) is treated in a Materials Recycling Facility (MRF) in Kent. In addition, since 2008, 10,000 tonnes per year of residual waste has been sent to an energy recovery facility near Slough, Berkshire.

1.17 Finally, the partner boroughs operate seven Household Reuse and Recycling Centre (HWRCs) which, since September 2008 have been managed by Environmental Waste Controls (EWC). The HWRC sites allow residents to recycle a wide variety of waste streams including many bulkier items and excess garden waste that cannot be economically collected at the kerbside.

1.18 Recyclables collected at the HWRCs are re-processed into new products. The location of these various re-processing facilities will vary throughout the year, depending on market forces, contractual arrangements and operational requirements. Some materials may be re-processed in London, whilst others will be re-processed outside of the capital. Since these arrangements change month-by-month, it is difficult to quantify how much of this waste is re-processed outside of the region.

1.19 The arrangements described above to treat the partner boroughs' kitchen and garden waste, recyclables and operation of the HWRCs are contractual arrangements which are fixed until at least 2022. All contracts have the option to be extended by five years, until 2027.

1.20 Regarding commercial and industrial (C&I) waste, there is no borough level data available on the movements of this waste stream. However, EA Data (2010⁸) reveals that whilst the majority of landfilled C&I waste is disposed of in facilities outside London, 100,000 tonnes is disposed of at the landfill facility in Beddington, Sutton each year. In addition, two Surrey landfills receive around 100,000 tonnes of London's waste each year. Given the close proximity of these facilities to businesses and industry within the Waste Plan area, it is likely that much C&I waste is deposited at these sites.

1.21 EA (2010⁸) data further reveals that the landfill facility in Beddington, Sutton accommodated over 500,000 tonnes of waste in 2008. Given that 200,000 tonnes of the boroughs' municipal waste is currently deposited here, plus an additional 100,000 tonnes of London's commercial and industrial waste, it is assumed that the balance includes some imports from outside the Waste Plan area.

1.22 In summary, the evidence from Waste Plans for surrounding boroughs shows that:

- surrounding areas are able to accommodate their own waste needs and do not impact on the South London Waste Plan area.
- the exports from the South London Waste Plan area are limited to reasonably small quantities of municipal waste to a Materials Recycling Facility in Kent and an energy recovery facility in Berkshire. This contractual arrangement is ongoing throughout the plan period.
- other key exports from the Waste Plan area are commercial and industrial waste, though quantities and destinations are largely unknown and there are some imports from outside the Waste Plan area to the landfill facility at Beddington, Sutton.

⁸ EA data from Waste Data Interrogator, 2008

- as identified previously, Surrey's recently adopted Waste Plan accommodates decreasing waste exports from London to landfill throughout the plan period.

2 Waste Arisings

Introduction

2.1 To understand how much waste the four south London boroughs must plan to manage in the South London Waste Plan, it is essential to identify how much waste is expected to be produced within the area over the plan period.

2.2 Data on waste arisings is variable in its accuracy and origin. This section of the report considers each of the waste streams listed below. The report considers their current arisings, predicted future arisings and, where data is available, how and where each waste arising in the South London Waste Plan area is currently treated.

- Municipal Solid Waste (MSW)
- Commercial and Industrial waste (C&I)
- Construction, Demolition and Excavation waste (CDE)
- Hazardous Waste
- Agricultural waste
- Waste water

2.3 As well as identifying waste arisings, it is essential to understand the *apportionments* allocated to the Waste Plan area, as set out in the 2008 London Plan.

2.4 The 2008 London Plan identifies an amount of municipal, commercial and industrial waste (the apportionment) that has to be handled within the Waste Plan area. Over time, this amount increases as it is by all London boroughs meeting their apportionments, that the Mayor hopes to achieve his target of 85% self sufficiency for London by 2020⁹ and, as detailed in the Draft Replacement London Plan (2009); 100% by 2031.

2.5 At the time of writing, apportionments from 2010 to 2020 are set out in the 2008 London Plan. These apportionments have been updated and extended to 2031 in the Draft Replacement London Plan; the waste apportionment section was subject to consultation in December to January 2009/10. The Examination in Public for the Draft Replacement London Plan considered waste matters in September 2010 but the Inspector's Report is only due in early 2011. These matters will therefore not be resolved before the current time frame for agreement of the final version of the South London Waste Plan and its pre-submission publication, due to take place in winter 2010/11. In preparing the South London Waste Plan, we are required to anticipate changes in the policy context. This report will therefore set out the apportionments and waste arisings identified in both the 2008 London Plan and the Draft Replacement London Plan.

Municipal Solid Waste (MSW)

The UK context

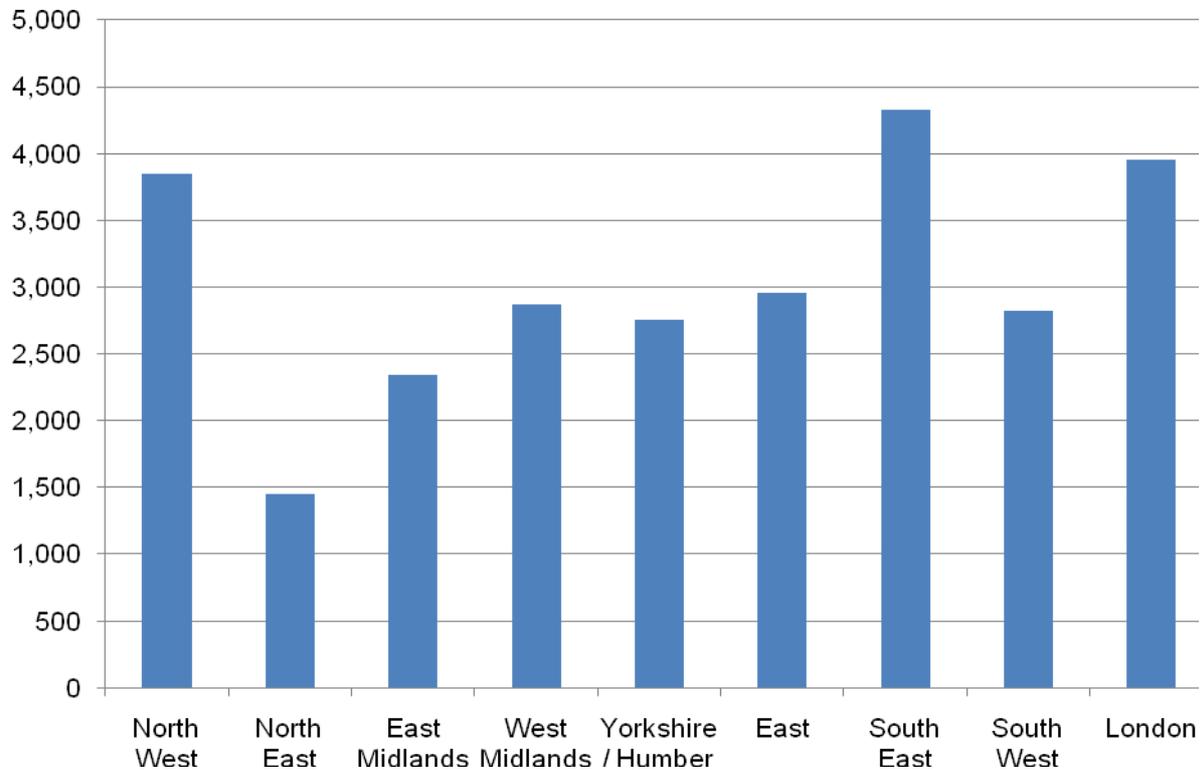
2.6 MSW arisings for England have shown a slowly declining trend from almost 30 million tonnes in 2006/7, to just over 27 million tonnes in 2008/9 (DEFRA, 2009¹⁰). London, the South East and the North West regions generate larger quantities of municipal waste

⁹ Policy 4A.21 (Waste strategic policy and targets) of the 2008 London Plan

¹⁰ DEFRA (2009) Regional statistical returns available from <http://www.defra.gov.uk/evidence/statistics/environment/wastats/bulletin09.htm>

than the other regions. In 2008/09, London's MSW Arisings of 3.9 million tonnes accounted for 14% of England's total MSW arisings.

Figure 2.1: Municipal Solid Waste arisings in the regions (England 2008/09) (000s tonnes)



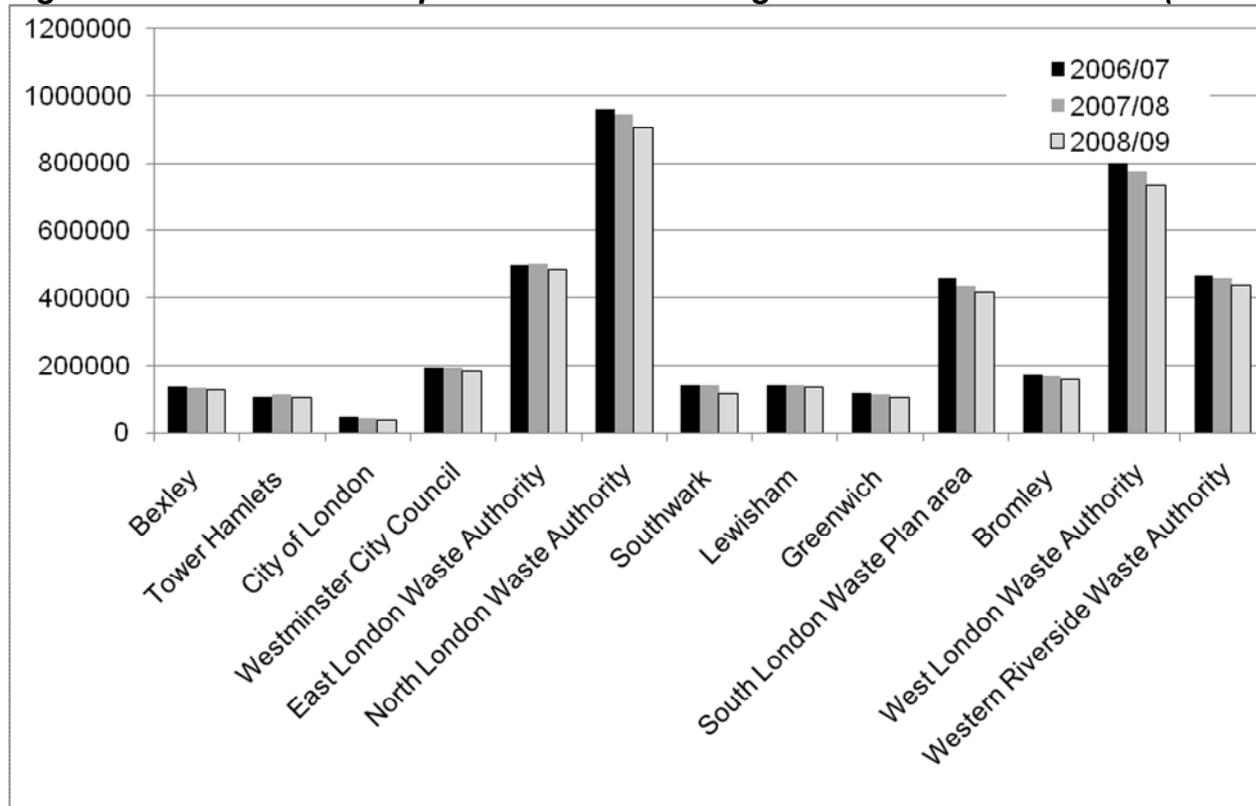
Department for Environment, Food and Rural Affairs (2009)

The London context

2.7 Like the regions, the amount of municipal waste produced in London has been declining in recent years, reducing from 4.2 million tonnes in 2006/07 to 3.9 million tonnes in 2008/09¹¹. As Figure 2.2 shows, this downward trend over this period is mirrored in all London authorities, including those within the South London Waste Plan area.

¹¹ DEFRA (2009) Regional statistical returns available from <http://www.defra.gov.uk/evidence/statistics/environment/wastats/bulletin09.htm>

Figure 2.2: Trend of Municipal Solid Waste arisings in London 2006 to 2009 (tonnes)



Department for Environment, Food and Rural Affairs (2006/07 release; 2007/8 release and 2008/9 release)

The South London Waste Plan Area

2.8 Figure 2.2 shows a declining trend for MSW within the South London boroughs which produced 416,000 tonnes of MSW in 2008/09, declining from 457,000 tonnes in 2006/07.

2.9 Waste minimisation remains a key priority throughout the plan period for all partner boroughs. It features strongly in the partner boroughs' emerging Joint Municipal Waste Management Strategy (JMWMS) which describes how they will manage waste more sustainably. This strategy is due to be published in late 2010 and contains the following targets to minimise waste:

JMWMS Target 3: "Zero growth in the amount of waste produced by each household per year."

JMWMS Target 4: "Zero overall waste growth from 2019/20 (i.e. even when new houses are built there is not an increase in total waste produced)."

JMWMS Target 5: "To reduce the amount of waste not re-used, recycled or composted by residents of the South London Authorities to 225 kg per capita by 2020."

JMWMS Target 7: *“To promote and facilitate initiatives that maximise the reuse of goods and materials (in particular bulky goods) before they enter the waste stream, by developing additional partnerships with charities and third sector groups.”*

JMWMS Target 8: *“To continue support for home composting.”*

2.10 These are challenging waste prevention targets and the Joint Municipal Waste Management Strategy (JMWMS) recognises the need to build on existing work and develop co-ordinated waste awareness and education actions amongst the Authorities.

2.11 The JMWMS also commits the partner boroughs to undertaking additional campaigns and programmes which will be identified to help reduce arisings and increase public awareness about waste issues.

Current arrangements for managing municipal waste in the South London Waste Plan area

2.12 As this report has previously identified, the partner boroughs within the South London Waste Plan area have formed the South London Waste Partnership (the Partnership) to provide improved and more cost-effective waste management services to their residents.

2.13 Following a period of informal joint working, the Partnership established a Joint Waste Committee in September 2007 comprised of Cabinet Members from each of the four boroughs. Officers from each authority and the Project Director form a Management Group and report to the Joint Waste Committee. These arrangements have to date enabled the joint procurement of three waste contracts and the successful delivery of an Outline Business Case to DEFRA, to obtain £112.9m PFI credits. Although these PFI credits have since been withdrawn, the Partnership is confident that the procurement process will continue without these funds.

2.14 In 2008, the Partnership awarded contracts to Viridor and Environmental Waste Controls to treat the recyclable elements of the partner boroughs' municipal waste¹². These contracts became operational in September 2008 and run until 2022. However, all contracts have the option to be extended by 5 years.

Treatment of municipal kitchen and garden waste

2.15 From September 2008, municipal kitchen and garden waste collected by the partner boroughs has been treated at Viridor's In-Vessel Composting facility at Beddington Farmlands, Sutton. Currently, all partner boroughs operate a garden waste collection. All of the Partnership authorities were recently involved in government sponsored kitchen waste collection trials and will be rolling this service out across all boroughs during 2011/12. In the near future - planning permission permitting - all kitchen waste is expected to be treated at a new Anaerobic Digestion plant on Viridor's operational land at Beddington, Sutton. An application for this facility was submitted to Sutton Council in March 2010 (Reference D2010/62424) and at the time of writing, has not yet been determined. The plant proposes to treat 30,000 tonnes of the Partnership's kitchen and

¹² Three contracts were awarded at this time. The landfill and transfer contract and recycling, composting and interim residual waste treatment contract were awarded to Viridor. The Household Reuse and Recycling Centres (HWRCs) management contract was awarded to EWC.

garden waste each year which will enable it to accommodate the new kitchen and garden waste collections being introduced in Merton and Sutton. The facility is proposed to be operational to 2022 which is when Viridor's Recycling, Composting and Treatment Contract with the Partnership expires.

Treatment of municipal dry recyclables

2.16 Dry recyclables (approximately 42,000 tonnes per year) are transported by road from Kingston, Merton and Sutton to Viridor's Materials Recycling Facility (MRF) in Crayford, Kent. Here they are sorted and bailed (except Kingston's waste which is sorted at the kerbside). Croydon's recyclables are managed directly by their collection contractor.

2.17 The partner Boroughs currently have an average recycling and composting rate of almost 30% (DEFRA, 2009)¹³. The target detailed in the Partnership's Joint Municipal Waste Management Strategy for 2019/20 is to have improved that recycling and composting rate across the four boroughs to 50%.

Household Waste and Recycling Centres (HWRCs)

2.18 The Partnership operates seven HWRCs which, since September 2008 have been managed by Environmental Waste Controls (EWC). The HWRC sites allow residents to recycle a wide variety of waste streams including many bulkier items and excess garden waste that cannot be economically collected at the kerbside.

2.19 The new contract with EWC has successfully increased the recycling and composting rates for each site, thus ensuring that more waste is diverted from landfill. Table 2.1 shows the current recycling and composting performance at each household waste and recycling centre.

Table 2.1: 2009-10 Recycling Rates for the Partnership's HWRCs

Authority	HWRC Site	Recycling Rate 2009/10
Croydon	Factory Lane	75%
Croydon	Fishers Farm	74%
Croydon	Purley Oaks (no residual waste is accepted)	84%
Kingston	Villiers Road	74%
Merton	Garth Road	69%
Merton	Weir Road (no residual waste is accepted)	98%
Sutton	Kimpton Park Way	75%

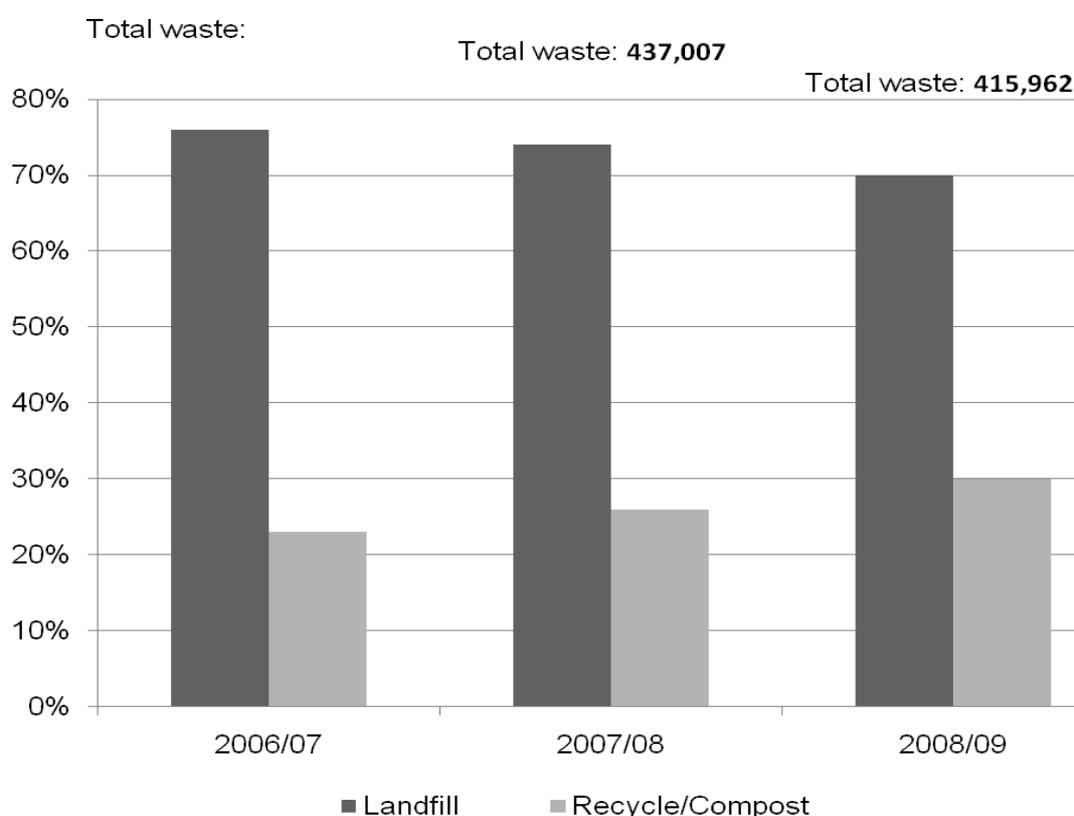
Source: Data received from the South London Waste Partnership, June 2010

¹³ DEFRA (2009) Individual Authority statistical returns available from <http://www.defra.gov.uk/evidence/statistics/environment/wastats/bulletin09.htm>

2.20 As a result of improved service roll outs and improved HWRC site performance, the partner boroughs' overall recycling and composting rates have improved in recent years and currently stands at almost 30% across the South London Waste Plan area (DEFRA, 2009). Figure 2.3 shows this trend and the corresponding trend in reducing amounts of municipal waste being disposed of to landfill.

2.21 In 'Target 6' of its Joint Municipal Waste Management Strategy, the Partnership has set two key recycling targets in line with the Waste Strategy for England 2007. These are to recycle and compost 45% of all municipal waste arisings within the Waste Plan area by 2015 and achieve 50% by 2020. The SLWP's existing contracts with Viridor and Environmental Waste Controls described above, will ensure these targets are met.

Figure 2.3: Fate of MSW for South London 2006-2009



Treatment of residual waste

2.22 Residual waste is the waste that is left over after the waste sent for recycling and composting has been taken out. Historically in the UK and in the South London Waste Plan area, the disposal of the residual waste stream has relied on landfill, with a high proportion of London's waste being sent to neighbouring regions for disposal. However, due to environmental and financial drivers to reduce waste to landfill, the Partnership must find new ways to dispose of its residual waste.

2.23 From 2008, 10,000 tonnes per year of residual waste has been sent to the new Lakeside Energy from Waste plant near Slough, Berkshire (close to the M25/M4 junction). This prevents the waste ending up in landfill sites and allows the four partner Boroughs to meet their landfill reduction targets in the short-term.

2.24 However, most residual waste (approximately 200,000 tonnes every year across the four partner boroughs) is currently landfilled at the Viridor-operated landfill site in Beddington Lane, Sutton, close to the border with Croydon. As well as presenting environmental issues, landfill costs are approximately £48 per tonne and rising, making this a very expensive method of waste disposal for the four boroughs.

2.25 To address this, in May 2009, the Partnership embarked on a two-year procurement process to secure a 25-year contract for residual waste treatment. This is the largest procurement project that any of the partner Boroughs have ever undertaken with a lifetime contract value in the region of £900 million.

Future treatment of residual MSW waste

2.26 The new treatment facility (or facilities) are due to become operational in 2014/15 and will treat up to 200,000 tonnes of the Partnership's residual waste which would otherwise be destined for landfill. The contracts will be for 25 years, with the option to extend for a further 5 years. It is anticipated therefore, that treatment facilities will be operational until 2040, with a possible extension until 2045.

2.27 For the purposes of the procurement the Partnership is technology neutral and therefore all forms of treatment put forward will be properly and fairly evaluated. The JMWMS states that the, *“Partnership’s evaluation criteria will reward high-performing, low emission, modern, sustainable technologies that offer residents value for money. All boroughs within the Partnership are firmly against poor performing, outdated technologies such as old fashioned, mass burn incineration, which is poorly designed, visually intrusive and releases high levels of noxious emissions. All thermal treatment facilities must meet the requirements of the Waste Incinerator Regulations 2002, to ensure they are operated to high environmental standards.”*

2.28 This additional residual treatment capacity will allow the four partner Boroughs to meet their statutory landfill reduction targets and avoid the heavy financial penalties that will be handed out to councils in the future that continue to rely on landfill as their primary waste disposal method. Statutory landfill allowances in Table 2.2 show a reduction of 52% for the combined landfill allowances of the partner boroughs in between 2010 and 2020.

Table 2.2: Partner authorities’ annual landfill allowances, 2009 to 2020

Year	Croydon	Kingston	Merton LB	Sutton	Combined
2009/10	75,700	31,430	38,930	35,665	181,725
2010/11	67,274	27,931	34,597	31,695	161,497
2011/12	58,848	24,433	30,263	27,725	141,269
2012/13	50,421	20,934	25,930	23,756	121,042
2013/14	48,259	20,036	24,818	22,737	115,849
2014/15	46,096	19,138	23,706	21,718	110,657
2015/16	43,933	18,240	22,593	20,699	105,465
2016/17	41,770	17,342	21,481	19,680	100,273
2017/18	39,607	16,444	20,369	18,661	95,081

Year	Croydon	Kingston	Merton LB	Sutton	Combined
2018/19	37,444	15,546	19,256	17,642	89,889
2019/20	35,282	14,648	18,144	16,623	84,697

The Partnership's future needs

2.29 As identified previously, contracts and facilities (pending the outcome of Viridor's AD application) are in place to treat the Waste Plan area's recyclable and compostable municipal waste until 2022. As also identified previously, there is an option to extend these contracts until 2027. At the time of writing, the Partnership has confirmed that they have not yet decided whether the contracts will be extended beyond 2022. However, the Partnership has confirmed that they have no additional need for facilities to treat the recyclable / compostable waste streams within the first 10 years of the South London Waste Plan.

2.30 With regard to sites for the future treatment of residual treatment, the Partnership has indicated that any new treatment facility(ies) could be accommodated on existing waste transfer stations either at Factory Lane, Croydon, Garth Road, Merton or Villiers Road, Kingston. These sites have been identified by a number of industry respondents and by the Partnership's own site studies as deliverable for waste treatment facilities and, as existing waste sites, are safeguarded in the South London Waste Plan. It is therefore considered that the Waste Plan has accommodated the needs of the Partnership.

2.31 It should further be noted that it is feasible that the redevelopment of any of the partner boroughs' transfer stations listed above could result in the displacement of other existing facilities onsite, including the boroughs' HWRCs which exist on the three identified transfer stations. However this will not be known until the partner boroughs identify the Preferred Bidder in 2011. It may be possible for the capacity of any displaced HWRC to be accommodated by intensifying provision at one of the remaining HWRCs. Alternatively, an additional site may be required to provide a new HWRC. In policy terms, the priority locations for any additional HWRC will be those sites and areas identified in the Proposed Submission Waste Plan.

Future Municipal Solid Waste (MSW) arisings

2.32 Both the 2008 London Plan and the Partnership have projected waste growth for Municipal Solid Waste for South London up to 2021 and beyond. The figures from these sources differ because the growth assumptions are based on separate research and are applied to waste arising figures from different years as their starting points.

2.33 The GLA has recently updated the predicted arisings for the Draft Replacement London Plan (consulted on in December 2009 and January 2010).

2.34 The two forecasts from the GLA (for the 2008 London Plan and the Draft Replacement London Plan), together with the Partnership's forecasts are shown in Figure 2.4. Figure 2.4 also shows the declining trend of actual municipal waste arisings in the Waste Plan area for 2006-2009. These figures are reported to DEFRA by the partner

boroughs using the WasteDataFlow tool¹⁴ and are then collated and released annually by DEFRA.

2.35 The growth profiles in Figure 2.4 are described as follows:

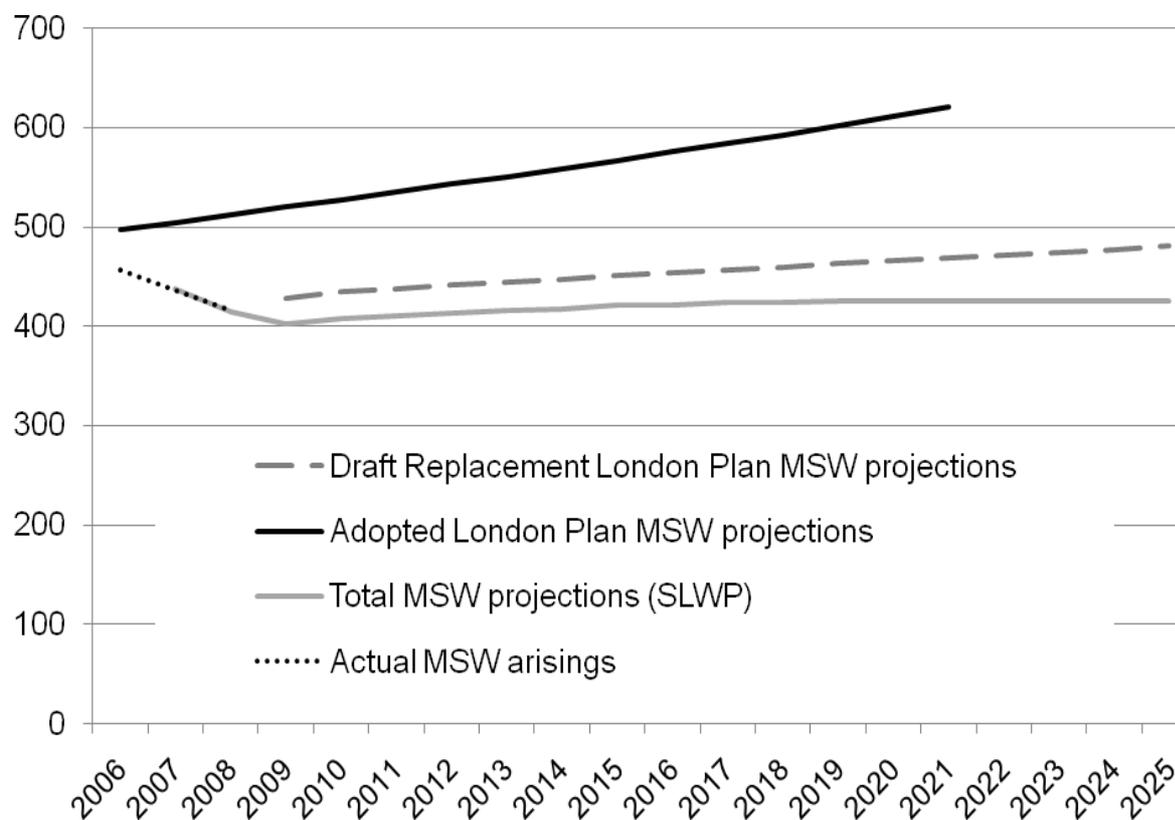
- The 2008 London Plan projection, based on growth of 1.5 % per annum;
- The Draft Replacement London Plan projection, starting from a baseline of average actual arisings from 2006-2009, then a growth rate based on a static average growth rate from over that period, plus household growth¹⁵.
- The Partnership's projections, based on a growth rate of approximately 1% per annum from 2006/07 until 2017/18, with zero growth from 2019 which is supported by an intense waste minimisation programme detailed within their emerging Joint Municipal Waste Management Strategy.

2.36 As Figure 2.4 shows, the 2008 London Plan figures predict the highest levels of growth for MSW, followed by the Draft Replacement London Plan figures, with the Partnership's forecasts showing the slowest waste growth.

¹⁴ WasteDataFlow is the web based system for municipal waste data reporting by UK local authorities to government. Refer: www.wastedataflow.org

¹⁵ Household growth is based on demographic projections of the GLA Data Management and Analysis Group (DMAG), at borough-level, for household numbers for each of the forecast years up to 2031. Details are available from, "*DMAG Update 13-2009: Demographic projections for the draft London Plan*", Greater London Authority, October 2009

Figure 2.44 Projected Municipal Solid Waste arisings (000s tonnes) for South London using 2008 London Plan and Partnership growth profiles



2.37 Figure 2.4 clearly shows that the Draft Replacement London Plan figures are more closely aligned with the Partnership’s own figures as well as actual historical data, than the 2008 London Plan figures. At 2021, the 2008 London Plan figures are over 150,000 tonnes per year greater than the Draft Replacement London Plan figures and almost 200,000 tonnes greater than the Partnership data. In real terms, these differences represent at least one, possibly even three additional waste management facilities. Clearly this has significant implications for planning for the right number of waste management facilities to meet the needs of the South London Waste Plan area.

2.38 It is also noted that of all predicted arisings, the Partnership’s figures are most closely aligned with *actual* arisings figures reported by DEFRA (2006-2009) indicating that it is the most accurate of all arisings predications.

2.39 Although there appears to be sufficient evidence to support using the lower figures identified in the Draft Replacement London Plan, at the time of writing, these figures are still being considered following the Draft Replacement London Plan’s Examination in Public. In addition, the corresponding figures in the Draft Replacement London Plan for commercial and industrial waste (discussed in the next section) are under dispute by the partner boroughs. It would be inconsistent to use the municipal waste figures from the Draft Replacement Plan and the commercial and industrial waste figures from the 2008 London Plan. Therefore, it is considered prudent to use the 2008 London Plan figures until such time as further evidence is available to support the GLA’s commercial and industrial waste figures.

Commercial and Industrial Waste (C&I waste)

The National context

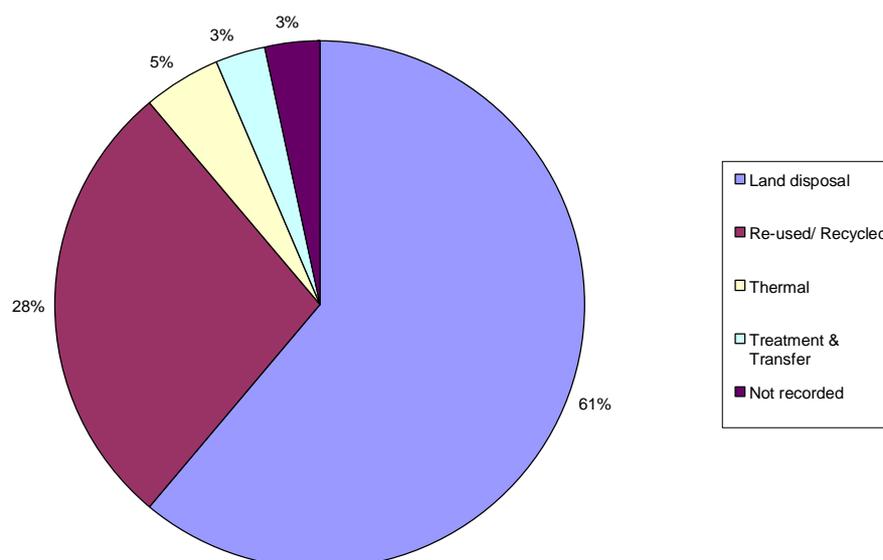
2.40 Data on the movement of commercial and industrial waste is poor, though now improving. At the time of writing, DEFRA and the London Waste and Recycling Board is commissioning a national C&I survey. The most recent EA data indicates that approximately 60% of London's 2.5 million tonnes of C&I waste which is landfilled (approximately 38% of the total waste landfilled), is exported to the East and South East regions (EA, 2010)¹⁶.

London context

2.41 Environment Agency (EA) data from 2002/03¹⁷ reports that South London produced nearly 850,000 tonnes of commercial and industrial waste in that year, with 78% coming from industrial sources. Unfortunately this dataset includes the borough of Bromley and therefore it is not possible to understand *exactly* how much was produced in the four South London boroughs. However, by subtracting the estimated proportion of this waste attributed to Bromley (using the methodology detailed in the paragraph overleaf), it is possible to estimate that 644,000 tonnes of commercial and industrial waste was produced in the South London Waste Plan area.

2.42 When considering disposal of this waste stream, the 2002/3 EA data shows that only 28% of C&I waste was reused or recycled in South London (including Bromley) and 61% disposed of at landfill. Although better than the recycling rates for North London and Central London (who recycled only 20% of this waste stream), it is in stark contrast to the West London sub-region, which the survey found recycled 68% of C&I waste.

Figure 2.5: Fate of commercial and industrial waste in South London 2002/03 (including Bromley)



Source: EA C&I Survey (2002/3)

¹⁶ EA (2010) The State of the Environment in London Report.

¹⁷ Strategic Waste Management Assessment London (2002/03) Environment Agency

Future Commercial and Industrial (C&I) Waste Arisings

2.43 Both the 2008 London Plan and the Environment Agency (EA) estimate growth for commercial and industrial waste for South London to 2020 and beyond.

2.44 The EA data is based on a report published nearly eight years ago in 2003¹⁸ and at the time of writing, this is most recent C&I survey available. The EA data is available for EA sub-regions which, for South London, includes the four partner boroughs plus Bromley. To compare the EA and 2008 London Plan datasets, the predicted C&I arisings for Bromley from the 2008 London Plan were added to the predicted arisings for the four South London boroughs. The proportion of the total waste attributed to Bromley was calculated at 24%. 24% of the total EA predicted arisings was therefore removed, thereby allowing an estimate of the EA arisings attributable to the four South London boroughs.

2.45 The GLA has recently updated their predicted arisings to inform the Draft Replacement London Plan (the section consulted on in December 2009 / January 2010). Figure 2.7 (which appears later within this section) shows that, like MSW, the new figures for C&I waste are lower than identified within the 2008 London Plan.

2.46 Before looking at the figures from these different data sources in detail, it is important to understand how the figures were arrived at and also to consider a new data set proposed by the South London partner boroughs.

2.47 The GLA's new C&I arisings projection for the Draft Replacement London Plan is based on the 2003 EA data (the most recent survey data available). The GLA commissioned SLR Consulting Ltd to convert the EA data into a waste *per employee* figure using the GLA Economics employment projections for each of five C&I sector groupings¹⁹. The findings are shown in Table 2.3. The figures show that *waste per employee* varies depending on the sector e.g. the manufacturing sector produces more waste per employee than the public sector.

Table 2.3: : Waste per employee figures from the GLA

Commercial and Industrial Sector	Waste per employee, 2003 (tons/person/ year)
Primary and utilities	2.3
Manufacturing	7
Retail & wholesale	3.1
Public sector	0.6
Other services	1.3

Source: SLR Consulting Ltd, for the GLA (December 2009)

2.48 The Draft Replacement London Plan projections assume that the waste per employee figures will be constant over time. These figures are multiplied by the future forecast of workers in each of the five industrial sectors to give total C&I arisings for the projected years. The GLA employment projections predict a large drop in heavy industry in London that produces 'heavy' waste. A corresponding increase is expected in employment in 'light waste' sectors; service, hotels and restaurants. The result is more jobs overall in

¹⁸ Strategic Waste Management Assessment London, Environment Agency (2003)

¹⁹ GLA Economics Working Paper 38: Employment projections for London by sector and trend-based projections by borough, Greater London Authority, (November 2009)

London but less waste, resulting in a relatively constant amount of C&I waste being produced over the period of the Draft Replacement London Plan.

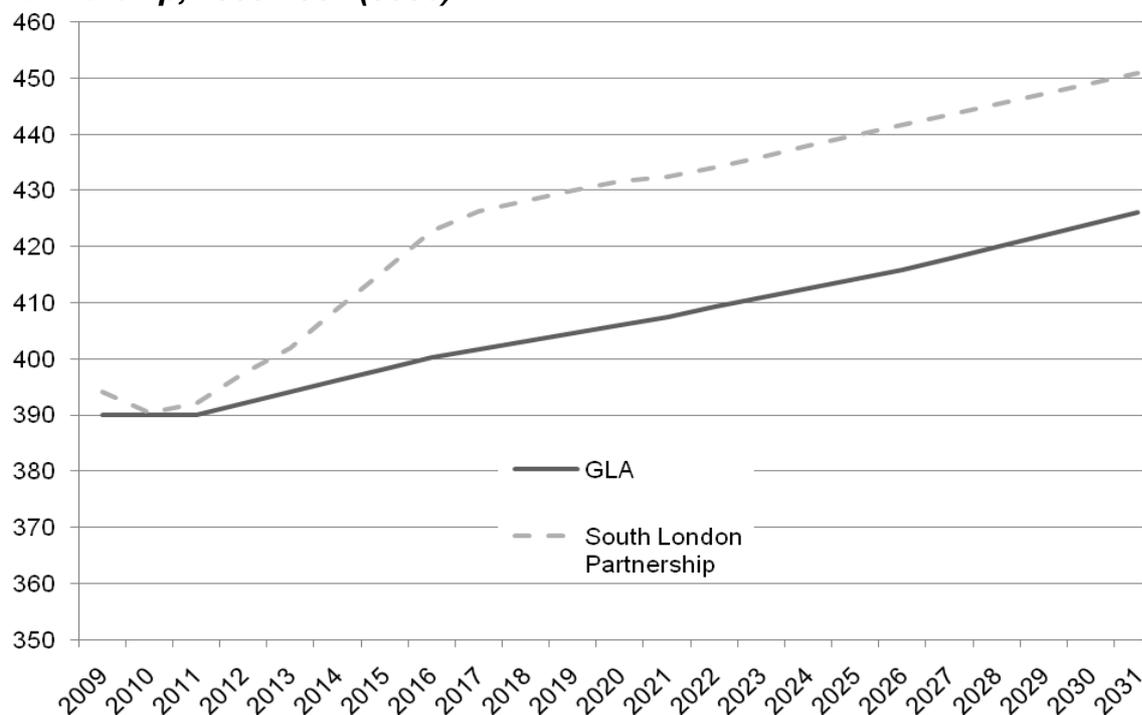
2.49 However, the South London partner boroughs consider the employment projections identified by the GLA are *too low* for this sub-region. Through the South London Partnership²⁰, the partner boroughs have submitted their formal representation in response to the Draft Replacement London Plan consultation. The South London Partnership has submitted its own employment projections to the Mayor and concludes that there are a number of opportunities facing the South London economy which could result in employment being *higher* than the GLA's base forecast. The South London Partnership's report²¹ concludes that better transport accessibility to and from South London could attract additional investment and increase the likelihood of clustering and specialisms developing. This in turn could encourage lower commuting out of South London if the job opportunities were greater in the sub-region.

2.50 A comparison of the GLA and South London Partnership employment projections are shown in Figure 2.6. This clearly shows the South London partner boroughs' greater ambitions for employment growth.

²⁰ The South London Partnership brings together the sub regional organisations operating in south London area in order to strengthen the representation of south London's interests to regional bodies and regional government. The boroughs of Croydon, Kingston, Merton and Sutton are in this Partnership.

²¹ South London Partnership, '*Employment Forecasts for South London Response to the Examination in Public*,' prepared by Oxford Economics, June 2010.

Figure 2.6: Comparison of employment projections, GLA and South London Partnership, 2009-2031 (000s)



Source: GLA (March 2010) and South London Partnership (June 2010).

2.51 By applying the *waste per employee* figures in Table 2.3 to the new, South London Partnership baseline for employment projections, it is possible to calculate new C&I waste arisings for the South London Waste Plan area.

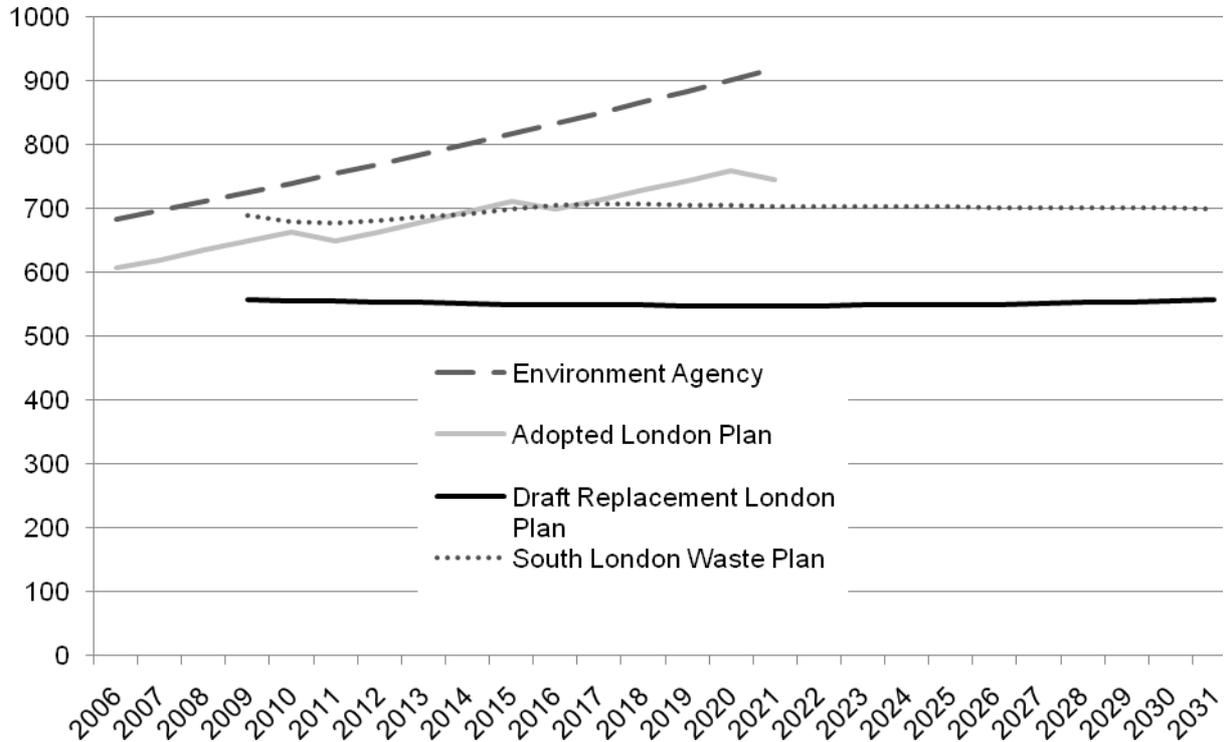
2.52 This new South London Waste Plan C&I arisings projection is shown in Figure 2.7, together with the projections taken from the EA, the 2008 London Plan and the Draft Replacement London Plan.

2.53 The growth profiles in Figure 2.7 are described as follows:

- The **2008 London Plan** projection, based on data from the year 2000, a growth rate of 2% growth per annum and a 2% reduction in growth every 5 years.
- The **Draft Replacement London Plan** projection based on the 2003 EA data. A *waste per employee* figure (Table 2.3) is multiplied by the GLA's employment projections for five C&I sector groupings.
- The **2003 EA data**²² based on a growth rate of 2% per year. The EA figures have a higher starting point than the GLA figures.
- **South London Waste Plan new C&I projection** based on the 2003 EA data. A *waste per employee* figure (Table 2.3) is multiplied by the South London Partnership's employment projections for five C&I sector groupings.

²² Strategic Waste Management Assessment London (2002/03) Environment Agency

Figure 2. 7: Projected C&I waste arisings (000s tonnes) for South London, showing the South London Waste Plan, London Plan and Environment Agency projections



2.54 Figure 2.7 shows the EA data predicts the highest C&I arisings over time, whilst the Draft Replacement London Plan figures predict the lowest C&I arisings.

2.55 At 2021, the 2008 London Plan figure is 197,000 tonnes higher than the Draft Replacement London Plan figure for the South London Waste Plan area. This is a significant difference which could represent two or three additional treatment facilities.

2.56 The South London Waste Plan figures, based on the South London Partnership’s employment projections fall between the 2008 London Plan and Draft Replacement London Plan figures, though are more closely aligned with the 2008 London Plan figures. At 2021, the boroughs’ own data anticipates 40,000 tonnes per year lower waste arisings than the 2008 London Plan.

2.57 In addition, the results of the joint DEFRA/London Waste and Recycling Board C&I waste survey referred to in paragraph 2.40, have not been released yet.

2.58 At the time of writing, given that the partner boroughs have disputed the employment projections upon which the Draft Replacement London Plan figures for commercial and industrial waste are based, it is considered prudent to use the 2008 London Plan figures for commercial and industrial waste, since the new calculations (based on higher employment projections) are more closely aligned with the 2008 London Plan figures. However, the results from the forthcoming DEFRA / London Waste Recycling Board C&I waste survey may provide evidence to support these lower C&I waste figures. If this is the case, the partner boroughs may wish to submit supplementary evidence to the Secretary of State.

The Apportionment

2.59 The 2008 London Plan identifies an ambition for the equivalent of 85% of London's waste to be managed within the capital by 2020. The Draft Replacement London Plan (2009) seeks to move beyond this and become net self-sufficient by 2031.

2.60 To achieve this ambition, the London Plan apportions quantities of waste which each London borough must manage within its own boundaries for key target years (refer to paragraph 2.4). The London Plan provides an apportionment for both MSW and C&I waste and these are combined to give a total apportionment for each borough. Across London, for some outer London boroughs (e.g. Merton and Kingston), the apportionment represents more waste than is anticipated to arise within those boroughs. For other inner London boroughs (e.g. City of London), the apportionment represents a very low quantity of waste compared to that which is anticipated to arise with the borough. This is because some inner London boroughs have greater land pressures and therefore different abilities to accommodate adequate waste management facilities with more limited land. Generally, it is expected that the outer London boroughs will accommodate more waste management capacity than inner London boroughs.

2.61 It should be noted that the 2008 London Plan identifies apportionments for all boroughs until 2020. To satisfy national planning guidance, the South London Waste Plan must plan for a period of 10 years. Given that the Waste Plan's anticipated adoption date is 2011, it is necessary to calculate a 2021 apportionment for the South London Waste Plan area. The 2021 apportionment is based on London's continuing 85% self-sufficiency coupled with maintaining the levels of self sufficiency identified for South London at 2020. This results in a slightly lower apportionment for 2021, compared with 2020 because the growth rate for C&I waste includes a reduction in waste arisings every fifth year, as shown in Figure 2.7.

2.62 Where boroughs work jointly, they are permitted to combine their apportionments. Tables 2.4 and 2.5 show that at 2021, the 2008 London Plan requires the combined South London Waste Plan boroughs to manage 1.3 million tonnes of waste per year within their boundaries.

2.63 The apportionments identified within the 2008 London Plan and Draft Replacement London Plans are set out in Tables 2.4 and 2.5.

Table 2.4: 2008 London Plan Apportionments for the South London Waste Plan area (000s tonnes per year)

	2010		2015		2020	
	MSW	C&I	MSW	C&I	MSW	C&I
Croydon	73	179	119	215	138	255
Kingston	47	117	77	140	90	166
Merton	69	171	113	205	131	243
Sutton	57	141	94	170	108	201
	246	608	403	730	467	865
TOTAL	854		1,133		1,332	

Table 2.5: Draft Replacement London Plan Apportionments for the South London Waste Plan area (000s tonnes per year)

	2011		2016		2021		2026		2031	
	MSW	C&I	MSW	C&I	MSW	C&I	MSW	C&I	MSW	C&I
Croydon	79	141	96	154	115	167	134	182	154	199
Kingston	46	81	56	89	66	97	77	105	89	115
Merton	76	136	93	148	110	161	129	175	148	191
Sutton	63	112	77	123	91	133	107	145	123	158
	264	470	321	513	383	558	448	608	513	663
TOTAL	734		834		941		1,056		1,176	

Having regard to the Draft Replacement London Plan

2.64 At the time of writing, it is not known whether the apportionments identified in the Draft Replacement London Plan will be adopted. The Inspector's Report, which will resolve this issue, will be available in early 2011. Clearly, the development of the South London Waste Plan cannot wait for this outcome.

2.65 Given that the partner boroughs' have disputed the employment projections upon which the commercial and industrial waste arisings (and therefore apportionment) are based, at the time of writing, the South London Waste Plan is based upon the 2008 London Plan waste arisings. The Waste Plan is therefore also based on the 2008 London Plan apportionments.

2.66 To meet the need identified in the apportionment, the South London boroughs must identify sufficient sites to enable the management of just over 1.3 million tonnes of waste within its boundaries at 2021. As table 2.6 shows, this is almost the equivalent of 100% of total C&I and MSW anticipated arisings at 2021.

2.67 Given the Waste Plan is required to provide sufficient sites in a timely manner, it is important to understand the need which must also be accommodated at 2011 (i.e. year one of the Waste Plan) and 2016 (i.e. by the end of year five of the Waste Plan). Table 2.6 shows that, to meet the need identified in the apportionment within the first five years, the South London boroughs must identify sufficient sites to enable the management of just over 1.1 million tonnes of waste within its boundaries at 2016 (the equivalent of 90% of total C&I and MSW anticipated arisings) and just over 880,000 by 2011 (the equivalent of 75% of total C&I and MSW anticipated arisings).

Table 2.6: Comparison of total apportionments for the South London Waste Plan (000s tonnes per year): 2008 London Plan at 2021

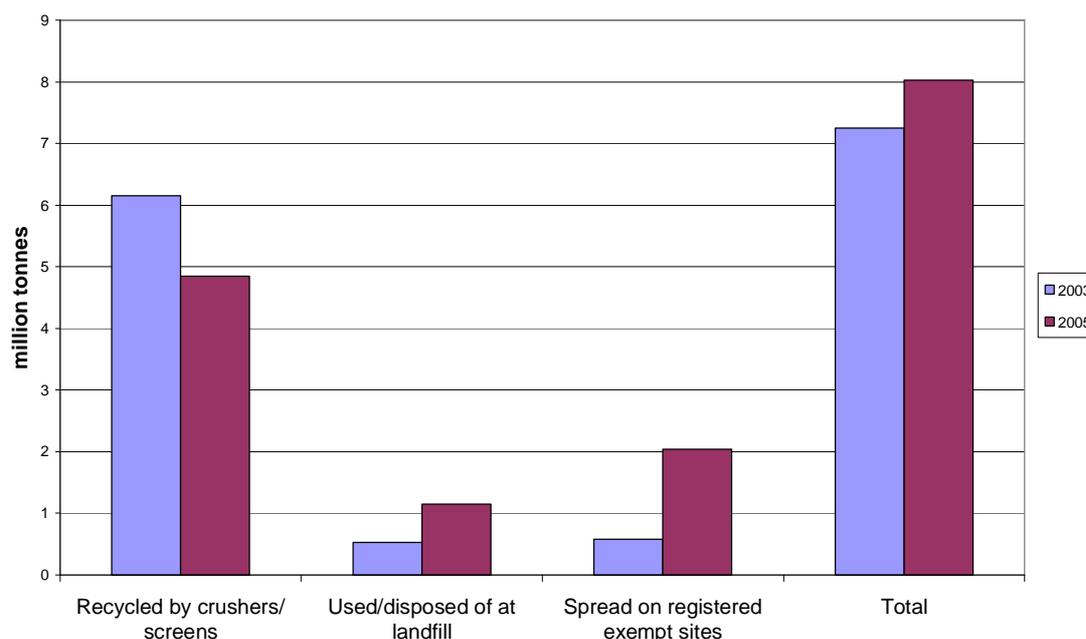
	2010		2011		2015		2016		2020		2021	
Apportionment by waste stream	MSW	C&I	MSW	C&I	MSW	C&I	MSW	C&I	MSW	C&I	MSW	C&I
	246	608	276	608	403	730	416	732	467	865	475	848
Total Apportionment	854		884		1,133		1,148		1,332		1,323	
Total arisings	1,191		1,184		1,279		1,275		1,371*		1,366	
Apportionment as a %age of arisings	72%		75%		89%		90%		97%		97%	

Construction, Demolition and Excavation Waste Arisings

2.68 Data on Construction, Demolition and Excavation Wastes (CD&E) arisings is not available at a sub-regional level; however there is data available for CD&E for London²³. Figure 2.8 estimates how CD&E wastes were managed in London in 2003 and 2005. It can be seen that for London as a whole the total quantity of CD&E wastes increased to 8 million tonnes in 2005 although only 1 million tonnes was disposed of at landfill, the rest being recycled or spread on sites exempt from requiring waste management licences. The cost of transporting CD&E wastes normally means that it is reused or recycled in situ or used at sites exempt from the Environment Agency's licensing regime.

2.69 In 2003, 85% of London's CD&E waste was reused and recycled. Most of the reported reused and recycled CD&E waste is the crushing of waste materials such as concrete for the use as bulk or engineering infill, however better alternatives are available for reusing and recycling CD&E waste into higher value products. It is usually mixed contaminated wastes that are sent to licensed landfill sites.

Figure 2.8: Estimate of Construction, Demolition & Excavation wastes recycled by crushers and/or screens, used/disposed of at landfills and spread on registered exempt sites (London 2005)



Hazardous Waste Arisings

2.70 Since July 2004, the co-disposal of hazardous waste with other waste streams has been illegal, resulting in hazardous waste only being accepted at specialist sites. This change in legislation (part of the Landfill Regulation 2002) has resulted in a significant reduction in the capacity of landfill sites for hazardous waste, from 240 sites in 2003 to fewer than 15 across the country by 2010; the cost of disposal has risen as a result.

²³ Survey of Arisings and Use of Alternatives to Primary Aggregates in England, 2005 Construction, Demolition and Excavation Waste, DCLG

2.71 During 2004 the Hazardous Waste arisings in the four South London boroughs amounted to 13,957 tonnes²⁴, over half of which was classed as 'C&D Waste and asbestos'. The most recent Environment Agency data from 2006 reports arisings of 15,668 tonnes of hazardous waste from the four South London partner boroughs. 85% of this waste stream went for final disposal in the South East, East of England, East Midlands and London regions (Figure 2.9).

2.72 Of the 15,668 tonnes of hazardous waste recorded, the highest proportions of waste by European Waste Catalogue (EWC) code were (Figure 2.10):

- Code 19 12 11 - Other wastes (including mixtures of materials) from mechanical treatment of waste containing dangerous substances
- Code 18 01 03 - Infectious Clinical waste
- Code 17 06 05 - Construction materials containing asbestos
- Code 17 05 03 - Soil and stones containing dangerous substances
- Code 13 02 05 - mineral-based non-chlorinated engine, gear and lubricating oils

2.73 London creates the second lowest amount of hazardous waste in the country, when comparing the regions. But London has the lowest self sufficiency as only approximately four per cent of hazardous waste is disposed of within London due to lack of specialist sites.

2.74 The waste data between 1999 and 2002 shows that the total hazardous waste arising in South London has decreased. The rise in 2004 could be attributed to the need to dispose of hazardous waste before the Landfill Regulations came into effect. The arisings decrease again after 2004 (Figure 2.11).

²⁴ Special Waste Database (SWaT), 2004, Environment Agency

Figure 2.9: Final disposal destinations for hazardous waste arising in South London 2006

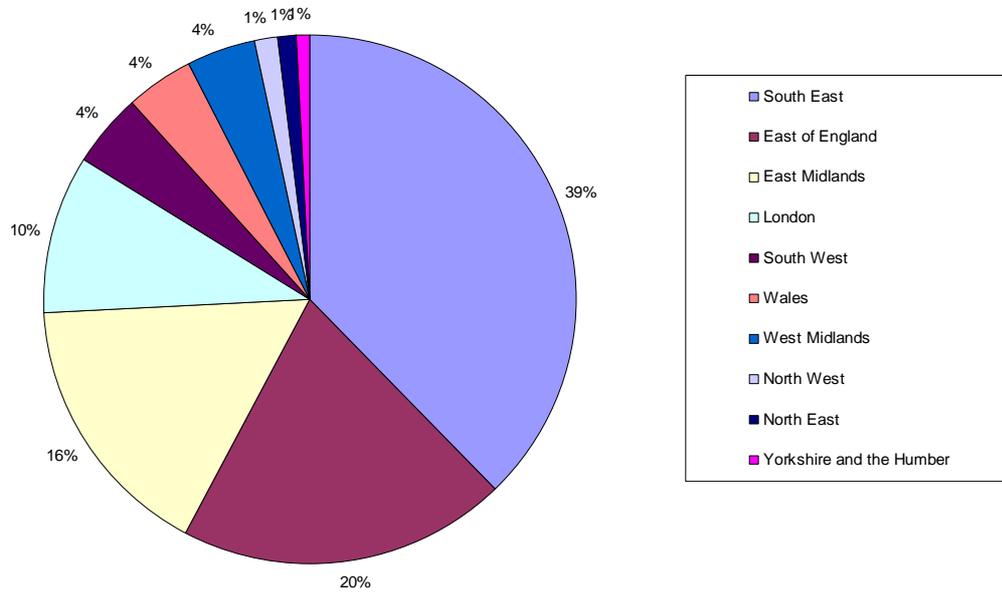


Figure 2.10: The greatest proportion of hazardous waste as described by EWC, arising in the four South London Boroughs, 2006

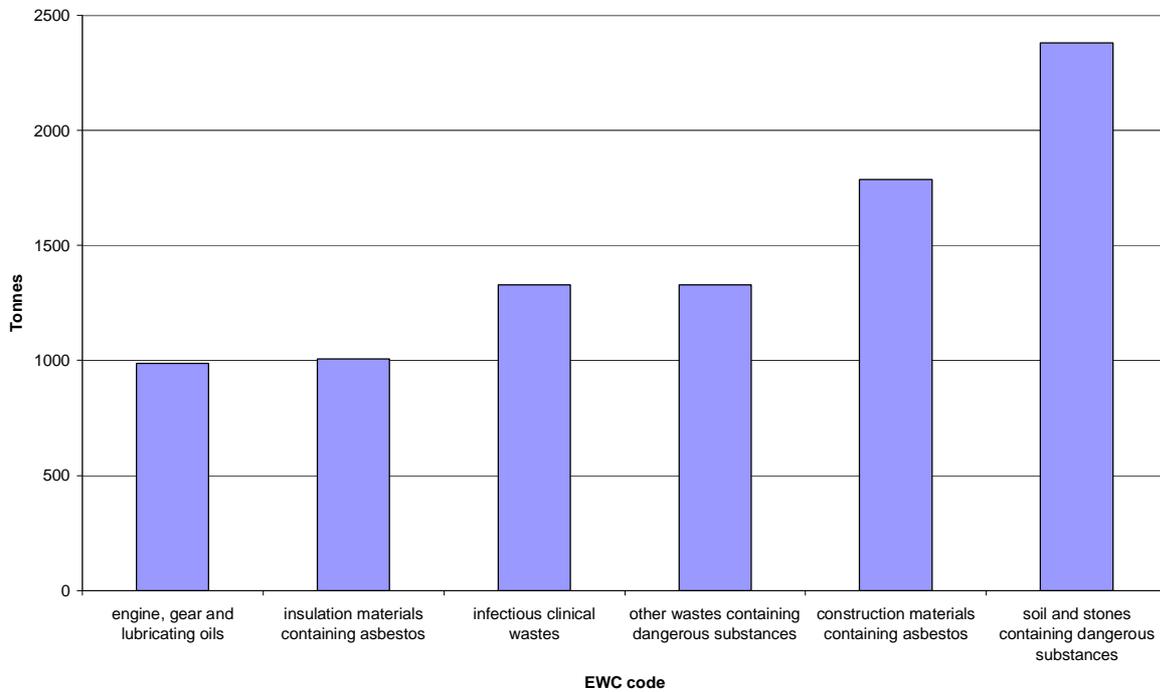
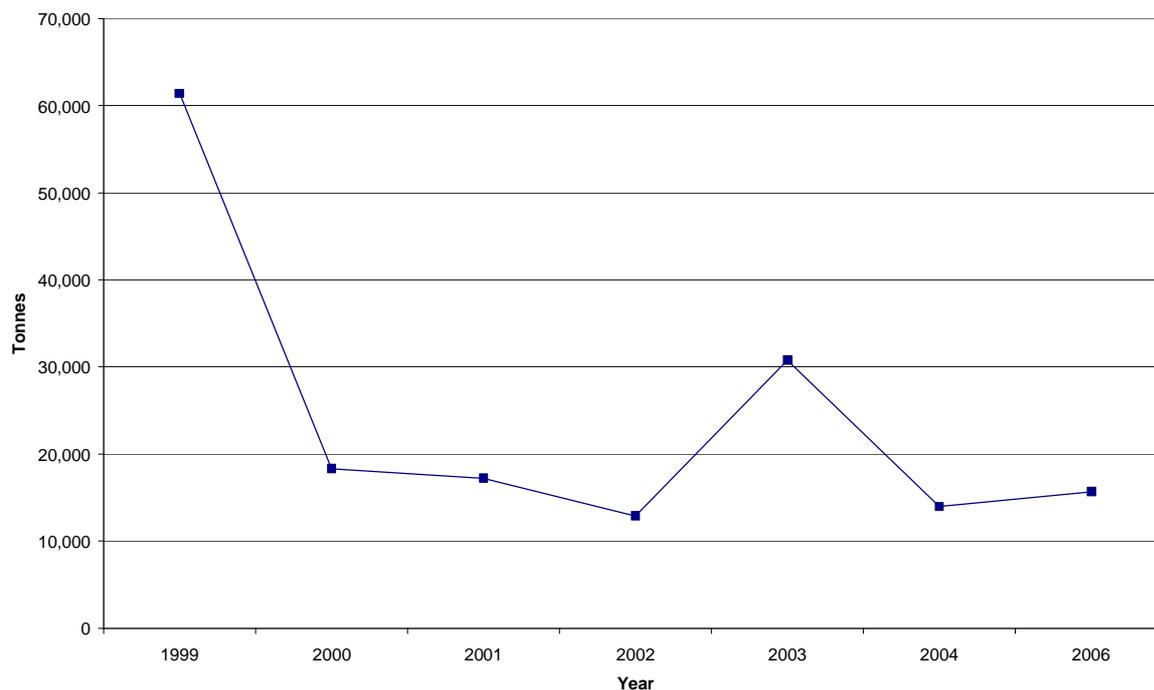


Figure 2.11: Hazardous Waste arisings in South London²⁵



Agricultural Waste Arisings

2.75 Data from the Environment Agency states that agricultural activity in the London Region in 2003 produced only 35,000 tonnes of waste and the majority of these wastes were compostable and/or digestible²⁶. The agricultural waste arising in London in 2003 was less than two thirds of that produced in 1998.

2.76 Agricultural waste is any waste that is created from farming, forestry, horticulture and similar activities. Agricultural waste in general comprises plastic packaging, paper and card packaging, non-packaging plastics, animal health products, oil, sheep dip waste, pesticides and milk. Agricultural waste has been reclassified under the Waste Management Regulations 2006 and is now under the same controls as commercial and industrial waste.

Waste Water Arisings

2.77 The four boroughs of the South London Waste Plan are served by a number of sewage treatment works, including Beddington, Hogsmill, Crossness and Longreach. However, only Beddington (Sutton) and Hogsmill (Kingston) Sewage Treatment Works are located within the plan area.

2.78 The adopted Sutton Core Strategy makes reference to the need to increase treatment capacity to serve additional catchment growth at the Beddington Sewage Treatment Works and the Kingston Core Strategy (Pre Submission) proposes to designate Hogsmill Sewage Treatment Works as a Major Developed Site within MOL to facilitate investment and improvement to the works to cope with new development within its catchment area.

²⁵ Special Waste Database (SWaT), 2003, Environment Agency

²⁶ Agricultural waste and by-products in England 2003, Environment Agency

2.79 As the Landfill Directive has introduced a ban on the disposal of liquids to landfill facilities, this may result in additional pressure to find available space within operational sewage treatment works to manage liquid wastes that were previously disposed of through landfill. Any application for a new liquid waste management facility will need to be determined in accordance with the policies of this South London Waste Plan together with any other relevant policies within the applicable borough's Development Plan.

Summary of waste arisings

2.80 The London Plan only has apportionment for MSW and C&I wastes. It is therefore difficult to ascertain predicted arisings for other wastes at a sub regional level. The consideration of CD&E, hazardous, agricultural wastes and waste water is therefore more practically dealt with in the policies of the Proposed Submission version of the South London Waste Plan which, for example, could encourage in situ reuse and recycling of CD&E waste and provide for the needs of additional facilities to treat these other waste streams, should the need arise.

3 Meeting the need for additional waste management capacity

3.1 To meet the 2008 London Plan Apportionment, the South London Waste Plan must allocate sufficient land to enable the management of just over 1.1 million tonnes of waste at 2016 and just over 1.3 million tonnes of waste at 2021. To help with this task, the 2008 London Plan provides the following definition of ‘managing’ waste:

“Waste is deemed to be managed in London if:

- *It is used for energy recovery in London (e.g. through anaerobic digestion, pyrolysis/gasification or through existing incinerators), or;*
- *It is compost or recyclate sorted or bulked in London material recycling facilities for reprocessing either in London or elsewhere”*

The London Plan (2008), p. 230, para 4.71

3.2 The Draft Replacement London Plan (October 2009) also adds, to this definition, those facilities which produce a solid recovered fuel (SRF). SRF tonnage can only be counted as contributing towards the South London partner boroughs’ apportionment however if it is a biomass fuel as defined in the current Renewable Obligation Order. This will encourage the production of a high quality waste derived fuel that can be used to generate renewable energy using a range of technologies including anaerobic digestion and gasification which qualify for double Renewable Obligation Certificates (ROCs). The Environment Agency data confirms that, at the time of writing, there are no such facilities within the South London Waste Plan area.

3.3 To identify how much waste is currently managed within the South London Waste Plan and the ‘capacity gap’ between what is currently managed and the apportionment, it is important to identify which existing facilities are classified as ‘managing waste’ and which are not. It is clear that waste transfer stations – those which simply bulk up waste to be disposed of, for example, in landfill or thermal treatment facilities elsewhere are not deemed ‘management’ facilities. However, some transfer stations, *do* sort and bulk recyclates (such as paper, tins), to sell to reprocessors; in effect operating as a Materials Recycling Facility. This element of a site’s operation will count as ‘management’ of waste. In accordance with Policy 4A.28 of the 2008 London Plan, construction, excavation and demolition waste facilities have also not been considered as waste management sites.

3.4 Data about existing waste operations is held by the Environment Agency. Data was originally gathered from the EA in 2007 to inform Technical Report 1 (Building the Evidence Base for Issues and Options) published in July 2008. At this time, it was reported that the South London Waste Plan had a total of 745,000 tonnes of existing *waste management* capacity in 2008.²⁷

3.5 The data was subsequently updated in March 2009, to inform Technical Report 2 (Potential Sites Technical Report) published in July 2009.²⁸ At this time, it was found that

²⁷ See pages 20-23 and Appendix A of Technical Report 1 (Building the Evidence Base for Issues and Options)

²⁸ See page 1 for an explanation of these Technical Reports.

the number of facilities licensed to handle waste in the Waste Plan area had reduced. Between 2007 and 2009, 3 transfer stations, 3 metal recycling sites (vehicle dismantlers) and 1 composting facility had surrendered their licences. This left a total of 695,000 tonnes of licensed *waste management* capacity.²⁹

3.6 The data was updated with the help of the Environment Agency in March 2010 as the Waste Plan evolved. Table 3.1 identifies the existing management capacity in the Waste Plan area. In response to a request from the GLA (made as part of their Stage 2 consultation response), all reasonable attempts have been made to identify the actual *throughput* of waste management facilities, rather than relying on the licensed capacity. This is important because the tonnage on the licence granted by the EA can be very different to the quantity of waste the facility is actually able to handle. For example, an operator may be granted a licence for 150,000 tonnes but only build a facility which accepts 90,000 tonnes, with a view to expanding the facility in future.

3.7 To ensure that the Waste Plan is robust, the EA provided *actual* annual throughput for the period 2005–2008 based on the operators' annual returns, which they are required to make to the Agency. For some facilities, (particularly those relying on private contracts, rather than public-sector contracts), the data shows throughput fluctuates year on year in response to demand for services. In such cases, the highest recent throughput figure has been used in Table 3.1, since it is logical to assume that existing throughput capacity will be maximised before new facilities are needed. For all management facilities, a 'typical' throughput going forwards was verified with operators via telephone calls and confirmed in written correspondence.

3.8 Table 3.1 identifies those facilities which already manage waste within the South London Waste Plan area, including one new management facility. The table identifies the Waste Plan area's existing management capacity as 442,096 tonnes per year. It should however be noted that the existing waste management capacity at the Benedict Wharf Transfer Site (No.126) has not been taken into account in order to avoid double counting. This site is anticipated to become a waste management facility with substantially reduced transfer capacity, during the lifetime of the Waste Plan and, as discussed in paragraph 3.30 of this report, its area will be subtracted from the land take identified to deal with the identified capacity gap.

3.9 Table 3.1 also shows that all the Waste Plan area's existing waste management capacity is for recycling or composting of waste.

²⁹ See Appendix 2 (Updated waste management capacity and land area requirement calculations) of Technical Report 2 (Potential Sites Technical Report)

Table 3.1: Existing facilities that currently manage waste within the South London Waste Plan area

Licensed capacity	Site name	Licence number	Facility Code	Facility Type	Site Ref.	Site Size (ha)	Throughput (tonnes)	Borough
Metal recycling sites								
2500	E & S B Davis, Bishops Place, Sutton	83492	A19a	ELV	24	0.05	1,875	Sutton
73000	B Nebbett & Son	83476	A19a	ELV	22	1.03	73,000	Merton
2500	5 Star Japanese Autospares	83488	A19a	ELV	23	0.11	160	Merton
572	Croydon Car Spares Ltd	83161	A19	Metal Recycling			149	Croydon
74999	EMR	83314	A20	Metal Recycling	100	1.04	56,953	Sutton
5000	Selsdon Car Pound	83477	A19	Metal Recycling	110	0.4	2,154	Croydon
520	Youngs Motors	83170	A19	Metal Recycling		0.02	135	Croydon
Household waste and recycling sites								
15125	Fishers Farm HWRC	83164	A13	HWRC	2	0.2	4,874	Croydon
12535	Purley Oaks HWRC	83169	A13	HWRC	4	0.22	6,103	Croydon
20000	Weir Road HWRC	83589	A13	HWRC	26	0.27	1,260	Merton
24999	Kimpton Road HWRC	83617	A11	HWRC	3	0.44	8,041	Sutton
Physical treatment sites								
150000	Viridor	83441	A22	Composting	18	5.02	119,451	Sutton
70000	Viridor	83441	A15	Recycling			70,000	Sutton
372600	777 Recycling Centre	83473	A15	Recycling	21	0.97	25,498	Sutton
99999	Vertal	101177	A22	Composting			75,000	Merton
Total existing capacity:							444,653	

Source: EA data (March 2010) and telephone conversations with operators (June 2010).

3.10 Table 3.2 identifies waste transfer facilities within the South London Waste Plan area. Some sites are repeated from Table 3.1 above. This is because some sites may have licenses for both the treatment and the transfer of waste. Waste transfer activity does not fall within the Mayor of London's description of 'managed waste.' The waste treated at these sites therefore does not contribute towards the apportionment for the South London Waste Plan area as identified in the 2008 London Plan. However, in accordance with the 2008 London Plan Policy 4A.24 and Draft Replacement London Plan Policy 5.17, these sites will be safeguarded in the policies of the South London Waste Plan, since they have potential for conversion to waste management uses.

Table 3.2: Existing transfer facilities within the South London Waste Plan area

Site name	Licence number	Facility Code	Facility Type	Site Ref No	Borough
Safety Kleen, Unit B6	83651	A09	Special Waste Transfer Station		Croydon
Villiers Road Special Waste transfer	83181	A09	Special Waste Transfer Station	6	Kingston
Croydon Transfer Station	83214	A11	Household, Commercial & Industrial Waste Transfer Station	98	Sutton
Bardon Aggregates (now trading as United Asphalt)			Aggregates	87	Sutton
Greener Solutions Unit 3 & 4 Boundary Bus. Court	83458	A11	Household, Commercial & Industrial Waste Transfer Station	20	Merton
Curley Skip Hire	83167	A11	Household, Commercial & Industrial Waste Transfer Station	114	Croydon
Pear Tree Farm	83171	A11	Household, Commercial & Industrial Waste Transfer Station	5	Croydon
Highways & Main Drainage Depot, Purley Oaks Depot	83306	A11	Household, Commercial & Industrial Waste Transfer Station	99	Croydon
Sloane Demolition	83568	A11	Household, Commercial & Industrial Waste Transfer Station	25	Merton
Garth Road HWRC	83185	A11	Household, Commercial & Industrial Waste Transfer Station	9	Merton
Benedict Wharf Transfer Station	83184	A11	Household, Commercial & Industrial Waste Transfer Station	126	Merton
Factory Lane Transfer Station	83163	A11	Household, Commercial & Industrial Waste Transfer Station	1	Croydon
Weir Road transfer SITA	83187	A11	Household, Commercial & Industrial Waste Transfer Station	27	Merton
S E Skips Ltd, Willow Lane, Merton	83456	A14	Transfer Station taking Non-Biodegradable Wastes	19	Merton
George Killoughery Ltd			Aggregates	96	Merton
Country Skip Hire	83335	A14	Transfer Station taking Non-Biodegradable Wastes	17	Sutton

Site name	Licence number	Facility Code	Facility Type	Site Ref No	Borough
Veolia, Stubbs Mead Depot	100651	S0801	HCI Waste Transfer Station		Croydon

Source: EA data (March 2010)

The South London Waste Plan Capacity Gap

3.11 Table 3.3 identifies that the Waste Plan area has a total of 444,653 tonnes of existing capacity to manage waste. Table 3.3 identifies the capacity gaps associated with the three target years for the 2008 London Plan Apportionment.

Table 3.3: Capacity Gaps at 2011, 2016 and 2021 based on the 2008 London Plan Apportionments

Apportionment, by waste stream	2011		2016		2021	
	MSW	C&I	MSW	MSW	C&I	C&I
	275,839	608,494	415,567	732,452	474,643	847,928
Total Apportionment	884,332		1,148,019		1,322,571	
Existing capacity	444,653		444,653		444,653	
Capacity Gap	439,679		703,366		877,918	

Calculating the amount of land needed to accommodate waste management facilities

3.12 To convert the 'capacity gaps' (i.e. difference between what is currently managed and the apportionment) into the amount of land needed, it is necessary to make assumptions about:

- The number and range of facilities needed to treat waste in the Waste Plan area.
- The 'typical' footprints for the types of modern facility the South London Waste Plan encourages.

Describing the range of facilities needed to meet the apportionment

3.13 Although the South London Waste Plan isn't required to identify the *exact* number of each technology type required to manage this capacity gap, guidance indicates that as much information as possible should be provided about the range of facilities likely to be required to treat waste.

3.14 The capacity gap of almost 880,000 tonnes at 2021 identified for the South London Waste Plan could be met through an infinite number of different options including a mix of small and large facilities and technology types. As previously stated, the JMWMS and procurement work undertaken by the South London Waste Partnership are both technology neutral.

3.15 In response to the technology-neutral local context, earlier stages of the South London Waste Plan have identified an anticipated configuration of facilities based on Table

4A.7 of the 2008 London Plan. Table 4A.7 identifies the number and type of facilities expected to treat MSW and C&I in the capital. However, this table is removed from the Draft Replacement London Plan which has recently gone through its Examination in Public. Since we must give consideration to the changing regional policy context, it is considered prudent therefore to give no weight to Table 4A.7 in the future development of the South London Waste Plan.

3.16 What is known, however, is that the national, regional (2008 London Plan Policy 4A.21 and the Draft Replacement London Plan) and local policy context (the boroughs' JMWMS) supports the recycling and composting of waste. Furthermore, for waste which is not recycled, the 2008 London Plan indicates a preference for advanced emerging treatment technologies (e.g. anaerobic digestion, gasification and pyrolysis) over conventional incineration. The emerging Draft Replacement London Plan places greater emphasis on the *outputs* of technology and the need to reduce carbon impacts of waste management. Locally, the procurement work of the South London Waste Partnership has no preference for technology types, but rather will reward technologies which have low carbon impacts. Furthermore, the boroughs' Joint Municipal Waste Management Strategy (JMWMS) also has no preference for technology types.

3.17 Table 3.4 describes the range of modern waste facilities currently available.

Table 3.4: Description of modern waste facilities

Type of facility	Description
Materials Recovery Facility (MRF)	Treat mixed dry, recyclable materials. MRFs identify different waste types (paper, cans etc) and mechanically and/or manually sort and segregate them. Materials are bundled and transported to manufacturing facilities, for processing into new products.
In-vessel Composting	Modern composting is covered, takes place in 'in-vessel' composting facilities, with well-regulated airflow to reduce odours.
Anaerobic Digestion (AD)	A type of composting facility, in the absence of Oxygen. AD facilities produce a biogas by-product that can be used as a fuel source to provide renewable energy. AD facilities typically process food waste.
Mechanical Biological Treatment (MBT) / Mechanical Heat Treatment (MHT)	Separates organic material and dry recyclables from mixed waste, recovering the recyclables for the manufacturing industry and the organic element usually for fuel use or composting. Mechanical Heat Treatment is a relatively new term used to describe configurations of mechanical and thermal treatment, including team based technologies. The purpose is to separate mixed waste into several component parts, to give further options for recycling, recovery and in some instances biological treatment. The most common system being promoted is based on autoclaving.
Advanced thermal treatment eg Pyrolysis / Gasification	Thermal treatment facilities use high temperatures to break down waste and can produce energy in the form of heat and power. Modern processes including pyrolysis and gasification use less oxygen than traditional mass-burn incineration and emit fewer air emissions. An advantage of some modern facilities is that they can be designed to be modular; they're made up of small units which can be added or taken away as waste streams or volumes change.

Source: Table 4A.7 of the 2008 London Plan

3.18 Whilst, in this ‘technology neutral’ context, it is not possible to identify a specific number of particular facilities that the local authorities are looking to procure, it is possible to make some assumptions about the additional capacity needed to meet recycling and composting targets.

3.19 In the discussion of contractual arrangements already in place to recycle/compost the boroughs’ municipal waste, this report has concluded that no further capacity for recycling/composting is required to treat municipal waste within the first 10 years of the South London Waste Plan. This is because the partner boroughs’ municipal recyclable waste is already catered for in contracts for the Waste Plan period and the South London Waste Partnership consider these contracts to be sufficient to enable the boroughs’ to meet their 50% municipal waste recycling/composting target within the next ten years. However, additional recycling/composting capacity will be required for commercial and industrial waste. By applying the regional 70% recycling target (see Table 3.5) to the Waste Plan’s commercial and industrial waste *apportionment*, it is possible to identify the minimum additional recycling/composting capacity needed to ensure the Waste Plan area meets this recycling target.

Table 3.5: Composting and recycling targets for MSW and C&I waste

Target description	Origin	Target Year	Target
MSW	Boroughs’ JMWMS	2020	50%
	Waste Strategy for England	2020	50%
	2008 London Plan	2015	45%
C&I	2008 London Plan	2020	70%

Table 3.6: Calculating recycling/composting capacity needed to meet recycling/composting targets at each Apportionment target year

Apportionment, by waste stream	2011		2016		2021	
	MSW	C&I	MSW	MSW	C&I	C&I
	275,839	608,494	415,567	732,452	474,643	847,928
Total Apportionment	884,332		1,148,019		1,322,571	
Existing capacity	444,653		444,653		444,653	
Capacity Gap	439,679		703,366		877,918	
Minimum additional recycling capacity needed	-18,708		68,063		148,896	

3.20 Table 3.1 shows that we currently have 444,653 tonnes of recycling/composting capacity within the Waste Plan area. To meet recycling/composting targets for commercial and industrial waste, approximately 149,000 tonnes of additional recycling/composting capacity is needed at 2021 and an additional 68,000 tonnes is needed at 2016.

3.21 The remaining capacity which is needed to meet the apportionment would be encouraged to be treated in a range of management facilities (as listed in Table 3.4), in accordance with the waste hierarchy.

Typical footprints for modern waste management facilities

3.22 The studies listed below provide illustrative site size requirements (including supporting site infrastructure) for the range of modern waste management facilities. Findings from these studies are combined in Table 3.7.

- The 2004 Office of the Deputy Prime Minister-commissioned report, '*Planning for waste management facilities: a research study.*' prepared by Enviro Consulting.
- The 2004 GLA-commissioned report, '*Meeting the challenge: a guide to waste planning in London*' prepared by Land Use Consultants and SLR Consulting Ltd.
- The 2005 GLA-commissioned report, '*Recycling and recovery facilities: Sites investigation in London,*' prepared by Land Use Consultants and SLR Consulting Ltd. The figures in this report are based on those in the 2004 ODPM report, together with consideration of figures presented in the ALG Guide to Waste Planning in London as well as evidence from operational and recent planning applications for waste facilities in London. It is upon these figures that the 2008 London Plan assumptions are based.
- The 2007 DEFRA-commissioned '*Waste Technology Management Briefs*', prepared by Enviro Consulting. Five reports were published, covering advanced biological treatment, mechanical biological treatment, mechanical heat treatment, incineration and advanced thermal treatment. These studies provided some indicative land takes needed for this range of technologies.
- The 2008 GLA and Design for London-commissioned report, '*Rubbish In-Resources Out. Design ideas for waste facilities in London,*' prepared by Dow Jones Architects and Arup. This report presents concepts for integrating waste management into London's urban settings. Since the South London Waste Plan is seeking to allocate strategic sites, the examples used from this report are those which are located within industrial settings; rather than those examples which show how waste treatment can be integrated into dense urban and residential settings.

3.23 In addition, more recent applications for waste facilities in London have been examined to add a more recent London-specific dimension to the consideration of 'throughput per hectare.' These are identified at sources i, j and k within Table 3.7. The more recent applications and pre-application discussions taking place in the South London partner boroughs indicate that higher throughputs per hectare can be achieved. One current application in Merton, for example aims to manage over 100,000 tonnes of waste in a Mechanical Biological Treatment facility on 0.3 hectares. This comparative isn't included in Table 3.7 since it is considered that the throughput is exceptionally high and will skew the average figures too greatly.

Table 3.7: Average throughput and size of waste management facilities based on previously published studies³⁰

Type of waste management facility	Potential Tonnage (tonnes per annum)	Land take (hectares)	Potential Tonnage / hectare (column b / column c)*	Source
Materials Recovery Facility (MRF)	50,000	1.2	41,667	b
Materials Recovery Facility (MRF)	50,000	1 to 2	50,000	c
Materials Recovery Facility (MRF)	85,000	1	85,000	a
Materials Recovery Facility (MRF)	84,000	0.65	129,231	j
In-Vessel composting plant (IVC)	20,000	1	20,000	b
In-Vessel composting plant (including kitchen waste)	25,000	1 to 2	25,000	c
In-Vessel composting plant	60,000	2	30,000	a
Anaerobic Digestion Plant (AD)	40,000	1	40,000	b
Anaerobic Digestion Plant	75,000	2.34	32,051	k
Anaerobic Digestion Plant	50,000	1.5	33,333	a
Mechanical Biological/Heat Treatment /Pre-Treatment (MBT)/(MHT)/(MPT)	50,000	1 to 2	50,000	c
Mechanical Biological Treatment (MBT)	75,000	1.5	50,000	g
Mechanical Biological Treatment (MBT)	60,000	1	60,000	a
Mechanical Biological Treatment (MBT)	60,000	2.5	24,000	b
Mechanical Biological Treatment (MBT)	120,000	4	30,000	b
Mechanical Biological Treatment (MBT)	180,000	3.5	51,429	g
Mechanical Heat treatment (MHT)	100,000	1	100,000	e
Mechanical Heat treatment (MHT)	100,000	2	50,000	e
Mechanical Biological Treatment (MBT)	250,000	2.5	100,000	a
Mechanical Pre Treatment (MPT)	170,000	1.79	94,972	i
Mechanical Pre Treatment (MPT)	180,000	1.79	100,559	i
Mechanical Biological Treatment (MBT)	190,000	1.79	106,145	i
Gasification and Pyrolysis	10,000	1	10,000	b
Gasification and Pyrolysis	50,000	1	50,000	a
Gasification and Pyrolysis	50,000	1 to 2	50,000	c

³⁰ Waste transfer stations were removed from the calculations, since the South London Waste Plan is seeking to allocate land to waste management facilities, not to additional transfer stations. In addition, examples requiring less than 0.9 hectares were removed, since the South London Waste Plan is seeking to allocate sites greater than 0.9 hectares.

Type of waste management facility	Potential Tonnage (tonnes per annum)	Land take (hectares)	Potential Tonnage / hectare (column b / column c)*	Source
Pyrolysis	60,000	0.98	61,224	f
Gasification and Pyrolysis	240,000	3.5	68,571	a
Modern Energy from Waste Plant (EfW)	50,000	2	25,000	a, b
Thermal treatment	50,000	1 to 2	50,000	c
Thermal treatment	90,000	1.7	52,941	h
Energy from Waste Plant (EfW)	100,000	2.5	40,000	b
Thermal treatment	250,000	2 to 5	125,000	c
Thermal treatment	250,000	4	62,500	h
Energy from Waste Plant (EfW)	400,000	2.5	160,000	a
Energy from Waste Plant (EfW)	204,000	1.86	109,677	l

Average throughput for recycling facilities (MRF, IVC, AD, MBT/MHT/MPT): 59,245 tonnes per hectare
Average throughput across all waste facilities (i.e. including gasification, pyrolysis and modern efw): 61,951 tonnes per hectare

- a) Source: Recycling and recovery facilities: Sites investigation in London, prepared by Land Use Consultants and SLR Consulting for the GLA, July 2005
- b) Source: Meeting the Challenge: A guide to waste planning in London, prepared by Land Use Consultants and SLR Consulting for the ALG, November 2004
- c) Source: Planning for Waste Management Facilities: A research study, prepared by Enviro Consulting for the ODPM, August 2004
- d) Source: 'Rubbish In-Rubbish Out' prepared by Dow Jones Architects and Arup for the GLA and Design for London, 2008
- e) Source: Mechanical Heat Treatment of solid municipal waste, prepared by Enviro Consulting for DEFRA, 2007
- f) Source: Advanced Thermal Treatment of Municipal Solid Waste, prepared by Enviro Consulting for DEFRA, 2007
- g) Mechanical Biological Treatment of Waste of Municipal Solid Waste, prepared by Enviro Consulting for DEFRA, 2007
- h) Incineration of municipal solid waste, prepared by Enviro Consulting for DEFRA, 2007
- i) Confidential: details of facilities discussed in pre-application meetings with bidders as part of the South London Waste Partnership's residual waste treatment procurement, 2010
- j) Application for A MRF at Western Riverside Waste Transfer Station, Wandsworth. Identified in Wandsworth's Core Strategy, 2010
- k) Application for an AD facility at Beddington Farmlands, Sutton, 2010

* Where ranges are given, the smallest footprint is used, on the basis that land in South London is scarce and developers should be encouraged to maximise the throughput on any given site.

3.24 Table 3.7 reveals that the average throughput for recycling facilities to be around 59,000 tonnes per hectare, whilst the average throughput across all modern waste facilities (i.e. including pyrolysis, gasification and modern energy from waste facilities) is slightly higher, at around 62,000 tonnes per hectare.

3.25 It is important to note that the findings shown in Table 3.7 are *indicative* only. Much will depend on the site specific constraints and opportunities; particularly the shape of the site, permissible height of buildings etc. There is always potential for facilities of a greater or smaller size than those indicated, for example sites like the one exempt from the calculations of Table 3.7 (see paragraphs above Table 3.7). In addition, there are opportunities to 'co-locate' two or more waste management facilities, which can help to reduce overall land take by virtue of the shared use of access roads and storage areas.

3.26 However, it is necessary to make some assumptions about land take, to enable a quantum of land needed for the South London Waste Plan to be identified. Table 3.7 shows that the land area needed to accommodate new waste management facilities varies between technology types and the volume of waste to be managed. However, in general, sites of between 1-2 hectares are likely to be needed for facilities managing around 50,000-85,000 tonnes per annum. Larger sites of between 2.5-5 hectares will be needed for facilities that could manage between 100-400,000 tonnes per annum.

3.27 Whilst Table 3.7 identifies an average throughput across all modern waste management facilities of around 62,000 tonnes per hectares, the 2006 GLA-commissioned, '*London Waste Apportionment Study*' prepared by Jacobs Babbie identifies an 'average throughput' of 80,000 tonnes of waste per hectare. The Jacobs study forms part of the 2008 London Plan's evidence base and is based on an evaluation of data in the 2004 ODPM research report together with additional data provided by the GLA.

3.28 Whilst the Jacobs study forms part of the evidence base for the 2008 London Plan, the evidence shown in Table 3.7 shows a lower throughput figure of approximately 60,000 tonnes per hectare. It is considered that using a lower average throughput per hectare figure builds greater contingency and therefore flexibility into the South London Waste Plan. For this reason, the lower figure will be used in the South London Waste Plan.

3.29 By applying the *average throughput per hectare for recycling facilities* (59,245) to the minimum additional capacity needed to meet recycling/composting targets (identified in Table 3.6), it is possible to identify a minimum land take needed for additional recycling/composting facilities. The remaining apportionment need is then assumed to be accommodated by the wider range of facilities available (which have an average throughput of just over 61,000 tonnes per year). All calculations are shown in Table 3.9 which appears at the end of this report.

Considering the re-orientation of existing transfer facilities to management

3.30 In calculating additional land take requirements, it should be noted that some land take is likely to come from existing transfer stations. Given that the regional and local policy context protects existing sites and supports the intensification of all waste sites, existing waste transfer stations (which do not currently contribute towards the 'existing waste management capacity' within the Waste Plan area), should be encouraged in the

policies of the Proposed Submission version of the South London Waste Plan to be redeveloped as management facilities. In progressing the South London Waste Plan, a number of existing waste transfer stations have been identified as potential sites for the re-development as *management* facilities. These are listed in Table 3.8; those relating to the South London Waste Partnership were already discussed in Chapter 2 of this report. It is anticipated that, during the lifetime of the South London Waste Plan, these transfer stations will be redeveloped as management sites.

Table 3.8: Existing Transfer Stations which are identified as potential sites for redevelopment as management facilities during the Waste Plan’s lifetime

Site name	Facility Code	Facility Type	Site ref	Site Size (ha)	Borough	Commentary
Villiers Road	A09	Special Waste Transfer	6	1.86	Kingston	The South London Waste Plan assumes that only one of these Partnership sites will be redeveloped as management within the lifetime of the Waste Plan. The average landtake across the three sites is 1.9ha*.
Garth Road HWRC	A11	Household, Commercial & Industrial Transfer	9	2.05	Merton	
Factory Lane Transfer Station	A11	Household, Commercial & Industrial Transfer	1	1.79	Croydon	
Country Skip Hire	A14	Transfer Station	17	2.38	Sutton	Evidence Base Study 3: Deliverability identifies this site as deliverable within the Waste Plan’s lifetime.
Benedict Wharf MRF	A16	Physical Treatment Facility	126	3.87	Merton	Evidence Base Study 3: Deliverability identifies this site as deliverable within the Waste Plan’s lifetime.
Total				8.15 ha		

* This report earlier identified that the South London Waste Partnership has made the boroughs’ own transfer stations (Villiers Road, Garth Road and Factory Lane) available to bidders as part of their ongoing residual waste procurement programme. As such, it has been assumed that it is likely that at least one of these sites will be developed for management, rather than its existing transfer capacity during the lifetime of the Waste Plan.

3.31 Table 3.9 completes the land take calculations described within this section. The table considers the existing waste management capacity within the Waste Plan area (444,653 tonnes); it considers the additional recycling/composting capacity needed to meet the 70% recycling/composting target for commercial and industrial waste; and it considers the re-orientation of 8ha of existing waste transfer station land to treatment capacity and considers that 6.1 hectares of new land is needed to meet the Apportionment in 2021 and 3 hectares of new sites are needed by 2016.

Table 3.9: Calculating the land take needed to meet the 2008 London Plan Apportionment target years

	2011		2016		2021	
	MSW	C&I	MSW	C&I	MSW	C&I
Apportionments by waste stream	275,839	608,494	415,567	732,452	474,643	847,928
Total Apportionment	884,332		1,148,019		1,322,571	
Existing management capacity	444,653		444,653		444,653	
Capacity Gap	439,679		703,366		877,918	
Minimum additional recycling capacity needed (70% of C&I minus Existing management capacity)	-18,708		68,063		148,896	
Minimum land take needed for recycling/composting facilities at 2021 (average throughput per hectare used: 59,245)	0		1		2.5	
Total remaining capacity needed at 2021 (Capacity Gap minus Minimum additional capacity needed for recycling)	458,387		635,303		729,021	
Land take required for remaining capacity (average throughput per hectare used: 61,951)	7		10		11.8	
Total land take required to meet the apportionment	7		11		14.3	
Existing Transfer Stations found to have good potential for re-orientation to management facilities	8		8		8.2	
New land take required (hectares)	-1		3		6.1	

3.32 Table 3.10 calculates the land take requirements needed to meet 100% of the waste arisings provided in the 2008 London Plan. This shows that at 2021, one additional hectare of land is needed to meet 100% of waste arisings than is needed to meet the apportionment.

Table 3.10: Calculating the land take needed to strive to meet the equivalent of 100% of C&I and MSW waste arisings

	2011		2016		2021	
	MSW	C&I	MSW	C&I	MSW	C&I
Arisings by waste stream	535,000	649,000	576,000	699,000	621,000	745,000
Total Arisings	1,184,000		1,275,000		1,366,000	
Existing management capacity	444,653		444,653		444,653	
Capacity Gap	739,347		830,347		921,347	
Minimum additional recycling capacity needed (70% of C&I minus Existing management capacity)	9,647		44,647		76,847	
Minimum land take needed for recycling/composting facilities at 2021 (average throughput per hectare used: 59,245)	0		0.7536		1	
Total remaining capacity needed at 2021 (Capacity Gap minus Minimum additional capacity needed for recycling)	729,700		785,700		844,500	
Land take required for remaining capacity (average throughput per hectare used: 61,951)	12		12.6826		14	
Total land take required to meet the arisings	12		13,4362		15	
Existing Transfer Stations found to have good potential for re-orientation to management facilities	8		8.15		8	
New land take required (hectares)	4		5.29		7	

Concluding remarks

3.33 In conclusion, the requirements of the 2008 London Plan result in the need for the South London Waste Plan to provide six additional hectares of land for waste management development by 2021. However, for the Waste Plan area to be self-sufficient, one additional hectare i.e. seven hectares of land is needed to meet 100% of waste arisings by 2021. This is based on a detailed analysis of existing capacity which has been verified by real 'throughput' data and on an assumption about typical throughputs per hectare which themselves are based on a wide number of credible technical studies and recent London-based waste applications/ pre-application meetings.

3.34 The final calculations have also incorporated the assumption that 8 hectares of land currently in waste transfer use will be re-oriented to treatment capacity over the next 10 years. This is supported by the submission of planning applications at the Country Waste and at Benedict's Wharf sites and the identification of the boroughs' Waste Transfer Stations as possible sites to be used in relation to the South London Waste Partnership's procurement work.

3.35 The Submission version of the Waste Plan will identify the sites and areas which will provide sufficient land to enable the Waste Plan area to meet the 2008 London Plan apportionment.