Waste Technical Paper

Prepared for the Waste Planning Authorities in the Western Riverside Waste Authority Area

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Anthesis

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Prepared for:
Manpreet Kanda, Senior Planning Officer (Planning Policy)
Planning and Borough Development
The Royal Borough of Kensington and Chelsea
Kensington Town Hall, London W8 7NX
Email: Manpreet.Kanda@RBKC.gov.uk
Website: www.rbkc.gov.uk/planningpolicy
Tel: 020 77456728

Bethany Lester, Planning Policy Officer
London Borough of Hammersmith & Fulham
Town Hall, King Street
Hammersmith, London W6 9JU
Email: Bethany.Lester@lbhf.gov.uk
Website: Web: www.lbhf.gov.uk
Tel: 020 8753 2534

Catherine Carpenter, Delivery Lead Planning Strategy and Policy
Planning, Transport and Development
London Borough of Lambeth
Phoenix House 1st Floor
10 Wandsworth Road
London SW8 2LL
Email: CCarpenter@lambeth.gov.uk
Website: www.lambeth.gov.uk/planning
T: 020 7926 1251

Adam Hutchings, Team Leader
London Borough of Wandsworth
The Town Hall
Wandsworth High Street
London SW18 2PU
Email: ahutchings@wandsworth.gov.uk
T: 020 8871 6650

Lauren Laviniere, Senior Planning Officer
Old Oak & Park Royal Development Corporation
City Hall, London SE1 2AA
Email: Lauren.Laviniere@opdc.london.gov.uk
T: 020 7983 6595

Prepared by:

Anthesis UK Ltd.,
Unit 12.2.1, The Leathermarket,
11-13 Weston Street,
London, SE1 3ER

E-mail: mail@anthesisgroup.com
Website: www.anthesisgroup.com

Tel: 01865 250818
Fax: 01865 794586

Company Registration 08425819

Report written by:
Peter Scholes, Hannah Dick, Deborah Sacks

Analysts:
Hannah Dick, Polly Stebbings

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Abbreviations

Acronym	Definition
ABP	Animal By-Products
AD	Anaerobic Digestion
C&I	Commercial and Industrial Waste
CD&E	Construction, Demolition and Excavation Waste
Defra	Department for Environment, Food and Rural Affairs
DTC	Duty to Cooperate
EA	Environment Agency
EIA	Environmental Impact Assessment
EWC	European Waste Code
GLA	Greater London Authority
HWDI	Hazardous Waste Data Interrogator
ILW	Intermediate Level Radioactive Waste
IVC	In-Vessel Composting
IWMF	Integrated Waste Management Facility
ktpa	Thousands of tonnes Per Annum
LACW	Local Authority Collected Waste
LBHF	The London Borough of Hammersmith and Fulham
LBL	The London Borough of Lambeth
LBW	The London Borough of Wandsworth
LDF	Local Development Framework
LLW	Low Level Radioactive Waste
MBT	Mechanical Biological Treatment
MDC	Mayoral Development Corporation
MHT	Mechanical Heat Treatment
MRF	Materials Recycling Facility
MSW	Municipal Solid Waste
OPDC	The Old Oak and Park Royal Development Corporation
RBKC	The Royal Borough of Kensington and Chelsea
RDF	Refuse derived fuel
SOC	Substance Oriented Classification
TfL	Transport for London
tpa	Tonnes Per Annum
VLLW	Very Low Level Radioactive Waste
WDI	Waste Data Interrogator
WEEE	Waste Electrical and Electronic Equipment
WPA	Waste Planning Authority
WRWA	Western Riverside Waste Authority

Glossary

Term	Definition
Agricultural Waste	Waste from a farm or market garden, consisting of matter such as manure, slurry and crop residues.
Anaerobic Digestion	Organic matter broken down by bacteria in the absence of air, producing a gas (methane) and liquid (digestate). The by-products can be useful, for example biogas can be used in a furnace, gas engine, turbine or gas-powered vehicles, and digestates can be re-used on farms as a fertiliser
Babtie Formula	Reported in "London Waste Apportionment Part A" Jacobs Babtie 2006, as an approximate measure of the potential waste management capacity deliverable per hectare of development land i.e. 80,000 tonnes waste management capacity per hectare
Commercial Waste	Controlled waste arising from trade premises.
Construction, Demolition & Excavation Waste	Controlled waste arising from the construction, repair, maintenance and demolition of buildings and structures.
DEFRA – Department for Environment, Food and Rural Affairs	Defra is a UK Government department. Its mission is to enable everyone to live within our environmental means. This is most clearly exemplified by the need to tackle climate change internationally, through domestic action to reduce greenhouse gas emissions, and to secure a healthy and diverse natural environment.
Dry Recycling	Dry recycling is comprised of dry recyclables (i.e. not food/garden waste, organic waste) such as paper, cardboard, plastics, metals and glass.
Energy from Waste	The conversion of waste into a useable form of energy, often heat or electricity.
Environment Agency	A government body that aims to prevent or minimise the effects of pollution on the environment and issues permits to monitor and control activities that handle or produce waste. It also provides up-to-date information on waste management matters and deals with other matters such as water issues including flood protection advice.
Hazardous Landfill	Sites where hazardous waste is landfilled. This can be a dedicated site or a single cell within a non-hazardous landfill, which has been specifically designed and designated for depositing hazardous waste.
Hazardous Treatment	Sites where hazardous waste is treated so that it can be landfilled.
Hazardous Waste	Waste that poses substantial or potential threats to public health or the environment (when improperly treated, stored, transported or disposed). This can be due to the quantity, concentration, or characteristics of the waste.
Household Waste	Refuse from household collection rounds, waste from street sweepings, public litter bins, bulky items collected from households and wastes which householders themselves take to household waste recovery centres and "bring sites".
Incineration	The controlled burning of waste. Energy may also be recovered in the form of heat (see Energy from Waste).
Industrial Waste	Waste from a factory or industrial process.
Inert waste	Waste not undergoing significant physical, chemical or biological changes following disposal, as it does not adversely affect other matter that it may come into contact with, and does not endanger surface or groundwater.
Inert Landfill	A landfill site that is licensed to accept inert waste for disposal.
In-Vessel Composting	A system that ensures composting takes place in an enclosed but aerobic (in the

Term	Definition
	presence of oxygen) environment, with accurate temperature control and monitoring. There are many different systems, but they can be broadly categorised into six types: containers, silos, agitated bays, tunnels, rotating drums and enclosed halls.
ILW - Intermediate level radioactive waste	Radioactive wastes exceeding the upper activity boundaries for LLW but which do not need heat to be taken into account in the design of storage or disposal facilities.
Local Authority Collected Waste (LACW)	Household waste and any other waste collected by a waste collection authority such as municipal parks and gardens waste, beach cleansing waste and waste resulting from the clearance of fly-tipped materials.
Landfill	The permanent disposal of waste into the ground, by the filling of man-made voids or similar features.
Landfill Directive	European Union requirements on landfill to ensure high standards for disposal and to stimulate waste minimisation.
LLW – low level radioactive waste	Lightly contaminated miscellaneous scrap, including metals, soil, building rubble, paper towels, clothing and laboratory equipment.
Materials Recycling Facility (MRF)	A facility for sorting and packing recyclable waste.
Mechanical Biological Treatment (MBT)	The treatment of residual waste using a combination of mechanical separation and biological treatment.
Non Hazardous Landfill	A landfill which is licensed to accept non-inert (biodegradable) wastes e.g. municipal and commercial and industrial waste and other non-hazardous wastes (including inert) that meet the relevant waste acceptance criteria.
Non Inert	Waste that is potentially biodegradable or may undergo significant physical, chemical or biological change once landfilled.
Organic Waste	Biodegradable waste from gardening and landscaping activities, as well as food preparation and catering activities. This can be composed of garden or park waste, such as grass or flower cuttings and hedge trimmings, as well as domestic and commercial food waste.
Open Windrow Composting	A managed biological process in which biodegradable waste (such as green waste and kitchen waste) is broken down in an open air environment (aerobic conditions) by naturally occurring micro-organisms to produce a stabilised residue.
Proximity Principle	Requires that waste should be managed as near as possible to its place of production, reducing travel impacts.
Recovery	Value can be recovered from waste by recovering materials through recycling, composting or recovery of energy.
Recycled Aggregates	Aggregates produced from recycled construction waste such as crushed concrete and planings from tarmac roads.
Recyclate	Raw material sent to, and processed in, a waste recycling plant or materials recovery facility (e.g. plastics, metals, glass, paper &card).
Recycling	The reprocessing of waste either into the same product or a different one.
Refuse Derived Fuel	"Refuse derived fuel (RDF) consists of residual waste that is subject to a contract with an end-user for use as a fuel in an energy from waste facility. The contract must include the end-user's technical specifications relating as a minimum to the calorific value, the moisture content, the form and quantity of the RDF" (Defra). RDF is usually produced from municipal, commercial or industrial waste which has been processed to remove recyclable components such as metals, sorted,

Term	Definition
	shredded, potentially dried and baled, to produce a fuel to a user's specification.
Residual Waste	Waste remaining after materials for re-use, recycling and composting have been removed.
Waste Electrical and Electronic Equipment (WEEE)	Sites for the depollution, disassembly, shredding, recovery or preparation for disposal, and any other operation carried out for the recovery or disposal of Waste Electrical and Electronic Equipment.
Waste Hierarchy	A framework for securing a sustainable approach to waste management. Waste should be minimised wherever possible. If waste cannot be avoided, then it should be re-used; after this it should be prepared for recycling, value recovered by recycling or composting or waste to energy; and finally disposal.
Waste Local Plan	A statutory development plan prepared (or saved by the waste planning authority, under transitional arrangements), setting out polices in relation to waste management and related developments.
Waste Minimisation / Reduction	The most desirable way of managing waste, by avoiding the production of waste in the first place.
Waste Planning Authority (WPA)	The local authority responsible for waste development planning and control. They are unitary authorities, including London Boroughs, National Park Authorities, and county councils in two-tier areas.
Waste Regulation Authority	The Environment Agency has responsibility for authorising waste management licenses for disposal facilities, and for monitoring sites.
Waste Transfer Station	A site to which waste is delivered for sorting or baling prior to transfer to another place for recycling, treatment or disposal.
Western Riverside Waste Authority	Western Riverside is a waste disposal authority region covering the four London boroughs of Hammersmith and Fulham, Lambeth, Wandsworth and Kensington and Chelsea.

Sources: Planning Portal, SEPA, Anthesis

Executive summary

ES1 Introduction

ES1.1 The Waste Planning Authorities (WPAs) within the Western Riverside Waste Authority's (WRWA) area are working together on evidence to enable each borough to plan for its waste apportionments (defined in the London Plan 2015) and arisings (defined in the National Planning Policy for Waste, NPPW). The WPAs are:

- The Royal Borough of Kensington and Chelsea (RBKC);
- The London Borough of Hammersmith and Fulham (LBHF);
- The London Borough of Wandsworth (LBW);
- The London Borough of Lambeth (LBL); and
- The Old Oak and Park Royal Development Corporation (OPDC)

ES1.2 For OPDC, the study only includes the land within the OPDC boundary which falls within LBHF. The remainder of the OPDC's land falls within the London Boroughs of Brent and Ealing which are part of the West London Waste Authority (WLWA) and Waste Plan (WLWP), therefore these parts of the OPDC are not part of the WRWA and not within the scope of this study.

ES1.3 The purpose of this study is to provide an up-to-date waste evidence base for the WRWA WPAs to support meeting their waste apportionment target, as required in paragraph 5.80 of the Mayor's London Plan (2015), and arisings, as required by the National Planning Policy for Waste (NPPW). The evidence base work will underpin Local Plan policies being developed by the WPAs within the WRWA and will inform discussions with other waste planning authorities on the strategic approach to waste management.

ES1.4 The Plan states that London should manage as much of its waste within its boundaries as practicable, enabling London and Londoners to receive environmental and economic benefits from its management. Consequently the aim of the Plan's waste policies is to achieve net self-sufficiency for household and commercial waste by 2026.

ES1.5 The Plan also states that "Boroughs must allocate sufficient land and identify waste management facilities to provide capacity to manage the tonnages of waste apportioned in the Plan." Land to manage borough waste apportionments should be brought forward through protecting and facilitating the maximum use of existing waste sites, particularly waste transfer facilities and landfill sites, identifying sites in significant industrial and employment locations, and safeguarding Thames river wharves.

ES1.6 The results and conclusions of this study are summarised as follows.

ES2 Local Authority Collected Waste (LACW) and Commercial & Industrial (C&I) Waste

Waste Arisings

ES2.1 GLA London apportionment targets, per WPA area, are based upon forecast arisings in household and, commercial and industrial solid waste. The apportionment targets have been further split into key waste types (dry recycling, organics waste and residual waste), so direct comparison of capacity available to forecast arisings, per WPA area for each major type of waste facility, can be achieved. The methodology for accomplishing this is explained in sections 3.3 and 3.4 of this report.

Destinations of WRWA's Waste - Exports

ES2.2 Data from the Environment Agency (2015) shows that of the waste generated within the WRWA WPAs, around 28% is managed within the WRWA area (68.1kt), with the remainder exported to other London Boroughs (Bexley 60%, 146kt; Havering 5%, 11kt; Newham 2%, 5kt) with other smaller quantities exported further afield to destinations such as West Sussex, Hampshire and Slough.

Destinations of WRWA's Waste - Imports

ES2.3 Issues with the coding of waste imports in the Environment Agency returns data mean that waste imports into the WRWA area cannot be accurately assessed. However, this is the best available data for the waste planning purposes which is annually updated and refined. In 2015 LBW received 570k tonnes, and in 2014 received 606k tonnes of waste coded to 'London', 'South London', 'South east' etc. Therefore much of this waste may have actually been derived within the WRWA region.

Waste Management Capacity compared to the London Apportionment targets

ES2.4 Current and future waste management capacity in each WPA, and WRWA as a whole, was reviewed using a number of data sources, including the Environment Agency "active sites" data, permitting data and direct discussion with key operators. For each site, its assumed operational capacity was assessed against the criteria included in the London Plan (Policy 5.17, paragraph 5.79) ie. waste is deemed to be managed in London if:

- it is used in London for energy recovery
- it relates to materials sorted or bulked in London facilities for reuse, reprocessing or recycling
- it is materials reused, recycled or reprocessed in London
- it is a 'biomass fuel' as defined in the Renewable Obligation Order

ES2.5 Transfer stations – where material is bulked for transportation to other waste management facilities, this capacity was not included as a contribution towards the apportionment targets; where a degree of recycling takes place in the operation of the facility (gleaned from Environment Agency output data, or from discussion with the operator) this recycling capacity was included;

ES2.6 Exempt Sites – were included where capacity met the requirements of the London Plan. A list of exemptions assumed relevant to the London Apportionment, and assumed capacities per site, are given in section 4.2 of this report.

ES2.7 By comparing London apportionment targets (as totals and as key waste types) per WPA, with available capacity which meets the criteria listed above, capacity surpluses or shortfalls were identified per WPA, and translated into land requirements per facility type using both the Babtie formula[1] (which assumes 1 hectare of land can deliver 80,000tpa of waste management capacity), and also using more detailed land take figures per facility type taken from "Planning for Waste Management Facilities" (ODPM, August 2004).

ES2.8 This comparison generated the following conclusions per WPA area:

[1] Reported in "London Waste Apportionment Part A" Jacobs Babtie 2006

Royal Borough of Kensington and Chelsea (RBKC)

ES2.9 There is a single active permitted waste management site in RBKC, permitted as a clinical waste transfer station, which therefore is not relevant capacity to deliver London apportionment targets. There are a number of sites which manage waste under an exemption with a total relevant waste treatment capacity of ca. 31 ktpa. There are no pending facilities in the planning system likely to deliver additional local capacity in the forecast period.

ES2.10 Comparing active capacity available in RBKC to the London Apportionment forecasts to 2036, shows a shortfall over the forecast period of between 107ktpa in 2016 and 167ktpa in 2036, consisting of residual waste treatment (68-70ktpa) and recycling (39-97ktpa) capacity shortfall, with an organic waste capacity surplus in 2016 (3ktpa) building to a 2ktpa shortfall in 2036.

ES2.11 Using the Babtie formula, the 2036 shortfall would be equivalent to 2.1ha of waste management allocated land. However, examining the 2036 shortfall in terms of the land take required to develop the required capacity shortfall by waste treatment type, shows a significantly larger requirement of 3.74ha to meet the 2036 London apportionment targets. Due to the constrained nature of the Borough and competing land use demands there are currently no opportunities to allocate waste sites of a combined size able to produce this level of capacity development within the borough area. This applies to an extent to all the boroughs in the WRWA area.

London Borough of Hammersmith & Fulham[2] (LBHF)

ES2.12 Two large waste sites (Powerday and EMR) and some other smaller sites exist within the London Borough of Hammersmith & Fulham. There are no pending facilities in the planning system likely to deliver additional local capacity in the forecast period[3]. Capacity contributing to the apportionment target is estimated at 681kt. Exempt sites add a further 25ktpa.

ES2.13 Since April 2015, the Old Oak and Park Royal Opportunity Area and the two large waste sites in the north of the borough (Powerday & EMR) have fallen within the boundary of the Old Oak and Park Royal Development Corporation (OPDC), although the OPDC does not have its own London Plan waste apportionment targets.

ES2.14 The Powerday site takes commercial & industrial and construction wastes as input to produce a range of recyclates and a quality RDF for export outside of the UK. The input material, being from commercial rather than municipal sources, contains a high level of biogenic materials such as wood, paper and cardboard, and relatively low moisture levels. A front end separation removes up to 15% of the input waste as recyclable materials such as metals, with shredders, air knife sorters, screens and manual picking stations able to produce a final fuel which meets their customers' specification. To meet the requirements of the London Apportionment, the RDF needs to be "produced as a "biomass fuel" as defined in the Renewable Obligation Order"[4] i.e. at least 90% of its energy content needs to be derived from biogenic material.

[2] Including the relevant part of the OPDC.

[3] However, LBHF's emerging Local Plan Policy CC6 seeks to ensure that major new developments make provision for managing their waste on site

[4] GLA's London Plan, Policy 5.17, paragraph 5.79

Powerday produce for their current market RDF with biogenic by weight content of >50%, but do not have the data to relate this to energy content as this is not a requirement of their current customers. However, with the range of separation and processing techniques available at the Powerday facility, with manual picking able to "fine tune" final product quality, it has been assumed that the facility is likely to be capable of producing a "biomass fuel" as defined in the Renewable Obligation Order from input commercial and industrial waste.

ES2.15 In terms of relevant capacity for the Powerday site, a number of figures are available. The London Borough of Hammersmith and Fulham "Proposed Submission Local Plan Background Paper: Waste" September 2016 used the 2014 EA returns data proportion of 42.6% MSW+C&I waste of the total facility throughput for that year, multiplied by 1.6 million tonnes permitted capacity giving 681ktpa as potential capacity. In the OPDC document "Draft Waste Strategy – local plan supporting study" February 2016, an average proportion of 35.7% taken from throughput data from 2011 to 2014, was used to produce a potential capacity of 571ktpa. Subsequent discussions with Powerday have confirmed that the higher 681ktpa throughput is achievable if the market demands it, and therefore this figure has been used in this study. It is assumed that all of this capacity is relevant to the London Apportionment, 102,150tpa as recyclate capacity (i.e. 15%) and the remainder (578,850 tpa) as residual waste capacity.

ES2.16 Therefore overall LBHF has surplus capacity against its waste apportionment of 537ktpa (2016) reducing to 462ktpa by 2036.

ES2.17 There are shortfalls in both recyclate and organic waste capacity by 2036, equivalent to 0.4ha of allocated land using the Babtie formula. However, the likely land required to develop enough capacity to meet the actual recyclate and organic waste capacity shortfall is approximately 0.9 ha.

London Borough of Lambeth (LBL)

ES2.18 There are a number of active permitted waste management sites in LBL with a total permitted capacity of over 500,000 tonnes. However it is actual operational capacity[5] is significantly lower, with only 25.9ktpa meeting the London Apportionment criteria. Exempt sites account for an additional 33ktpa. There are no pending facilities in the planning system likely to deliver additional local capacity in the forecast period.

ES2.19 Modelling capacity against London apportionment targets shows a shortfall over the forecast period of between 96k (2016) and 164ktpa (2036), consisting of residual waste treatment (76-80ktpa), organic (0.4-6ktpa) and recyclate (16-81ktpa) capacity shortfall.

ES2.20 All transfer stations within Lambeth are safeguarded for waste management use. The total area of these four transfer stations is 1.01 hectares. Based upon the Babtie formula these sites could deliver 81,000 tonnes of waste management capacity towards the London Apportionment target if repurposed.

ES2.21 Different waste management technologies require different footprints, and estimates of the likely land required to develop enough capacity to meet the shortfall is approximately 3.59ha. Taking into account

[5] Operational capacity, rather than permitted capacity, reflects the actual practical capacity of the facility and factors such as transport and access limitations which may affect the amount of waste that can be treated at a facility.

the capacity from safeguarded sites, the shortfall would be 2.58ha. There are no waste allocated sites able to provide this extent of development within the LBL area.

London Borough of Wandsworth (LBW)

ES2.22 There are several active permitted waste management sites in LBW including transfer stations at Cringle Dock and Smugglers Way, plus metal recycling facility European Metal Recycling (EMR) and a MRF at Smugglers Way. The overall capacity which can be counted towards the apportionment targets is estimated to be approximately 224 ktpa, with a further 33ktpa attributed to exempt sites. There are no pending facilities in the planning system likely to deliver additional local capacity in the forecast period.

ES2.23 Based upon current active waste management capacity in LBW, a current surplus capacity against the London apportionment of 13ktpa is forecast to become a capacity shortfall of 82ktpa by 2036. By waste type, this shortfall consists of residual waste capacity (107ktpa shortfall by 2036) and organic waste treatment (11ktpa shortfall by 2036).

ES2.24 As an option to alleviate this shortfall, the development potential of the allocated Pensbury Place Waste Management Site, in total 2.49ha, provides a potential future waste management output of 199,200 tpa (1.69ha, 132ktpa currently inactive), using the Babtie formula, which significantly exceeds the LBW forecast capacity shortfall in 2036.

ES2.25 Examining the 2036 active capacity shortfall in terms of the land take required to develop the type of waste management facility required shows an overall land requirement of 1.06ha. The available area of allocated land available at Pensbury Place (2.49ha) means that in LBW, there appears to be sufficient allocated and safeguarded waste sites to be able to develop sufficient waste management capacity to meet London apportionment requirements to 2036. .

WRWA Combined WPAs

ES2.26 Totalling available capacities for the 4 boroughs and comparing to the London Apportionment targets gives an overall capacity surplus of 346ktpa in 2016 reducing to 48ktpa in 2036. These figures show, therefore, that overall the WRWA authorities have sufficient waste management capacity to meet their London Apportionment targets over the forecast period.

ES2.27 However, separating capacity requirement per waste facility type shows an increasing shortfall in recyclate capacity from a surplus of 120ktpa in 2016 to a shortfall of 167ktpa in 2036, resulting from an assumed increase in recycling rates. Similarly, organic waste processing shows a shortfall of between 2ktpa (2016) and 27ktpa (2036) over the forecasting period. Using the Babtie formula, this total shortfall would translate to 2.4ha of development land.

ES2.28 Translating these shortfalls per process type into required land-take, the organic waste capacity shortfall would require 0.84ha of development land, 4.5ha for recyclate MRF capacity. However, actual land-take of active facilities within the WRWA area demonstrate that it is possible to deliver recycling capacity with land efficiency greater than the published averages[6]. In addition, increases in recyclate segregation can be delivered by increasing recycling rates at existing waste transfer stations, where space and access allows.

[6] Averages sourced from Office of the Deputy Prime Minister, "Planning for Waste Management Facilities", August 2004, with average figures calculated by Anthesis (presented in Appendix 3)

ES2.29 There is a considerable surplus of residual waste treatment capacity amounting to 228ktpa reducing to 242ktpa in 2036.

ES3 Construction, Demolition and Excavation Waste (CD&E)

Arisings

ES3.1 CD&E waste is currently not covered under the GLA's apportionment targets in the London Plan

ES3.2 Establishing the current waste arisings of CD&E waste is challenging due to the lack of data sources for this type of waste material. However, that published by the Environment Agency in the WDI is recognised as the best data available, and allows CD&E to be identified as it is coded under Chapter 17 of the European Waste Codes (EWC).

ES3.3 The overall waste arisings per WPA have therefore been based on a baseline year of 2015 and forecast using anticipated housing and commercial development until 2036, provided by each of the authorities, with the exception of LBL for which GLA's employment figures for the construction sector have been used as a proxy to forecast CD&E waste growth.

ES3.4 This modelling has estimated an annual arising of 756kt (2015) increasing to 1,081ktpa by 2021, and declining to 507ktpa by 2036. Arisings estimates per WPA are presented in section 5.1 of this report.

CD&E Waste Management Capacity and Capacity Gap

ES3.5 Reviewing available capacity which can handle CD&E wastes within the WRWA areas has identified approximately 126ktpa of transfer capacity, 993ktpa of recycling (MRF) capacity and 14ktpa of treatment capacity, totalling 1,134ktpa. This suggests that there is a surplus of capacity for the transfer, sorting and treatment of CD&E waste i.e. 371k tonnes in 2016, increasing to approximately 627k tonnes in 2036. Note that as the capacity figures include transfer stations, there is a risk of double counting.

Destinations of WRWA CD&E waste - Exports

ES3.6 Despite significant capacity within the WRWA area, movement data shows that over 97% of WRWA's CD&E waste is exported and treated outside the authority areas, presumably due to existing contracts for disposal. However, the waste origin data is weak, so this could include waste generated in other parts of London. However, indicated destinations include Surrey, Ealing, Thurrock, Havering, Greenwich and Hillingdon.

Destinations of WRWA CD&E waste - Imports

ES3.7 EA data shows that LBHF receives the most CD&E waste from London (over 240,000 tonnes in both years, over 80% of which is to the Powerday facility), but the origins have not been coded to specific WPAs. LBW received approximately over 50,000 tonnes in both 2014 and 2015. Over 50% of the tonnages go to the Willows Materials Recycling Facility. LBL received approximately 50,000 tonnes in both 2014 and 2015. Over 87% in both years go via the Powerday transfer facility at Belinda Road.

ES4 Low Level Radioactive Waste (LLW)

ES4.1 The latest data available for this this type of waste shows all the waste identified as being generated within the four constituent authorities is reported to have been disposed of by air or through wastewater,

and therefore place no requirement on relevant waste management facilities. Arisings amounted to 8,607,810 MBq in 2013.

ES5 Agricultural Waste

ES5.1 According to the latest EA datasets, no waste from agricultural sources has been reported in the WRWA area.

ES6 Hazardous Waste

ES6.1 Forecasts have been produced for hazardous waste produced in the WRWA area, varying from 6.6ktpa in 2016, peaking at 6.7ktpa in 2031. Movement data from the Environment Agency show a range of destinations for hazardous waste produced in the WRWA area, including Enfield, Medway and Wokingham. In addition, around 17ktpa of hazardous waste was imported into WRWA in 2015, the majority of this waste being received at the EMR (Mayer Parry) site in LBHF.

ES6.2 The Environment Agency Active Sites listing for 2015 identifies around 90ktpa of permitted hazardous waste capacity within the WRWA area, consisting of clinical waste transfer, vehicle depollution sites and car breakers. This total capacity is in considerable excess of the waste arisings forecast and therefore no provision needs to be made for additional capacity.f

ES6.3 The treatment and disposal of hazardous wastes in complex and dedicated facilities tend to be required for specific hazardous waste types. This explains why the final destination for particular hazardous waste types can be outside the WRWA area, despite there being capacity locally.

ES7 Wastewater

ES7.1 Thames Water Limited is responsible for wastewater and sewage sludge treatment in London, and manages sewerage infrastructure as well as sewage treatment works. The WRWA borough's wastewater is treated at the sewage treatment works (STW) in Beckton, in the London Borough of Newham, which is the largest in Europe, and also treats the waste of other boroughs such as Newham, Hackney & Tower Hamlets too, serving a total population of 3.5 million people.

ES7.2 Based on population, the anticipated mass of dried sludge produced by the WRWA boroughs in 2014 was 25ktpa. The 4 boroughs account for about 26% of the total population treated at the Beckton STW. Thames Water is undertaking an upgrade and expansion of this facility to both treat sewage to a higher standard, and increase the capacity to a population equivalent of 3.9 million. This will build sufficient sludge processing plant to account for population growth in the catchment area up to 2035, and therefore no additional facilities are required.

ES8 Recommendations

ES8.1 The GLA's London Plan requires each authority to provide waste treatment facilities to meet the waste apportionment figures. This assessment suggests that as a group of authorities, the WRWA WPAs are currently meeting the apportionment target for 2016 and forecast to meet the target to 2036. However, at a practical level, given the anticipated shortfall in WRWA organic waste treatment and dry recyclate capacity,

consultation with other authorities, both within and outside of London is necessary. It is recommended that the consultation should provide current destinations of WRWA generated waste, including specific facilities in the consulting WPA, so that specific responses can be provided. It is suggested that any letter sent as part of a consultation exercise ask whether continued waste exports are likely to be accommodated in the future (i.e. over the Plan period), or whether the capacity is likely to be used for waste originating in other WPA areas. In addition the WRWA WPAs should also ask if there are any new facilities to be provided or known future closure of waste management facilities expected.

ES8.2 In addition, given the surplus of residual and shortfall in recyclate and organic waste capacity at a WRWA area and individual WPA level, WPAs should consider encouraging re-orientation of safeguarded sites to increase their capacity to treat organics and recycle – although caution should be taken where this sacrifices significant transfer station capacity.

ES8.3 Whilst OPDC does not have its own waste apportionments, it is recommended that OPDC and LBHF continue to work closely together to meet the GLA's apportionment figures for LBHF.

ES8.4 As reflected in the apportionment targets, major new commercial and residential developments will generate additional waste, further impacting upon the availability of local waste management capacity as well as increasing the demand for local collection capacity. As already practised in RBKC, LBHF's emerging Local Plan Policy CC6, and other London boroughs, it is suggested that WPAs consider encouraging the development of small scale waste management capacity in new developments to absorb any increases in waste arisings. This could include, for instance, the provision of waste sorting facilities to maximise recycling rates, or small scale digesters or other similar equipment to process generated food waste.

ES8.5 The London Plan is currently under review and, therefore, there may be potential for changes to the apportionment targets. It is recommended that capacities are revisited once this review has been completed, and available capacity is re-examined on the basis of what types of facility will count towards meeting that apportionment target.

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1 Introduction

1.1 Background

1.1.1 The Waste Planning Authorities (WPAs) within the Western Riverside Waste Authority's (WRWA) area are working together on evidence to enable each borough to plan for its waste apportionment and arisings (defined in the London Plan 2015 and the National Planning Policy for Waste / National Planning Practice Guidance on Waste). The WPAs (shown in Figure 1) are:

- The Royal Borough of Kensington and Chelsea (RBKC);
- The London Borough of Hammersmith and Fulham (LBHF);
- The London Borough of Wandsworth (LBW);
- The London Borough of Lambeth (LBL); and
- The Old Oak and Park Royal Development Corporation (OPDC)

1.1.2 For OPDC, the Technical Paper only includes the land within the OPDC boundary which falls within LBHF. The remainder of the OPDC's land falls within the London Boroughs of Brent and Ealing which are part of the West London Waste Authority (WLWA) and Waste Plan (WLWP), therefore these parts of OPDC are not part of the WRWA and not within the scope of this study.



Figure 1: Map of London Boroughs

1.1.3 The purpose of this study is to provide an up-to-date waste evidence base for the WRWA WPAs to support meeting their waste apportionment target, as required in paragraph 5.80 of the Mayor's London Plan (2015) and waste arisings, as defined in the National Planning Policy for Waste / National Planning Practice Guidance on Waste. The evidence base work will underpin Local Plan policies being

developed by the WPAs within the WRWA and will inform discussions with other waste planning authorities on the strategic approach to waste management.

1.1.4 The WRWA WPAs have a statutory duty to prepare a waste local plan in line with Article 28 of the Waste Framework Directive (2008). This is being fulfilled through the inclusion of waste policies in the relevant Local Plans.

1.1.5 The Local Plan relating to waste should identify sufficient opportunities to meet the identified needs of an area for the management of waste, aiming to drive waste management up the waste hierarchy (see Figure 2). It should ensure that suitable sites and areas for the provision of waste management facilities are identified in appropriate locations, in accordance with the requirements of National Planning Policy for Waste and the government's Planning Practice Guidance.

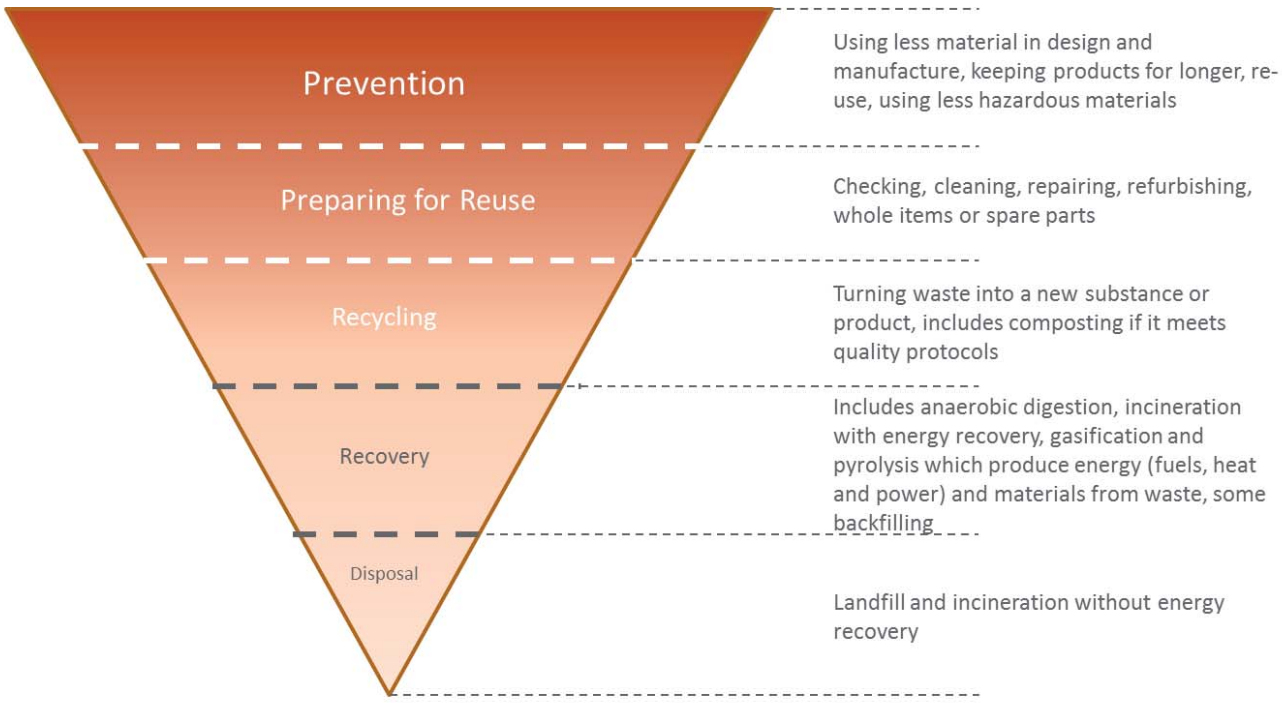


Figure 2: The Waste Hierarchy (Source: Anthesis)

1.1.6 The London Plan is the overall strategic plan for London, setting out an integrated economic, environmental, transport and social framework for the development of London over the next 20–25 years. It brings together aspects of the Mayor's strategies in a diverse range of areas, including economic development, housing, and a range of environmental issues such as climate change (adaptation and mitigation), air quality, noise and waste. The Plan states that London should manage as much of its waste within its boundaries as practicable, enabling London and Londoners to receive environmental and economic benefits from its management. Consequently the aim of the Plan's waste policies is to achieve net self-sufficiency for household and commercial waste by 2026. It sets out the spatial policies to support the Mayor's Waste Municipal and Business Waste Strategies and includes targets for recycling and reduction of waste to landfill.

1.1.7 The London Plan states that "Boroughs must allocate sufficient land and identify waste management facilities to provide capacity to manage the tonnages of waste apportioned in the Plan." Land to manage borough waste apportionments should be brought forward through protecting and facilitating the maximum use of existing waste sites, particularly waste transfer facilities and landfill sites,

identifying sites in significant industrial and employment locations, and safeguarding Thames river wharves.

1.1.8 For Western Riverside, there are a number of issues that have historically been faced which concern a lack of facilities and lack of opportunity for new facilities in central London. The safeguarding of river wharves has been a big issue, particularly in Wandsworth where residential development is being built close to a safeguarded wharf and transfer station. Planning permission has been recently obtained for the Cringle Dock waste transfer station combining residential and waste management uses, in relation to the 25 year WRWA contract with Cory Environmental, to transport household residual waste to the Bexley energy recovery facility. The effective use of wharves on the Thames for transporting waste to key waste treatment facilities is a subject we have examined for a number of clients in the past, and a consistent approach is taken in this study.

1.1.9 In April 2015, Old Oak and Park Royal Development Corporation became the local planning authority for part of the LBHF area. This means that the existing waste sites in the north of LBHF now fall within the OPDC boundary. Some of these sites are being considered for redevelopment as part of plans to deliver a minimum of 24,000 homes and 55,000 jobs. OPDC are working with LBHF to help them meet their apportionment targets. The other parts of the OPDC area lie outside of the WRWA area and therefore are not part of this study.

1.1.10 Several of the WPAs have made provision in their local plans for new developments to provide waste storage and waste management facilities to reduce the impact on local existing waste management facilities.

1.1.11 The GLA is considering reviewing the waste apportionments in the new London Plan and if this is carried out, the new apportionments will need to be taken into account in the process of developing Waste Plans.

1.2 Scope of this work

1.2.1 The overall objective of the study is to identify the contribution that existing waste management sites, transfer stations and facilities may make to meet the London Plan municipal waste apportionment target and other waste stream arisings for the WPAs within the study area.

Part 1: Gathering and Reviewing baseline data

1.2.2 In developing an evidence base, baseline data in terms of baseline and forecast arisings were collected and reviewed, for all waste types as identified in paragraph 013 of the National Planning Practice Guidance. Data sources are summarised in the following Table 1.

Table 1: Waste types and data sources

Waste stream	Data sources
Municipal/household (MSW) or Local Authority Collected Waste (LACW)	GLA's London Plan, London Plan Apportionment (Policy 5.17, tables 5.2 and 5.3).
Commercial & Industrial waste (C&I)	GLA's London Plan, London Plan Apportionment (Policy 5.17, tables 5.2 and 5.3).
Construction, Demolition & Excavation waste (CD&E)	Environment Agency Waste Data Interrogator (2015)

Waste stream	Data sources
Low level radioactive waste	Pollution Inventory Dataset, Environment Agency (2013)
Agricultural waste	Environment Agency Waste Data Interrogator (2015)
Hazardous waste	Environment Agency Waste Data Interrogator and Hazardous Waste Data Interrogator (2015)
Wastewater	Thames Water (sewage sludge estimates based on population)

Source: Anthesis

1.2.3 The Environment Agency's Waste Data Interrogator is the primary data source for many of the waste types. It collates data from waste returns from individual waste sites. There are some drawbacks to this data, including potential double counting of waste streams, and the fact that it does not cover waste treated under exemptions, or at energy from waste facilities. However, it is the best available data source for waste planning and is used widely by Waste Planning Authorities to assess arisings and available waste management capacity.

1.2.4 Forecasting how much waste will be generated in the future is a process that involves estimating future behaviour of individuals and businesses and the markets within which they operate. Baseline waste arisings and forecast arisings to 2036 and forecasts for interim years 2021, 2026 and 2031, are presented. For household and C&I waste, forecasts from the GLA's London Plan (Policy 5.17, tables 5.2 and 5.3) have been presented. Hazardous waste has also been forecast using the same assumed growth, as it is predominantly a sub-category of C&I waste. CD&E waste arisings have been forecast using the anticipated development of housing and commercial floorspace, data for which were provided by each of the Boroughs within the WRWA.

1.2.5 In addition, information on all existing waste sites/facilities within the study area was generated as per paragraphs 022[7] and 024[8] of the NPPG: Waste.

[7] Paragraph 022 states "Information on the available waste management capacity in the relevant area will help inform forward planning in Local Plans of waste infrastructure required to meet need. It will also require an assessment of future requirements for additional waste management infrastructure, with reference to forecasts for future waste arisings. Assessing waste management needs for Local Plan making is likely to involve:
• understanding waste arisings from within the planning authority area, including imports and exports
• identifying the waste management capacity gaps in total and by particular waste streams
• forecasting the waste arisings both at the end of the period that is being planned for and interim dates
• assessing the waste management capacity required to deal with forecast arisings at the interim dates and end of the plan period."

[8] Paragraph 024 states "Waste planning authorities will need to ensure that they have obtained sufficient details on existing waste management facilities to enable them to plan effectively. This is likely to include:
• site location details – name of site and operator, address, postcode, local authority, grid reference etc
• type of facility – what process or processes are occurring on the site and which waste streams they manage
• licence/permit details – reference number, tonnage restrictions, waste type restrictions, dates of renewal, etc and status if not yet licensed and permitted
• capacity information – licensed and permitted throughput by waste type
• site lifetime or maximum capacity – it is important to record the expected lifetime of facilities and, where appropriate, their total remaining capacity
• waste sources – origin of wastes managed, broken down by type and location
• outputs from facility – recovery of material and energy, production and export of

1.2.6 In addition the maximum waste management capacity was determined per site. This was used to establish a baseline value for existing capacity in the study area, shown as an aggregate figure for the study area and an individual figure for each WPAs.

Part 2: Establishing need and Meeting Policy Requirements

1.2.7 The above data was used to establish a potential future capacity within the study area, and hence identify a capacity gap for the WRWA and each individual WPA for each waste stream, to establish whether further capacity is required for the WRWA and each WPA to meet their London Plan apportionment, where relevant.

1.2.8 For waste movements, the WPAs that receive waste from the WRWA WPAs were identified from the Environment Agency's Waste Data Interrogator. As this often shows that waste travels widely, to a significant number of WPAs around the country, a threshold is normally agreed over which liaison with other WPAs should be carried out. A commonly used threshold is of 1,000 tonnes per annum for non-hazardous waste and 100 tonnes per annum for hazardous waste (including the NLWA and the WLWA). East of England and South East WPAs have used the following:

Non-hazardous waste	1,000 tonnes per annum
Hazardous waste	100 tonnes per annum
Inert wastes including excavation waste	5,000 tonnes per annum

1.2.9 These limits have therefore been used for destinations data presented in this report.

2 Policy Context

2.1 Policy context background

2.1.1 Waste management in the UK has been significantly driven by European policy in recent years. The waste management policies in the Local Plan will need to comply with EU and Government policy and guidance as follows:

- Revised European Waste Framework Directive 2008;
- Planning Act 2008;
- Localism Act 2011;
- National Planning Policy Framework (2012);

• residues and the destination of these, where appropriate
• additional information – potential of site for increasing throughput, adding further capacity, other waste management uses, etc."

- Waste Management Plan for England 2013 (and predecessor documents);
- National Planning Policy for Waste (2014); and
- National Planning Practice Guidance: Waste (2015)

2.1.2 In addition, on 2 December 2015, the European Commission adopted a new Circular Economy Package which, according to the Commission, will help European businesses and consumers adopt more sustainable practices. The circular economy aims to reduce waste and protect the environment, and it is hoped that there will be a transition towards a market where resources are fully exploited to make use of all their economic value. The circular economy package set out specific proposals for waste management, which include a common EU target for recycling 65 percent of municipal waste and 75 percent of packaging waste by 2030 and a binding landfill target to reduce landfill to a maximum of 10 percent of all waste by 2030 and a ban on landfilling separately collected waste. This legislation has yet to be adopted in the UK.

2.1.3 The impact of the UK leaving the European Union is yet to be fully understood, but in the medium term it is likely that existing EU policy will remain a key force in UK waste policy and development plans will need to be consistent with it. To this end, many of the articles of the Waste Framework Directive are delivered by planning policy, as stipulated in Planning Practice Guidance, and the waste hierarchy and recycling targets are already enshrined within UK planning policy and waste regulations.

2.1.4 There are also a number of National Policy Statements (NPS) that will need to be taken into account such as the NPS on Hazardous Waste.

2.2 Revised European Waste Framework Directive 2008 and Review of Waste Policy

2.2.1 Article 28 of the Waste Framework Directive 2008 sets out the requirement for each Member State to produce a Waste Management Plan. This Plan must set out an analysis of the current waste management situation and sufficient information on the locational criteria for site identification and on the capacity of future disposal or major recovery installations. These locational criteria are contained in the Local Plans or Waste Plans of local authorities in the UK.

2.2.2 A recently published Review of Waste Policy and Legislation by the EU has introduced a range of higher targets for recycling (i.e. from the existing 50% target by 2020 to increase to 65% by 2030) and the phasing out of landfilling organic and recyclable materials. This Review means that facilities for the management of waste in accordance with these new targets will be required and should be planned for as part of the Local Plan.

2.3 Localism Act 2011

2.3.1 The Localism Act 2011 removed the regional tier of planning in England, with the exception of London, where the Greater London Authority remains in place. Section 110 of the Localism Act prescribes the "Duty to Co-operate" between local authorities in order to ensure that they work together on strategic issues such as waste planning. The duty is "to engage constructively, actively and on an on-going basis" and must "maximise the effectiveness" of all authorities concerned with plan-making. For matters such as waste planning, it is therefore important that local authorities can show that they have worked together in exchanging information and developing appropriate strategies to manage waste.

2.3.2 However, engagement is not an end in itself. The objective is to develop a Local Plan that is deliverable for all parties. In the context of planning for waste management, it is necessary to understand waste flows between local authority areas and to ensure that all local plans take account of these flows. If a facility in one Waste Planning Authority Area can easily manage imports from another WPA Area, then neither Waste Plan is destabilised by such imports. If however, a facility that has historically been used by another WPA Area, which does not have capacity to handle continuing imports, or is closing, then alternative provision must be sought/identified.

2.4 National Planning Policy for Waste and National Planning Practice Guidance: Waste

2.4.1 Paragraph 4 of the NPPW under Identifying Suitable Sites and Areas makes clear that suitable areas can be identified as well as sites.

2.4.2 "Waste planning authorities should identify, in their Local Plans, sites and/or areas for new or enhanced waste management facilities in appropriate locations. In preparing their plans, waste planning authorities should:

- identify the broad type or types of waste management facility that would be appropriately located on the allocated site or in the allocated area in line with the waste hierarchy, taking care to avoid stifling innovation (Appendix A);
- plan for the disposal of waste and the recovery of mixed municipal waste in line with the proximity principle, recognising that new facilities will need to serve catchment areas large enough to secure the economic viability of the plant;
- consider opportunities for on-site management of waste where it arises;
- consider a broad range of locations including industrial sites, looking for opportunities to co-locate waste management facilities together and with complementary activities. Where a low carbon energy recovery facility is considered as an appropriate type of development, waste planning authorities should consider the suitable siting of such facilities to enable the utilisation of the heat produced as an energy source in close proximity to suitable potential heat customers;
- give priority to the re-use of previously-developed land, sites identified for employment uses, and redundant agricultural and forestry buildings and their curtilages."

2.4.3 Paragraph 043 of the National Planning Practice Guidance: Waste provides further guidance for London authorities.

"How should waste planning authorities in London identify a waste management capacity gap?

Waste planning authorities will need to plan for the delivery of sites and areas suitable for waste management to fill the gap between existing and required waste management capacity.

The need for replacement capacity should reflect that:

- apportionments provide high-level benchmarks for local planning, and are subject to annual monitoring and regular review
- existing facilities may close sooner or later than predicted

- capacity may be developed at a slower or faster rate than predicted."

2.5 Regional Context

London Plan

2.5.1 The National Planning Practice Guidance (NPPG) on Waste states that "WPAs should have regard to the apportionments set out in the London Plan when developing their policies. The Local Waste Plan will need to be in general conformity with the London Plan"

2.5.2 The most recent waste policies in the London Plan were adopted in 2015 following the "Further Alterations to the London Plan". Policy 5.16 states that the Mayor will work with London Boroughs and others to "manage as much of London's waste within London as practicable, working towards managing the equivalent of 100% of London's waste within London by 2026."

2.5.3 This will be achieved by:

a) minimising waste;

b) encouraging the reuse of and reduction in the use of materials;

c) exceeding recycling/composting levels in local authority collected waste of 45 per cent by 2015, 50 per cent by 2020 and aspiring to achieve 60 per cent by 2031;

d) exceeding recycling/composting levels in commercial and industrial waste of 70 per cent by 2020;

e) exceeding recycling and reuse levels in construction, demolition and excavation waste of 95 per cent by 2020;

f) improving London's net self-sufficiency through reducing the proportion of waste exported from the capital over time; and

g) working with neighbouring regional and district authorities to co-ordinate strategic waste management across the greater south east of England.

2.5.4 Policy 5.17 states that Boroughs must allocate sufficient land and identify waste management facilities to provide capacity to manage the tonnages of waste apportioned in the Plan.

2.5.5 Policy 5.18 of the London Plan encourages the sustainable management of construction and demolition waste, seeking on-site management where possible to reduce vehicle movements. The policy also states that "LDFs should require developers to produce site waste management plans to arrange for the efficient handling of CE&D[9] waste and materials."

2.5.6 Policy 5.19 deals with the management of Hazardous Waste and requires Boroughs to identify suitable sites for the storage, treatment and reprocessing of relevant or a range of hazardous waste streams and also to identify sites for the temporary storage, treatment and remediation of contaminated soils and demolition waste during major developments.

[9] Referred to as CD&E waste in this report.

2.5.7 The London Plan also contains a policy on aggregates to encourage the re-use and recycling of construction, demolition and excavation waste within London and to import aggregates to London by sustainable transport modes. There are targets for the 95% recycling/re-use of construction, demolition and excavation waste by 2020 and the 80% recycling of that waste as aggregates by 2020.

London Plan Apportionments

2.5.8 To achieve self-sufficiency in waste management by 2026, London will require new waste management infrastructure to complement that which already exists. Although analysis carried out by the Greater London Authority (GLA) indicates that, in strategic, London-wide terms, there will be sufficient capacity in the form of land suitable for waste management development to be able to meet these targets, there is unlikely to be sufficient capacity/sites in all London Boroughs, to enable all Boroughs to be self-sufficient in their own right. As a consequence, in order to enable London to meet its strategic self-sufficiency target, there was a need to develop a methodology to apportion waste that cannot be managed within boroughs with insufficient capacity, to other London boroughs.

2.5.9 The resultant London Plan apportionment figures give forecasted household and commercial & industrial waste arisings at borough level for key milestone years through to 2036. The London Plan figures are based on LACW figures collected by local authorities, and 2009/10 C&I data from the Defra survey.

2.5.10 For each WRWA WPA, apportionment targets can be summarised as follows:

Table 2: Waste apportionment figures for WRWA WPAs as laid out in the London Plan (000s tonnes per year)

WPA	2021		2026		2031		2036	
	LACW	C&I	LACW	C&I	LACW	C&I	LACW	C&I
Hammersmith & Fulham	82	117	100	138	103	139	106	141
Kensington & Chelsea	66	94	80	110	83	111	85	113
Lambeth	74	105	90	124	93	125	96	127
Wandsworth	104	148	127	175	131	176	135	178
Total	**326**	**464**	**397**	**547**	**410**	**551**	**422**	**559**

Source: GLA's London Plan, Policy 5.17, Table 5.3

2.5.11 Waste is deemed to be managed in London if it:

- is used in London for energy recovery;
- relates to materials sorted or bulked in London facilities for reuse, reprocessing or recycling;
- is material reused, recycled or reprocessed in London; or
- is a "biomass fuel" as defined in the Renewable Obligation Order[10].

[10] London Plan paragraph 5.79

2.5.12 Transfer stations are only deemed to be 'management' if they sorted or bulk materials for onward recycling, and therefore the bulking of residual waste is not considered to count towards Boroughs' apportionment targets. In reality, transfer stations may receive both types of waste and perform both processes – managed and unmanaged waste. The proportion of transfer stations' operational capacity which deals with recyclates has therefore been counted, however the residual portion has not. This has been described in section 4.2.

2.5.13 Paragraph 5.80 explains that "boroughs may collaborate by pooling their apportionment requirements. Provided the aggregated total apportionment figure is met, it is not necessary for boroughs to meet both the municipal and commercial/ industrial waste apportionment figures individually. Boroughs need to examine how capacity can be delivered in detail at the local level as site allocations in LDFs to meet their apportionments. Boroughs should aim to meet their waste apportionment as a minimum. Boroughs should identify suitable additional sites for waste including waste transfer sites where practicable. Boroughs working collaboratively must demonstrate that their joint apportionment targets will be met, for example, through the preparation of joint waste DPDs, joint evidence papers or bilateral agreements. Where a Mayoral Development Corporation (MDC) exists or is established within a Borough the MDC will co-operate with the Borough to ensure that the Borough's apportionment requirements are met."

2.5.14 This is relevant for OPDC and LBHF as the OPDC is an MDC within the LBHF. Therefore, OPDC is working with LBHF to meet the borough's apportionment target (as shown in Table 2).

2.5.15 Paragraph 5.81 goes on to explain that "boroughs and waste authorities should identify sites which are potentially suitable for a variety of technologies, depending on the particular site's opportunities and constraints, and assess how many facilities and what type of waste processing facilities/technologies will be required locally to meet their apportionments."

Co-operation between London Waste Planning Authorities

2.5.16 In order to deliver the requirements of both national policy and the London Plan, Waste Planning Authorities in London need to work together to plan for the sustainable management of the waste arising in their areas. The London Waste Planning Forum (LWPF) is a meeting of council officers with an interest in waste planning where data is shared and policies discussed. It is a key element of delivering the Duty to Co-operate and active participation by WRWA officers shows a commitment to joint working. The London Waste Planning Forum contributes to the delivery and monitoring of the waste policies in the London Plan including through the production of an Annual Monitoring Report which provides information on the extent to which London Boroughs are moving towards meeting their annual apportionment.

2.5.17 Direct liaison between the WRWA WPAs and other WPAs will however be necessary in addition to participation at the LWPF since waste arising in the WRWA area is managed at a number of facilities located in other local authority areas within and outside of London.

2.5.18 The WRWA Waste Planning Authorities wrote to a joint letter to other London Waste Planning Authorities requesting whether there is any spare waste management capacity they might be able to share with the WRWA WPAs. The letter also set out the then latest evidence from the WRWA WPAs in terms of waste apportionment and shortfall figures. All of the London WPAs responded and a number of points were raised which are addressed throughout this technical paper.

2.6 Local Plan Development

A timetable for the preparation of WRWA WPAs' Local Plans has been developed. The current (September 2016) position of the individual WPAs within the WRWA can be summarised as follows:

Royal Borough of Kensington and Chelsea

2.6.1 The existing Local Plan policy relating to waste is contained within the Consolidated Local Plan Policy CE3: Waste.

2.6.2 Subsection 'a' deals with the issue of strategic waste management 'apportionment'. The Council's commitment in this subsection to prepare a specific waste 'Development Plan Document' (DPD) is being followed up as part of its Local Plan Partial Review consultation: rather than have a separate waste 'DPD', the Council currently intends to update the waste apportionment evidence base and policy as part of the wider Local Plan Partial Review.

2.6.3 Subsections 'b' to 'e' largely deal with site-specific issues regarding on-site waste storage and management as part of new development proposals. The Local Plan Partial Review consultation considers the issues regarding this too to inform revised draft policy.

2.6.4 Key strategic developments at Kensal Gasworks and Earls Court require waste management facilities as part of the current consolidated Local Plan allocations (this is also included in relevant Local Plan Partial Review Draft Policies).

London Borough of Hammersmith and Fulham

2.6.5 The council's existing policy in relation to strategic waste management is set out in Policy CC3: Waste Management of the Core Strategy (2011).

2.6.6 The council is currently preparing a new Local Plan. The emerging policy in relation to strategic waste management is outlined in Borough-wide Policy CC6: Strategic Waste Management of the Proposed Submission Local Plan (2016). The emerging policy states that the council will pursue sustainable waste management through, including planning to manage the waste apportionments set out in the London Plan.

2.6.7 Since April 2015, the Old Oak Sidings (Powerday) and EMR waste sites fall within the boundary of the Old Oak and Park Royal Development Corporation (OPDC). As detailed within the emerging policy, the council considers that the Old Oak Sidings (Powerday) site could meet the borough's waste apportionment targets set out in the London Plan and the council will encourage the OPDC to retain the site. The emerging policy also seeks to promote sustainable waste management by ensuring that major development sites, particularly those within the White City Opportunity Area, Earls Court & West Kensington Opportunity Area, Fulham Regeneration Area and the development at Imperial Road make provision for managing their waste and recycling on site thereby increasing LBHF's capacity to locally manage waste, as well as encouraging waste and recycling movements by sustainable means of transport e.g. river and rail where possible.

London Borough of Wandsworth

2.6.8 The Council's Planning Policy is contained in policy DMI5, DMI6 and DMI7 of the Development Management Policies Document, policy PL7 of the Core Strategy and allocated sites of the Site Specific Allocations Document.

2.6.9 The Local Plan identifies waste sites to meet the total London Plan waste apportionment figure for the borough. It also has detailed polices on development criteria for waste site on allocated and unallocated sites.

London Borough of Lambeth

2.6.10 The existing Local Plan policy relating to waste is contained within the Lambeth Local Plan 2015 Policy EN7: Sustainable waste management. This is available at the borough's web site, along with the associated Waste Evidence Base 2013.

2.6.11 The council is currently working on updating its waste evidence base to feed into a partial review of the Lambeth Local Plan.

Old Oak and Park Royal Development Corporation (OPDC)

2.6.12 ODPC is currently preparing its Local Plan. The Draft Local Plan was published in February 2016 and accompanied by a Draft Waste Strategy. The Draft Waste Strategy demonstrated how OPDC could help constituent boroughs, including LBHF, meet their apportionment targets. In the case of LBHF, the Strategy demonstrates that there would be sufficient capacity at the Powerday site to meet LBHF's London Plan apportionment targets and, on this basis, OPDC's Draft Local Plan identifies and is seeking to safeguard the Powerday site.

3 Waste arisings estimates, forecasts and management capacities

3.1 Waste arisings background

3.1.1 The first stage of this study is to review the available data on waste arisings from a variety of sources, and then use this data, along with factors which are likely to influence arisings in the future, to generate arisings estimates per waste type to 2036. Each type of waste type and the assumptions used to estimate future arisings has been covered in the individual section. This section (3) covers the waste types currently covered by the GLA's London Plan waste apportionment. Section 5 covers the other waste types required to be addressed set out in Paragraph 13 of the NPPG.

3.2 Introduction to arisings and forecasts

3.2.1 The term 'municipal waste' has historically been used in waste policy to describe all waste which is managed by or on behalf of a local authority. However, the Landfill Directive defines municipal waste as waste from households as well as other waste that, because of its nature or composition, is similar to waste from households. This includes a significant amount of waste that is generated by businesses and which is not collected by local authorities.

3.2.2 For planning purposes, it is important to know how much waste in total requires management. Waste management departments within local authorities have established systems for measuring the quantities of waste that they manage and this is reported to Defra through the WasteDataFlow

reporting system which has been established since 2004. Due to this reporting mechanism, robust data is held by local authorities, which they then use to report on WasteDataFlow.

3.2.3 The remainder of waste arisings, whether similar to household waste or more homogeneous, is not measured through a systematic or robust system, but in periodic surveys that have been carried out to understand the quantities arising.

3.2.4 To ensure consistency with the terminology used by National Government, the term 'Local Authority Collected Waste' (LACW) will be used for the waste collected by the local authorities, and the remainder of the non-hazardous waste which is collected from business will be referred to as commercial & industrial (C&I) waste. This terminology originates from Defra's response to the consultation on meeting the EU Landfill Diversion Targets in England in 2010 and ensures that LACW data is consistent with data on LACW in previous work.

3.3 Local Authority Collected Waste (LACW)

What is this waste?

3.3.1 LACW waste consists of waste which comes into the possession of, or under the control of, the local authority. The LACW collected by local authorities can include household waste (residual, dry mixed recycling and food waste), street sweepings, green waste from upkeep of open spaces, and a small quantity of clinical waste[11]. Depending upon the local arrangements, LACW can include material collected by trade waste operations. The data reported in this section relates to the household waste proportion of LACW arisings, to avoid double counting of the trade waste portion, which is reported in section 3.4.

3.3.2 Local authorities are required to make detailed returns to Defra of the quantity of waste arisings collected from municipal sources and how the materials are subsequently managed. The accuracy of this data is therefore high.

Current and future arisings

3.3.3 Household waste is the vast majority of the waste which is collected by the local authorities. As the GLA's London Plan waste apportionments are reported as household and commercial, so they have also been presented in this report.

3.3.4 Table 5.3 of London Plan Policy 5.17 provides estimates of waste arisings from 2016 onwards, generated by each of the Boroughs. These arisings are based on a baseline year of 2012/13, and were reviewed as part of the Further Alterations to the London Plan (FALP) which was published in March 2015. Assumptions used in the waste modelling of LACW can be viewed at the GLA website[12]. Table 3 below shows these arisings figures, and also shows actual reported arisings for the year 2014/15.

[11] Household clinical waste is not deemed hazardous unless a particular risk has been identified (based on medical diagnosis)

[12] http://www.webarchive.org.uk/wayback/archive/20151111145752/http:/www.london.gov.uk/priorities/planning/london-plan/draft-further-alterations-to-the-london-plan

However the projections have not been updated as part of this study and arisings and apportionment figures from the FALP have been used in the analysis.

3.3.5 Apportionment figures were generated from the London Plan arisings figures and are presented in table 5.3 of Policy 5.17. Each Borough has been assigned a quantity of waste to allow London as a whole to be able to achieve net self-sufficiency (see section 2.5.8). For example, Lambeth and Wandsworth both have apportionment figures which are lower than the waste arisings. However, for Kensington & Chelsea and Hammersmith & Fulham, the opposite is true. Therefore, although the estimated arisings of each Borough does not match the apportionment, the apportionment figure has been used in this analysis as the 'demand' for waste infrastructure capacity.

3.3.6 Table 3 presents both arisings and apportionment targets for comparison.

Table 3: Household waste arisings and apportionment targets produced by GLA in London Plan (tonnes)

Authority	Arisings/ apportionment	2014/15	2016	2021	2026	2031	2036
Hammersmith & Fulham	Arisings	52,229	58,000	59,000	59,000	60,000	61,000
	Apportionment	-	69,000	82,000	100,000	103,000	106,000
Kensington & Chelsea	Arisings	54,574	54,000	54,000	55,000	55,000	55,000
	Apportionment	-	55,000	66,000	80,000	83,000	85,000
Lambeth	Arisings	85,319	100,000	104,000	107,000	110,000	112,000
	Apportionment	-	62,000	74,000	90,000	93,000	96,000
Wandsworth	Arisings	95,081	103,000	106,000	108,000	110,000	112,000
	Apportionment	-	87,000	104,000	127,000	131,000	135,000

Source: GLA's London Plan, Policy 5.17, Table 5.3 & Table 5.4, except 2014/15 which is sourced from Defra's Local Authority Collected Waste Statistics - Local Authority data 2014/15

3.3.7 In order to ascertain what types of facilities are required, this has been broken down into 'dry recycling', 'organics' and 'residual' waste streams. Defra's household waste statistics (2014/15) were used to ascertain the proportion of waste assigned to each of these waste streams currently. This showed a recycling/composting rate of 24% (21% dry recycling, 3% organic recycling), with the remaining 76% being treated as residual waste. This was taken as the baseline breakdown, and these proportions applied to the 2016 baseline overall household waste figures.

3.3.8 However, the GLA's municipal waste management strategy sets a target for local authorities to recycle/compost 60% of their waste by 2031. Therefore, when planning for the likely types of waste infrastructure required, this target should be factored in to ensure waste infrastructure development facilitates meeting this, and therefore in the modelling it has been assumed that an increasing proportion of waste will be either 'dry recycling' or 'organic', compared to 'residual'. Therefore by 2031, 40% of the waste is expected to require residual waste treatment, 53% is dry recyclates and 7% organics. It has been assumed that this recycling rate increases gradually, meeting the target in 2031 and remaining at 60% until 2036.

3.3.9 The results of the forecasts using all the above assumptions are presented in Table 4.

Table 4: Waste apportionment by authority and waste type (tonnes)

Authority / *Waste stream*	2016	2021	2026	2031	2036
Hammersmith & Fulham	**69,000**	**82,000**	**100,000**	**103,000**	**106,000**
Dry Recycling	*15,848*	*26,906*	*42,656*	*54,075*	*55,650*
Organics	*2,264*	*3,844*	*6,094*	*7,725*	*7,950*
Residual	*50,888*	*51,250*	*51,250*	*41,200*	*42,400*
Kensington & Chelsea	**55,000**	**66,000**	**80,000**	**83,000**	**85,000**
Dry Recycling	*12,633*	*21,656*	*34,125*	*43,575*	*44,625*
Organics	*1,805*	*3,094*	*4,875*	*6,225*	*6,375*
Residual	*40,563*	*41,250*	*41,000*	*33,200*	*34,000*
Lambeth	**62,000**	**74,000**	**90,000**	**93,000**	**96,000**
Dry Recycling	*14,241*	*24,281*	*38,391*	*48,825*	*50,400*
Organics	*2,034*	*3,469*	*5,484*	*6,975*	*7,200*
Residual	*45,725*	*46,250*	*46,125*	*37,200*	*38,400*
Wandsworth	**87,000**	**104,000**	**127,000**	**131,000**	**135,000**
Dry Recycling	*19,983*	*34,125*	*54,173*	*68,775*	*70,875*
Organics	*2,855*	*4,875*	*7,739*	*9,825*	*10,125*
Residual	*64,163*	*65,000*	*65,088*	*52,400*	*54,000*
Total	**273,000**	**326,000**	**397,000**	**410,000**	**422,000**
Dry Recycling	*62,705*	*106,969*	*169,345*	*215,250*	*221,550*
Organics	*8,958*	*15,281*	*24,192*	*30,750*	*31,650*
Residual	*201,338*	*203,750*	*203,463*	*164,000*	*168,800*

Source: GLA's London Plan, Policy 5.17, Table 5.4, broken down into different waste streams by Anthesis

3.4 Commercial and Industrial waste

What is this waste?

3.4.1 Commercial and industrial (C&I) waste is waste generated from the following activities:

- Industrial Sectors
    - Food, drink and tobacco manufacturing businesses
    - Textiles/wood/paper/publishing businesses
    - Power and utilities companies
    - Chemical/non-metallic minerals manufacturing businesses
    - Metal manufacturing businesses
    - Machinery & equipment (other manufacturing) businesses
- Commercial Sectors
    - Retail and wholesale
    - Hotels and catering

- Public administration and social work
- Education
- Transport and storage
- Other services

Current and future arisings

3.4.2 This type of waste is also covered under the GLA's London Plan apportionment targets, and as such, they have assumed to be the demand required, as per the household waste. Table 5 presents both the London Plan's arisings forecasts and apportionment targets.

Table 5: C&I waste arisings and apportionment targets produced by GLA in London Plan (tonnes)

Authority	Arisings/ apportionment	2016	2021	2026	2031	2036
Hammersmith & Fulham	Arisings	117,000	117,000	117,000	118,000	119,000
	Apportionment	103,000	117,000	138,000	139,000	141,000
Kensington & Chelsea	Arisings	133,000	132,000	132,000	133,000	135,000
	Apportionment	83,000	94,000	110,000	111,000	113,000
Lambeth	Arisings	106,000	106,000	106,000	107,000	108,000
	Apportionment	93,000	105,000	124,000	125,000	127,000
Wandsworth	Arisings	134,000	134,000	134,000	135,000	136,000
	Apportionment	131,000	148,000	175,000	176,000	178,000
Total	Arisings	315,000	323,000	329,000	335,000	340,000
	Apportionment	273,000	326,000	397,000	410,000	422,000

Source: GLA's London Plan, Policy 5.17, Table 5.3 & Table 5.4

3.4.3 Data for C&I waste is not reported regularly and therefore are reliant on surveys undertaken at certain times. The last survey was undertaken in 2009, however still provides the most up to date information with regards to how C&I waste is managed. Therefore, data from this study was used as the baseline, this and the forecasts were reviewed as part of the Further Alterations to the London Plan (FALP) which was published in March 2015. Assumptions used in the waste modelling of C&I can be viewed at the GLA website[13].

3.4.4 As the latest and best available source of information with regards to how C&I waste is managed, Defra's 2009 C&I waste survey was used to ascertain the proportion of the overall waste arisings (as presented in the GLA London Plan) which are dry recycling, organics and residual.

3.4.5 The survey reported on waste management method for each authority, and so an average for all four constituent authorities has been used to assess the demand for each type of facility, based on the types of wastes generated. The survey results showed that 61% was dry recycling, 1% organic, and

[13] http://www.webarchive.org.uk/wayback/archive/20151111145752/http:/www.london.gov.uk/priorities/planning/london-plan/draft-further-alterations-to-the-london-plan

38% residual waste i.e. with a recycling rate of around 62%. The GLA's business waste strategy sets targets of 70% recycling/composting of commercial waste by 2020, and therefore waste arisings were forecasted for future years, with the aim of meeting this target. This means that from 2020 onwards (the same 70% recycling is assumed through the years until 2036), 69% of the waste is assumed to be dry recycling, with 1% organics and 30% residual waste.

3.4.6 The results of the forecasts using all the above assumptions are presented in Table 6.

Table 6: C&I Waste demand by authority and waste stream (tonnes)

Authority / *Waste stream*	2016	2021	2026	2031	2036
Hammersmith & Fulham	**103,000**	**117,000**	**138,000**	**139,000**	**141,000**
Dry Recycling	*64,467*	*80,546*	*95,003*	*95,692*	*97,069*
Organics	*1,083*	*1,354*	*1,597*	*1,608*	*1,631*
Residual	*37,450*	*35,100*	*41,400*	*41,700*	*42,300*
Kensington & Chelsea	**83,000**	**94,000**	**110,000**	**111,000**	**113,000**
Dry Recycling	*51,949*	*64,712*	*75,727*	*76,416*	*77,793*
Organics	*873*	*1,088*	*1,273*	*1,284*	*1,307*
Residual	*30,178*	*28,200*	*33,000*	*33,300*	*33,900*
Lambeth	**93,000**	**105,000**	**124,000**	**125,000**	**127,000**
Dry Recycling	*58,208*	*72,285*	*85,365*	*86,054*	*87,431*
Organics	*978*	*1,215*	*1,435*	*1,446*	*1,469*
Residual	*33,814*	*31,500*	*37,200*	*37,500*	*38,100*
Wandsworth	**131,000**	**148,000**	**175,000**	**176,000**	**178,000**
Dry Recycling	*81,992*	*101,888*	*120,475*	*121,164*	*122,540*
Organics	*1,378*	*1,712*	*2,025*	*2,036*	*2,060*
Residual	*47,630*	*44,400*	*52,500*	*52,800*	*53,400*
Total	**410,000**	**464,000**	**547,000**	**551,000**	**559,000**
Dry recycling	**256,615**	**319,431**	**376,571**	**379,325**	**384,832**
Organics	**4,313**	**5,369**	**6,329**	**6,375**	**6,468**
Residual	**149,072**	**139,200**	**164,100**	**165,300**	**167,700**

Source: GLA's London Plan, Policy 5.17, Table 5.4, broken down into different waste streams by Anthesis

3.5 Destinations of WRWA's LACW and C&I waste

Waste Exports

3.5.1 All of the LACW of the WRWA WPAs goes to WRWA facilities in the LBW for transfer and treatment. This is the Western Riverside Transfer Station which is near Wandsworth Bridge and Cringle Dock Transfer Station which is next to Battersea Power Station.

3.5.2 Since 2011, recyclables go to a Materials Recycling Facility in Wandsworth and residuals are barged down river to the Riverside Resource Recovery (RRR) facility at Belvedere, in the London Borough of Bexley where the waste is incinerated to generate electricity – it is the largest Energy from Waste

facility in the UK and one of the largest in Europe, which will eventually generate up to 72MW of power.

3.5.3 WasteDataflow also indicates that the London Borough of Havering is the primary recipient of the organic waste generated by households within WRWA.

3.5.4 WDI provides an overall view of where LACW and C&I waste is treated or transported through, but does not capture much of the recyclate material that is either delivered directly to reprocessors, energy recovery facilities, or sent through exempt sites. Some of these gaps have been able to be filled through using WasteDataFlow. Destinations of all LACW and C&I waste originating within the WRWA for both 2014 and 2015 are presented in Table 7 and Table 8.

3.5.5 Bexley is by far the largest recipient of WRWA's LACW and C&I waste. LBW is the second largest recipient of waste from the WRWA, with Newham and Havering have also received greater than 5,000 tonnes from WRWA for both 2014 and 2015.

Table 7: External destinations of household and C&I waste generated in WRWA area (>1,000tpa) in 2015 (tonnes)

	Origin WPA				
Recipient WPA / *Facility Type*	**Hammersmith & Fulham**	**Kensington & Chelsea**	**Lambeth**	**Wandsworth**	**Total**
Bexley WPA					**146,000**
Material Recycling Facility				*288*	*288*
*Energy from waste**					*145,712*
Wandsworth WPA					**65,893**
Non-Haz Waste Transfer				*312*	*312*
Material Recycling Facility	*10,513*	*12,600*	*17,740*	*24,727*	*65,581*
Havering WPA					**11,436**
Non-Haz Waste Transfer			*4*		*4*
Material Recycling Facility		*0*		*6,513*	*6,513*
Haz Waste Transfer			*0*		*0*
Non Hazardous LF	*12*	*65*	*1*	*32*	*110*
Non-Haz Waste Transfer / Treatment				*310*	*310*
Non-Haz Waste Transfer / Treatment			*27*		*27*
*Composting**					*4,472*
Physical Treatment		*14*	*38*	*1,341*	*1,392*
Newham WPA					**5,446**
Non-Haz Waste Transfer			*5,407*		*5,407*
Physical Treatment	*14*	*4*	*3*		*22*
Haz Waste Transfer	*1*	*0*	*14*	*2*	*18*
West Sussex WPA					**3,957**
Physical Treatment				*3,956*	*3,956*
Clinical Waste Transfer Station			*0*	*1*	*1*
Hampshire WPA					**3,303**
Car Breaker	*3,278*	*0*		*1*	*3,279*

	Origin WPA				
Recipient WPA / *Facility Type*	**Hammersmith & Fulham**	**Kensington & Chelsea**	**Lambeth**	**Wandsworth**	**Total**
Metal Recycling			*0*	*1*	*1*
Haz Waste Transfer	*14*	*0*		*10*	*23*
Lambeth WPA					**2,253**
CA Site			*2,253*		*2,253*
Slough WPA					**1,614**
Non-Haz Waste Transfer	*726*	*370*	*7*	*510*	*1,614*
Sutton WPA					**1,113**
Non-Haz Waste Transfer			*1,113*		*1,113*
Total	**4,644**	**4,200**	**31,936**	**15,333**	**242,407**
Total outside WRWA	**1,700**	**763**	**22,213**	**8,409**	**174,262**

Source: Environment Agency's WDI 2015. * are sourced from Defra's WDF and have been estimated by factoring up one quarter worth of data (i.e. January – April 2015). These are also only reported by WRWA and not by the constituent WPAs.

Table 8: External destinations of household and C&I waste generated in WRWA area (>1,000tpa) in 2014 (tonnes)

	Origin WPA				
Recipient WPA	**Hammersmith & Fulham**	**Kensington & Chelsea**	**Lambeth**	**Wandsworth**	**Total**
Bexley WPA					**159,371**
Energy from Waste*					*159,371*
Wandsworth WPA					**18,000**
Material Recycling Facility	*2,944*	*3,437*	*4,695*	*6,466*	17,542
Non-Haz Waste Transfer				*458*	458
Newham WPA					**15,135**
Haz Waste Transfer	*18*	*0*	*6*	*0*	24
Non-Haz Waste Transfer			*13,940*		13,940
Non-Haz Waste Transfer / Treatment	*4*	*141*	*56*	*10*	211
Physical Treatment	*1*		*16*		17
Physical-Chemical Treatment	*95*	*81*	*559*	*208*	943
Havering WPA					**8,893**
Material Recycling Facility				*1,968*	1,968
Non Hazardous LF			*18*	*2,031*	2,050
Non-Haz Waste Transfer / Treatment			*295*	295	
Composting*					4,581

	Origin WPA				
Recipient WPA	**Hammersmith & Fulham**	**Kensington & Chelsea**	**Lambeth**	**Wandsworth**	**Total**
Lambeth WPA					**5,028**
CA Site			*2,019*		2,019
Non-Haz Waste Transfer			*3,009*		3,009
Southwark WPA					**4,674**
Mechanical Biological Treatment		*4,674*		4,674	
Hillingdon WPA					**3,635**
Material Recycling Facility	*233*	*9*	*1,703*	*1,689*	3,635
Greenwich WPA					**2,179**
Physical Treatment	*113*	*117*		*1,949*	2,179
Slough WPA					**1,935**
Non-Haz Waste Transfer	*1,236*	*414*	*26*	*259*	1,935
Sutton WPA					**1,215**
Composting			*1,215*		1,215
Total	**14,558**	**13,053**	**26,608**	**38,003**	**220,066**
Total outside WRWA	**4,045**	**453**	**6,615**	**12,965**	**197,037**

Source: Environment Agency's WDI 2014. * are sourced from Defra's WDF. These are also only reported by WRWA and not by the constituent WPAs.

3.5.6 Table 7 and Table 8 show that a similar set of WPAs have received the majority of waste arising in the WRWA area. In both cases, these tables represent over 96% of WRWA area exports of household and C&I waste.

Waste Imports

3.5.7 Waste imports are shown in greater detail in Appendix 1, but a commentary has been provided in this section.

3.5.8 In 2015 LBW received 570k tonnes, and in 2014 received 606k tonnes of waste imports ie. not coded in WDI as from one of the WRWA Waste Planning Authorities. However, the majority of these imports have not been coded to specific authorities, and instead are attributed to 'London', 'South London', 'South east' etc. Therefore some of this waste may have actually been derived within the WRWA area. Only 5,800 tonnes in 2015, and 1,500 tonnes in 2014 have been attributed to the City of Westminster, and the remainder of the waste cannot be attributed to individual authorities. These inputs are to the MRF at Smuggler's Way.

3.5.9 LBHF received 251k in 2015 and 245k tonnes in 2015 from authorities not coded in WDI, as WRWA Waste Planning Authorities. The majority of these are associated with EMR and Powerday facilities. However, none of these tonnages have been coded to specific authorities.

3.5.10 RBKC receive no imports from other authorities, LBL received 17t in 2015 and 12k tonnes in 2014.

3.5.11 Given that the majority of 'exports' have not been coded, it is not possible to provide conclusions with regards to how much waste is imported to the WRWA area, as it is possible that these uncoded entries in WDI include the WRWA Waste Planning Authorities.

4 LACW & C&I Waste Capacity Assessment

4.1 Introduction

4.1.1 This section of the report addresses the waste facilities within each of the WRWA WPAs, and determines which facilities are considered relevant to count towards to the GLA's London Plan apportionment figures. Once this capacity has been identified, it has been compared to these apportionment targets to assess where there may be gaps.

4.2 Apportionment Criteria

4.2.1 In assessing what available waste management capacity counts towards WRWA's apportionment targets, the assumptions reported in the GLA "London Plan" have been used as detailed in Table 9 following, showing London Plan criteria and examples of facility types these could include:

Table 9: Assumptions - capacity applicable to achieving London Apportionment targets

London Plan Criteria	Waste Management Facilities
Used in London for energy recovery	Energy recovery facility, energy from waste facility, anaerobic digestion
Materials sorted or bulked in London facilities for reuse, reprocessing or recycling	Materials Recycling Facility (MRF) or other materials sorting facility
Material reused, recycled or reprocessed in London	Material reprocessor, reuse facility, composting facility (permitted and exempt)
Produced as a "biomass fuel" as defined in the Renewable Obligation Order[14]	Refuse derived fuel (RDF) or Solid Recovered Fuel (SRF) production facilities (if Renewable Obligation Order requirements are met)

Source: GLA's London Plan, Policy 5.17, paragraph 5.79, Anthesis

Transfer Stations

4.2.2 Transfer stations operated by waste management contractors tend to bulk collected wastes before transporting to other facilities for, for instance, landfilling, energy recovery or separation for recycling. As such this capacity does not count towards the London Apportionment. However, many transfer stations do practise basic separation of recyclates from input waste materials before they are bulked for onward transport, and this recycling can be counted towards the Apportionment targets. To assess

[14] Under The Renewables Obligation Order 2015, Biomass and fuels which are to be treated as biomass fall under the order if (part 1 para3): (a) at least 90% of its energy content is derived from relevant material (ie. material, other than fossil fuel, which is, or is derived directly or indirectly from, plant matter, animal matter, fungi, algae or bacteria), (b) it is waste, and (c) any fossil fuel forming part of it was not added to it with a view to the fossil fuel being used as a fuel.

the level of recycling at individual transfer stations, the outputs of these facilities were examined using data from the Environment Agency's WDI dataset over the last four years (to 2015) to produce an average recycling rate. Applying this figure to the operational transfer capacity of the facility gave the recycling capacity relevant to the London Apportionment targets.

4.2.3 T4 exempt sites (preparatory treatments, such as, baling, sorting, shredding – see notes following) tend to be small scale sorting or baling facilities of mainly recyclates, operated often at the site the waste is produced e.g. retail complexes, hospitals, rail operators, small waste operators, or are akin to small scale materials recycling facilities, and therefore for this study are considered relevant capacity to the apportionment targets.

Environmental Permitted and Exempt Sites

4.2.4 Environmental permits are required for activities that could pollute the air, water or land, increase flood risk or adversely affect land drainage. Permits are usually required for operations that manufacture potentially harmless substances, and for waste operations such as landfills, incineration plants and sites where waste is recycled, stored, treated or disposed of. As well as operations which do present a pollution risk, and therefore need to apply for a permit, some activities can be excluded from permitting altogether (.i.e. they represent no pollution risk and therefore need no permit) or exempted from permitting (i.e. represent a low pollution risk).

4.2.5 Using Environment Agency permitted capacity data to assess overall capacity of individual sites can be problematic. This is because permitted capacities are based on capacity bands into which Permits are divided rather than the operating annual capacity of the site, and, therefore, the capacity detailed in the licence tends to be at the top end of the charging bands. Therefore, many sites give permitted capacities of 74,999 tonnes, 24,999 tonnes and 4,999 tonnes and it is likely that such figures used are over estimates of actual operational capacities. Therefore additional datasets have been used to estimate actual operational capacity.

4.2.6 Exempted sites still need to register their operations with the Environment Agency, but have a much lower reporting requirement than permitted sites.

4.2.7 Exemptions are classified under a range of 57 paragraph descriptions categorised as U (use of waste) T (treatment of waste) D (disposal of waste and S (storage of waste). Each exemption has associated with it a number of conditions which have to be met before an exemption can be issued.

4.2.8 For example: Waste exemption: T4 preparatory treatments, such as, baling, sorting, shredding covers activities such as baling loose paper and cardboard before transporting it to another site for recycling; baling and shredding aluminium cans and sorting different types of plastic bottles. It cannot cover the treatment of hazardous waste or the baling of waste before it is sent to landfill or incineration. Throughput limits set for T4 operations depending upon which material are handled.

4.2.9 A list of exemptions registered within each of the boroughs has been provided by the Environment Agency. Those exemptions relevant to this study are summarised in Table 10. Similarly to permits, exemptions are limited up to a tonnage which is not necessarily reflective of the operational capacity.

Therefore an assumed capacity (sourced from Defra guidance[15]) for each exemption type has been used to estimate the operational capacity of each of the sites operating under exemptions. This is not a standard percentage assumption but instead is based on data gathered by the Defra study with regards to the likely size of these exempt operations.

Table 10: Assumed Exemptions relevant to London Apportionment targets

Exemption Description	Maximum Capacity (tpa)	Assumed Capacity (tpa)
D6 disposal by incineration (wood waste)	5	5
T1 cleaning, washing, spraying or coating relevant waste	15,600	1,200
T10 sorting mixed waste	520	520
T2 recovering textiles	5,000	2,000
T11 repairing or refurbishing waste electrical and electronic equipment (WEEE)	1,000	500
T12 manually treating waste for reuse e.g. bric-a-brac, furniture, clothing	60	60
T23 aerobic composting and associated prior treatment	400	400
T25 anaerobic digestion at premises not used for agriculture and burning resulting biogas	1,000	1,000
T4 preparatory treatments, such as, baling, sorting, shredding (typical capacity given)	150,000	5,000
Total	17,3585	10,685

Source: Assumed capacities were taken from Defra's "New Methodology to Estimate Waste Generation by the Commercial and Industrial Sector in England" (2014)

4.2.10 Details regarding the size of these sites are not kept by the Environment Agency. It should also be noted, that these sites are unlikely to become available for other waste uses, should the existing waste activity cease, as often the main activity on these sites is not waste management which is often secondary to the main activity.

4.2.11 There are also additional sites which are permitted by local authorities e.g. small scale incinerators treating less than 3 tonnes a day[16]. Information of this nature was sought from each of the WPAs' environmental health teams, but no relevant sites were found to exist within WRWA area.

4.3 Royal Borough of Kensington and Chelsea (RBKC) Capacity Gap

Waste arisings

[15] Defra's New Methodology to Estimate Waste Generation by the Commercial and Industrial Sector in England, 2014

[16] Environmental permitting guidance: waste incineration, Gov.uk

4.3.1 Table 11 shows RBKC's demand for waste treatment facilities, which is based on the GLA's London Plan apportionment figures, for household and C&I waste, and broken down into the various types of wastes, using the methodology described in section 3.

Table 11: RBKC's requirement to meet GLA's London Plan apportionment

Waste stream	2016	2021	2026	2031	2036
Dry Recycling	64,582	86,369	109,852	119,991	122,418
Organics	2,678	4,181	6,148	7,509	7,682
Residual	70,740	69,450	74,000	66,500	67,900
Total	**138,000**	**160,000**	**190,000**	**194,000**	**198,000**

Source: GLA's London Plan (Table 5.3, Policy 5.17), broken down into waste stream by Anthesis

Capacities

Permitted capacity

4.3.2 There is a single active permitted waste management site in RBKC according to the Environment Agency "Active Sites" listing for 2014, as shown in Table 12.

4.3.3 This facility is a very specific type and allows only for the storage and treatment of some hazardous and non-hazardous clinical and healthcare wastes. Only waste generated on-site and by its staff can be treated here[17]. The actual throughput data shown in Table 12 is from the four years to 2015 and hence from when the site was permitted as a clinical waste and healthcare waste transfer station, which allowed transfer of up to 75 tpa. However, the permit has recently been varied to a 100 tpa. As this facility is for clinical waste transfer, it is not valid for consideration for meeting the GLA's apportionment requirement.

[17] Gov,uk: Standard rules SR2013 No.1 Treatment of 100 t/y of clinical & healthcare waste: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/384644/LIT_10068.pdf

Table 12: Permitted waste sites in RBKC

Operator	Site Name	Facility Type	Input Waste	Waste Category	Permitted tonnes (tpa)	Actual 2015 throughput (tpa)	Actual 2014 throughput (tpa)	Actual 2013 throughput (tpa)	Actual 2012 throughput (tpa)	Operational Capacity (tpa)	Capacity applicable to London Apportionment
Pyropure Limited	Imperial College London, Emmanuel Kaye Building	Clinical Waste Transfer Station & treatment	Clinical Waste	Commercial and industrial	100	0	0.412	0	0	100	0

Source: EA Waste Data Interrogator

4.3.4 There are no pending facilities in the planning system likely to deliver additional local capacity in the forecast period.

4.3.5 However, RBKC Consolidated Local Plan Policy CE3: Waste (which is being reviewed as part of the Local Plan Partial Review) requires on-site waste management facilities as part of strategic developments in the borough, which may deliver additional waste management capacity. An example is Kensal Canalside, which is to be a mixed used development of 3,500 new residential units, 10,000sq.m of new offices and 2,000 sq.m of non-residential floorspace, as well as a new Crossrail station. This development is likely to generate between 2,000 and 4,000 tonnes per year of household waste once developed. Commercial waste will also be generated in addition to this, the quantity of which will vary depending on the commercial activities undertaken.

4.3.6 Cremorne Wharf is currently being utilised on a temporary basis for development of the Thames Tideway Tunnel and part of the site will need to be permanently retained for ongoing maintenance access to the tunnel. The Secretary of State granted the Thames Tideway Tunnel Development Consent Order (DCO) in September 2014 which is programmed for completion in 2022. The building and structures at Cremorne Wharf are due to be demolished. The DCO includes the construction and replacement of buildings and structures at Cremorne Wharf to replace those being demolished. An application for the Counters Creek Storm Relief Sewer scheme is expected to be submitted later this year (2016) and will also utilise Cremorne Wharf during construction. Construction phases will overlap with Thames Tideway Tunnel and is also expected to be completed by 2022.

4.3.7 When the Thames Tideway Tunnel and the Counters Creek Storm Relief Sewer Scheme projects are complete it is proposed that Cremorne Wharf will be brought back it into waste use but it is currently not known whether this will be purely for waste transfer or also include treatment or sorting operations. Therefore the proportion of the waste throughput which can be counted towards meeting the GLA's apportionment target is currently unknown. Therefore this potential facility has not been included in the total waste management capacity figures at this point in time.

4.3.8 According to the EA, there are a number of sites which manage waste under an exemption, as opposed to requiring full permits. Table 13 presents the information regarding the relevant sites which are considered to count towards meeting the GLA apportionment target. These have been determined as described in section 4.2.

4.3.9 The total approximate waste treatment capacity operating under exemptions is 30,660 tpa. The majority of this is the preparation of dry recyclates for onward transport direct to reprocessors, with some composting taking place.

Table 13: Waste sites with exemptions within RBKC

Operator	Exemption	Number of exemptions	Assumed capacity
Cadogan Estates Ltd	T23 aerobic composting and associated prior treatment	1	400
Chelsea and Westminster NHS Foundation Trust	T4 preparatory treatments, such as, baling, sorting, shredding (typical capacity given)	1	5,000
Colville Area Forum	T23 aerobic composting and associated prior treatment	2	800
Galliford Try Construction	T12 manually treating waste for reuse e.g. bric-a-brac,	1	60

Operator	Exemption	Number of exemptions	Assumed capacity
Ltd.	furniture, clothing		
Kensington and Chelsea London Borough Council	T23 aerobic composting and associated prior treatment	3	1,200
Quadron Services Ltd.	T23 aerobic composting and associated prior treatment	3	1,200
Royal Marsden NHS Trust	T4 preparatory treatments, such as, baling, sorting, shredding (typical capacity given)	1	5,000
SITA UK LTD	T4 preparatory treatments, such as, baling, sorting, shredding (typical capacity given)	3	15,000
The Chelsea Physic Garden	T23 aerobic composting and associated prior treatment	1	400
The Wellcome Trust Ltd	T23 aerobic composting and associated prior treatment	4	1,600
Total Dry Recyclables Capacity			***25,060***
Total Organics Capacity			***5,600***
Total Residual capacity			***0***
Grand Total			**30,660**

Source: EA Register of waste exemptions

Apportionment Gap

4.3.10 As there is no existing permitted waste treatment capacity (which counts towards the Apportionment) within RBKC, the total waste treatment capacity is shown in Table 13, is the exempt sites. The available capacity has not been changed from each target year of the apportionment, and therefore remains the same (i.e. 30,660 tpa) for each year of the forecast periods.

4.3.11 As discussed above, Cremorne Wharf is the only potential large scale additional facility in the future, but neither the type nor scale of facility is known, therefore will be limited in its ability to meet the apportionment target. Even if it was capable, it would be unlikely to have such a capacity to fully address the Borough's apportionment, as the site itself is 0.39ha, equivalent to a potential processing capacity of 31,200tpa using the Babtie formula[18].

4.3.12 Small scale facilities developed as part of new developments, such as Kensal Canalside, may be able to help meet the Borough's apportionment targets. However, no details are yet available on these schemes and therefore have not been included in RBKC's waste management capacity forecasts.

4.3.13 Comparing the assumed available capacity of LACW and C&I waste treatment by waste type to the apportionment targets (see Table 11), demonstrates there is a shortfall in existing and planned waste treatment facilities (see Table 14).

Table 14: Apportionment gap for RBKC (tpa)

Waste stream	2016	2021	2026	2031	2036

[18] Reported in "London Waste Apportionment Part A" Jacobs Babtie 2006 as 80,000 tonnes waste management capacity per hectare

Waste stream	2016	2021	2026	2031	2036
Dry Recycling	39,522	61,309	84,792	94,931	97,358
Organics	-2,922	-1,419	548	1,909	2,082
Residual	70,740	69,450	74,000	66,500	67,900
Apportionment Gap Total	**107,340**	**129,340**	**159,340**	**163,340**	**167,340**

Source: Anthesis

4.3.14 This shows a shortfall over the forecast period of between 107ktpa in 2016 and 167ktpa in 2036, consisting of residual waste treatment (68-70ktpa) and recycling (39-97ktpa) capacity shortfall, with an organics waste capacity shortfall building from 548tpa 2026, to 2ktpa in 2036.

4.3.15 Different waste management technologies require different footprints, and therefore an average tonnage figure able to be treated per hectare is difficult to ascertain. However, Table 15 shows an average assumption for the treatment of each type of waste (i.e. organic, residual etc.), and estimates the likely land required to develop enough capacity to meet the shortfall is approximately 3.74 ha (see Appendix 4 for details).

Table 15: Likely land required to meet shortfall in waste treatment capacity

Treatment type	Assumed tonnes/hectare	Hectares required
Materials Recovery Facility to separate dry recyclables	37,500	2.59
Organic waste treatment	32,300	0.06
Energy recovery from residual waste	62,500	1.09
Total		**3.74**

Source: Extrapolated by Anthesis from Office of the Deputy Prime Minister, "Planning for Waste Management Facilities", August 2004[19]

Conclusions

4.3.16 Comparing active capacity available in RBKC to the London Apportionment forecasts to 2036, shows a shortfall over the forecast period of between 107ktpa in 2016 and 167ktpa in 2036, consisting of residual waste treatment (68-70ktpa) and recycling (39-97ktpa) capacity shortfall, with an organics waste capacity shortfall building from 548tpa 2026, to 2ktpa in 2036.

4.3.17 Using the Babtie formula, the 2036 shortfall would be equivalent to 2.1ha of waste management allocated development land. However, examining the 2036 shortfall in terms of the land take required to develop the required capacity shortfall by waste treatment type, shows a significantly larger requirement of 3.74ha to meet the 2036 London Apportionment target. There are currently no waste sites allocated of combined size able to produce this level of capacity development within the borough area.

[19] The Babtie formula 80,000 tonnes per hectare average is also based upon reported figures in this report

4.4 London Borough of Hammersmith & Fulham Capacity Gap

4.4.1 Two large waste sites (Powerday and EMR) and some other smaller sites exist within the London Borough of Hammersmith & Fulham. Since April 2015, the Old Oak and Park Royal Opportunity Area and the waste sites in the north of the borough have fallen within the boundary of the Old Oak and Park Royal Development Corporation (OPDC).

4.4.2 Part of the OPDC falls within the LBHF, and therefore a certain proportion of LBHF's waste arisings and capacity will be derived from the OPDC area. As OPDC does not have a waste apportionment target in the current London Plan, the London Plan requires Mayoral Development Corporation's to co-operate with boroughs to ensure that their waste apportionments are met. LBHF and OPDC will therefore need to continue to work together to manage waste arisings.

4.4.3 Waste arisings

4.4.4 Table 16 shows LBHF's demand for waste treatment facilities, which is based on the GLA's London Plan apportionment figures, and broken down in the various types of wastes, using the methodology described in section 3.

Table 16: LBHF's requirement to meet GLA's London Plan apportionment

Waste stream	2016	2021	2026	2031	2036
Dry Recycling	80,315	107,453	137,660	149,767	152,719
Organics	3,348	5,197	7,690	9,333	9,581
Residual	88,337	86,350	92,650	82,900	84,700
Total	**172,000**	**199,000**	**238,000**	**242,000**	**247,000**

Source: GLA's London Plan (Table 5.3, Policy 5.17), broken down into waste stream by Anthesis

Capacities

Permitted capacity

4.4.5 There are several active permitted waste management sites in LBHF according to the Environment Agency "Active Sites" listing for 2015, as shown in Table 17.

4.4.6 There are no pending facilities in the planning system likely to deliver additional local capacity in the forecast period.

4.4.7 However, LBHF's emerging Local Plan Policy CC7- On Site Waste Management requires the provision of on-site waste management facilities for major developments and regeneration areas.

4.4.8 The Powerday facility at Old Oak Sidings provides the most existing waste management capacity within the area. This facility predominantly deals with construction waste, however has been accepting a proportion of other (i.e. non-construction) C&I wastes. Over the last four years, this has averaged 36% of the throughput of the site, maximizing at 42.6% in 2014.

4.4.9 The Powerday site has a licensed capacity to treat up to 1.6m tonnes of waste per annum, however, as Table 17 shows that it has not been operating at this capacity. The company has explained that this is not due to operational restrictions on the site, but partly due to market conditions and conditions of the planning application which require one third of the licensed capacity to be transported to and from the site by rail, and another third to be transported to and from by canal.

Table 17: Permitted waste sites in LBHF

Operator (WPA)	Address	Facility type	Input Waste type(s)	Site area (ha)	Waste Source	Permitted capacity (tpa)	Actual input (tpa) 2015	Actual input (tpa) 2014	Actual input (tpa) 2013	Actual input (tpa) 2012	Capacity applicable to London Apportionment
United Kingdom Tyre Exporters Ltd (OPDC)	108 Scrubs Lane, Willesden, London, NW10 6QY	Non-Haz Waste Transfer	CD&E waste	0.32	CD&E	244,305	33,513	48,805	46,405	23,036	0
EMR (Mayer Parry Recycling Ltd) (OPDC)	106 Scrubs Lane, Willesden, London, NW10 6QY	Metal Recycling, vehicle depollution, end of Life fridge treatment	Vehicles, Metals, Fridges	4.4	HH, C&I	419,000	150,132	114,549	123,393	194,393	0 (assumes site used for re-development)
Orpin, Jane (LBHF)	145 Goldhawk Road, Shepherds Bush, London, W12 8EN	Car Breaker/ vehicle end of life	Vehicles		Vehicles	5	2	4	3	3	0
Powerday P L C (OPDC)	Old Oak Sidings, Off Scrubs Lane, Willesden, London, NW10 6RJ	Material Recycling Facility	Residual and recycling	3.9	C&I, CD&E	1,600,000	347,448	346,323	359,643	355,931	681,000[20]
O'Donovan Waste Disposal Ltd (OPDC)	Scrubs Lane	Material Recycling Facility, Waste		0.27				no data			0

[20] Figure sourced from London Borough of Hammersmith and Fulham "Proposed Submission Local Plan Background Paper: Waste" September 2016. Discussions with Powerday have confirmed this potential MSW/C&I capacity figure.

Operator (WPA)	Address	Facility type	Input Waste type(s)	Site area (ha)	Waste Source	Permitted capacity (tpa)	Actual input (tpa) 2015	Actual input (tpa) 2014	Actual input (tpa) 2013	Actual input (tpa) 2012	Capacity applicable to London Apportionment
		storage and transfer									
Capital Waste Ltd (OPDC)	104, Scrubs Lane, Willesden, London	Metals recycling facility	Metals	0.26				no data			0
N/A	Hurlingham Wharf*	Building waste	Building waste	0.49							0
N/A	Swedish Wharf*	Oil Storage		0.55							0
N/A	Comley's Wharf*	Concrete bathing and transporting		0.44							0
Total Dry Recyclables Capacity											102,150
Total Organics Capacity											0
Total Residual capacity (RDF)											578,850
Total Relevant Capacity											**681,000**

Source: Anthesis from EA and other data * Although there are currently three wharves in the borough which are safeguarded in the London Plan for the transport of freight by river, none of these wharves are currently being used for waste shipment, and they are considered unsuitable for this purpose given poor road access and proximity to residential uses. It should be noted that Hurlingham Wharf is being used for the construction of the Thames Tideway Tunnel and will not be available for approximately 10 years and that Comleys and Swedish wharves are both in use and also subject to a planning application for mixed use, including concrete batching and residential.

4.4.10 The Powerday site takes commercial & industrial and construction wastes as input to produce a range of recyclates and a quality RDF for export outside of the UK. The input material, being from commercial rather than municipal sources, contains a high level of biogenic materials such as wood, paper and cardboard, and relatively low moisture levels. A front end separation removes up to 15% of the input waste as recyclable materials such as metals, with shredders, air knife sorters, screens and manual picking stations able to produce a final fuel which meets their customers' specification. To meet the requirements of the London Apportionment, the RDF needs to be "produced as a "biomass fuel" as defined in the Renewable Obligation Order"[21] i.e. at least 90% of its energy content needs to be derived from biogenic material. Powerday produce for their current market RDF with biogenic *by weight content* of >50%, but do not have the data to relate this to *energy content* as this is not a requirement of their current customers. However, with the range of separation and processing techniques available at the Powerday facility, with manual picking able to "fine tune" final product quality, it has been assumed that the facility is likely to be capable of producing a "biomass fuel" as defined in the Renewable Obligation Order from input commercial and industrial waste.

4.4.11 In terms of relevant capacity, a number of figures are available. The London Borough of Hammersmith and Fulham "Proposed Submission Local Plan Background Paper: Waste" September 2016 used the 2014 EA returns data proportion of 42.6% MSW+C&I waste of the total facility throughput for that year, multiplied by 1.6 million tonnes permitted capacity giving 681ktpa as potential capacity. In the OPDC document "Draft Waste Strategy – local plan supporting study" February 2016, an average proportion of 35.7% taken from throughput data from 2011 to 2014, was used to produce a potential capacity of 571ktpa. Subsequent discussions with Powerday have confirmed that the higher 681ktpa throughput is achievable if the market demands it, and therefore this figure has been used in this study. It is assumed that all of this capacity is relevant to the London Apportionment, 102,150tpa as recyclate capacity (i.e. 15%) and the remainder (578,850 tpa) as residual waste capacity.

Exempt capacity

4.4.12 According to the EA, there are a total of 118 exemptions/site combinations in LBHF, including several pharmacies (T28 sort and denature controlled drugs for disposal). Other sites include:

- Balcan Engineering: 7 locations for crushing fluorescent tubes for recycle/disposal (T17);
- Number of sites reusing waste in construction and with storage;
- Fulham Palace Trust – several exemptions including chipping wood (T6) using mulch (T12) burning of waste to fuel small appliance (U4); and
- Imperial College Healthcare NHS Trust – drug sorting via pharmacies.

4.4.13 Main sites of interest to this study, i.e. relevant to the London apportionment, plus estimated capacity, are summarised in the following table, totalling 25,045tpa:

[21] GLA's London Plan, Policy 5.17, paragraph 5.79

Table 18: Waste sites with exemptions within LBHF

Operator	Exemption	Assumed capacity
CENTRAL WASTE SERVICES LTD	T1 cleaning, washing, spraying or coating relevant waste	2,400
	T10 sorting mixed waste	520
	T4 preparatory treatments, such as, baling, sorting, shredding (typical capacity given)	5,000
Clipfine Limited	T4 preparatory treatments, such as, baling, sorting, shredding (typical capacity given)	5,000
Envirowaste Solutions UK	T2 recovering textiles	2,000
	T4 preparatory treatments, such as, baling, sorting, shredding (typical capacity given)	5,000
FIRST GREATER WESTERN LTD	T10 sorting mixed waste	520
	T4 preparatory treatments, such as, baling, sorting, shredding (typical capacity given)	5,000
Fulham Palace Trust	T23 aerobic composting and associated prior treatment	400
Hammersmith and Fulham London Borough Council	T23 aerobic composting and associated prior treatment	400
nitin shah	D6 disposal by incineration (wood waste)	5
Quadron Services Ltd.	T23 aerobic composting and associated prior treatment	1,200
Grand Total		27,445
Total Dry Recyclables Capacity		23,040
Total Organics Capacity		2,000
Total Residual capacity		5
Total Relevant Capacity		25,045

Source: EA Register of waste exemptions

Apportionment Gap

4.4.14 Comparing the assumed available capacity of LACW and C&I waste by waste type to the apportionment targets, generates the following shortfall in locally available capacity:

Table 19: Apportionment gap for LBHF (tpa) (negative figures indicate a surplus)

Waste Type	2016	2021	2026	2031	2036
Dry Recycling	- 47,395	- 20,257	9,950	22,057	25,009
Organics	1,348	3,197	5,690	7,333	7,581
Residual	- 490,518	- 492,505	- 486,205	- 495,955	- 494,155
Apportionment Gap Total	**- 536,565**	**- 509,565**	**- 470,565**	**- 466,565**	**- 461,565**

Source: Anthesis

4.4.15 Overall LBHF/OPDC has surplus capacity against the London Apportionment, due to extensive recyclate and residual waste (RDF) capacity in the borough. There is a shortfall in organic waste processing capacity (1-8ktpa). However each authority does not necessarily treat its own waste, and therefore the fact that shortfalls are for other types of waste should not mean that their

apportionment is considered to not have been met. It may be useful to understand that if more waste sites were to be planned within the borough (of which currently there are no plans), there is a greater need for those to treat organic waste.

By Allocated and Safeguarded Sites

4.4.16 OPDC's Draft Waste Strategy identifies that the Powerday Old Oak Sidings site should be safeguarded. The EMR metals recovery site, however, is not safeguarded, assuming it is available for re-development.

4.4.17 The Powerday site is in total 3.9ha, giving, using the Babtie formula, a potential output of 312,000 tpa, which is significantly less than its actual operational potential.

4.4.18 The Apportionment capacity gap has shown shortfalls in both recyclate and organic waste capacity by 2032, equivalent to 0.4ha using the Babtie formula. However, different waste management technologies require different footprints. Table 20 shows an average assumption for the treatment of each type of waste, and estimates the likely land required to develop enough capacity to meet the actual capacity shortfall is approximately 0.9 ha (see Appendix 4 for details), not taking into account the surplus residual waste capacity in the borough.

Table 20: Likely land required to meet shortfall in waste treatment capacity (2032)

Treatment type	Assumed tonnes/hectare	Hectares required
Organic waste treatment	32,300	0.23
Materials Recovery Facility to separate dry recyclables	37,500	0.67
Energy recovery from residual waste	62,500	-7.91
Total		**-7.00**

Source: Extrapolated by Anthesis from Office of the Deputy Prime Minister, "Planning for Waste Management Facilities", August 2004[22].

Conclusions

4.4.19 Overall LBHF/OPDC have surplus capacity against the London Apportionment, due to extensive recyclate and residual waste (RDF) capacity in the borough, of 537ktpa (2016) reducing to 462ktpa by 2036.

4.4.20 There are shortfalls in both recyclate and organic waste capacity by 2036, equivalent to 0.4ha of allocated land using the Babtie formula. However, different waste management technologies require different footprints. The likely land required to develop enough capacity to meet the actual recyclate and organic waste capacity shortfall is approximately 0.9 ha.

4.4.21 When the residual waste capacity in the borough is taken into account this shows that, overall, LBHF/OPDC have surplus capacity against the London Apportionment, due to extensive recyclate and residual waste (RDF) capacity in the borough, of 537ktpa (2016) reducing to 462ktpa by 2036.

[22] The Babtie 80,000 tonnes per hectare average is also based upon reported figures in this report

4.5 London Borough of Lambeth Capacity Gap

Waste arisings

4.5.1 Table 21 shows LBL's demand for waste treatment facilities, which is based on the GLA's London Plan apportionment figures, and broken down in the various types of wastes, as described in section 3.

Table 21: LBL's requirement to meet GLA's London Plan apportionment

Waste stream	2016	2021	2026	2031	2036
Dry Recycling	72,448	96,566	123,756	134,879	137,831
Organics	3,013	4,684	6,919	8,421	8,669
Residual	79,539	77,750	83,325	74,700	76,500
Total	**155,000**	**179,000**	**214,000**	**218,000**	**222,000**

Source: GLA's London Plan (Table 5.3, Policy 5.17), broken down into waste stream by Anthesis

Capacities

Permitted capacity

4.5.2 There are a number of active permitted waste management sites in LBL according to the Environment Agency "Active Sites" listing for 2014, as shown in Table 22. These sites have a total permitted capacity of over 500,000 tonnes, however it is anticipated actual operational capacity is significantly lower. The overall capacity countable towards the apportionment targets is estimated to be approximately 25,900 tonnes a year.

4.5.3 There are a number of depollution facilities, which are assumed to count towards meeting the GLA's London Plan apportionment. There is also a civic amenity site, where recyclate is bulked for onward reprocessing, and therefore the whole operational capacity is considered viable for London Plan apportionment.

4.5.4 Nearly 50% of the capacity deemed to meet the apportionment target is from one transfer station. The recycling capacity of this facility has been calculated as described in section 4.2.2 i.e. the outputs of these facilities from the last four years have been reviewed. The average proportion of household, industrial and commercial waste outputs which have recorded a fate of either 'recovery' or 'treatment' in WDI, and this proportion has been applied to the operational capacity, to estimate a recycling figure which can be counted towards the GLA's London Plan apportionment.

4.5.5 In addition, there are three other transfer stations. Two are clinical waste transfer stations and therefore do not count towards meeting the apportionment. Powerday were contacted as part of this study and confirmed that all outputs from their site are transferred to another Powerday location within the LBHF (and OPDC). As no recycling takes place on this site, this capacity cannot be counted towards the GLA's London Plan apportionment target.

Table 22: Permitted waste sites in LBL

Operator	Address	Facility type	Input Waste type(s)	Site area (hectares)	Waste Source	Permitted capacity (tonnes per year)	Actual input (tpa) 2015	Actual input (tpa) 2014	Actual input (tpa) 2013	Actual input (tpa) 2012	Capacity applicable to London Apportionment
Kiernan, Bill	Windsor Grove, West Norwood, London, SE27 9NT	Vehicle Depollution Facility	Vehicles	0.26	Municipal	74,999	68	85	73	64	85
Golden Motor Care Ltd	Arch 439, Gordon Grove, Camberwell, London, SE5 9DW	Vehicle Depollution Facility	Vehicles	0.10	Municipal	5,000	No data	408	No data	No data	408
Vauxhall Mania ltd	Plot 1, Gordon Grove, Camberwell, London, SE5 9DW	Vehicle Depollution Facility	Vehicles	Unknown	Municipal	5,000	178	No data	No data	No data	408
O C S Group U K Limited	Clapham Site, 44 Southside, Clapham Common, London, SW4 9BU,	Clinical Waste Transfer	Clinical Waste	0.11	Commercial	4,999	1,181	1,007	1,047	998	0
London Borough of Lambeth	Vale Street Civic Amenity Centre, Vale Street, London, SE27 9PA	Civic Amenity Site	Recycling	0.12	Municipal	75,000	2,410	2,152	1,921	1,262	12,953
Powerday Plc	4-16 & 1-3 Belinda Road, Brixton, London, SW9 7DT	Non-Haz Waste Transfer / Treatment	Residual and recycling	0.12	Commercial, industrial, Municipal, Construction & Demolition	300,000	34,885	41,056	32,216	72,052	0

Operator	Address	Facility type	Input Waste type(s)	Site area (hectares)	Waste Source	Permitted capacity (tonnes per year)	Actual input (tpa) 2015	Actual input (tpa) 2014	Actual input (tpa) 2013	Actual input (tpa) 2012	Capacity applicable to London Apportionment
Suez (permit holder Shukco 347 Ltd, a subsidiary of Suez)[23]	Shakespeare Wharf, Shakespeare Road, Herne Hill, London, SE24 0LA	Non-Haz Waste Transfer	Residual and recycling	0.67	Commercial, industrial, Municipal, Construction & Demolition	87,750	17,435	17,783	16,050	23,850	12,046
Wanless St	Public Health & Pest Control, 26, Wanless Road, London	Clinical Waste Transfer	Public health and pest control	0.11	Municipal	1,005	No data	No data	0.06	0.21	0
Total Dry Recyclables Capacity											25,900
Total Organics Capacity											0
Total Residual capacity											0
Total Capacity / Size				1.49		**553,753**		**62,491**	**51,307**	**98,226**	**25,900**

Source: Anthesis from EA and other data

[23] On 14th March 2016 the company "Sita South East Limited" changed its name to "Shukco 347 Ltd". The company operates within the industrial and commercial and treatment and disposal divisions of Suez Recycling and Recovery Holdings Ltd.

4.5.6 There are no pending facilities in the planning system likely to deliver additional local capacity in the forecast period.

Exempt capacity

4.5.7 According to the EA, there are a number of sites which manage waste under an exemption, as opposed to requiring full permits. Table 23 presents the information regarding the relevant sites which are considered to count towards meeting the GLA apportionment target. These have been determined as described in section 4.2.

4.5.8 The total approximate waste treatment capacity operating under exemptions is 33,005 tpa. The majority of this is the preparation of dry recyclates for onward transport direct to reprocessors, with some composting and very small quantity of disposal through incineration taking place.

Table 23: Waste sites with exemptions within LBL

Operator	Exemption	Assumed capacity
2 G Environmental Ltd.	T1 cleaning, washing, spraying or coating relevant waste	1,200*
	T10 sorting mixed waste	520
	T4 preparatory treatments, such as, baling, sorting, shredding (typical capacity given)	5,000
	T12 manually treating waste for reuse e.g. bric-a-brac, furniture, clothing	60
Covent Garden Market Authority	T10 sorting mixed waste	520
	T4 preparatory treatments, such as, baling, sorting, shredding (typical capacity given)	5,000
	T12 manually treating waste for reuse e.g. bric-a-brac, furniture, clothing	60
Herve Buisson	T23 aerobic composting and associated prior treatment	400
Remakery Brixton Limited	T1 cleaning, washing, spraying or coating relevant waste	1,200*
	T10 sorting mixed waste	520
	T2 recovering textiles	2,000
	T12 manually treating waste for reuse eg. bric-a-brac, furniture, clothing	60
RESTORE THOROUGHSHRED LTD	T10 sorting mixed waste	520
	T4 preparatory treatments, such as, baling, sorting, shredding (typical capacity given)	5,000
Rob Hockey	T1 cleaning, washing, spraying or coating relevant waste	1,200*
	T10 sorting mixed waste	520
	T23 aerobic composting and associated prior treatment	400
	T25 anaerobic digestion at premises not used for agriculture and burning resulting biogas	1,000
	T4 preparatory treatments, such as, baling, sorting, shredding (typical capacity given)	5,000
	D6 disposal by incineration (wood waste)	5
Roupell Park RMC Ltd	T10 sorting mixed waste	520

Operator	Exemption	Assumed capacity
	T23 aerobic composting and associated prior treatment	400
Solarcentury Holdings Limited	T23 aerobic composting and associated prior treatment	400
SOUTHERN RAILWAY LTD	T4 preparatory treatments, such as, baling, sorting, shredding (typical capacity given)	5,000
Emmaus South Lambeth	N/A – not found in exemption search, but listed in Lambeth Local Plan Waste Evidence Base, November 2013	100
Total Dry Recyclables Capacity		30,400
Total Organics Capacity		2,600
Total Residual capacity		5
Total Capacity		**33,005**

Source: EA Register of waste exemptions. * Not counted towards apportionment

Apportionment Gap

4.5.9 Table 24 presents LBL's total waste treatment capacity considered to meet the GLA's London Plan apportionment targets. There is some additional permitted capacity for transfer of waste materials for disposal which has not been included.

Table 24: Summary of LBL's waste management capacity (including exempt sites)

Waste stream	Waste management capacity (2016)
Dry Recycling	56,300
Organics	2,600
Residual	5
Total	**58,905**

Source: Anthesis

4.5.10 As there is no further capacity planned, this figure has assumed to remain static in the apportionment gap calculations.

4.5.11 Comparing the assumed available capacity of LACW and C&I waste treatment by waste type to the apportionment targets (see Table 21), demonstrates there is a shortfall in existing and planned waste treatment facilities (see Table 25).

Table 25: Apportionment gap for LBL (tpa)

Waste Type	2016	2021	2026	2031	2036
Dry Recycling	16,148	40,266	67,456	78,579	81,531
Organics	413	2,084	4,319	5,821	6,069
Residual	79,534	77,745	83,320	74,695	76,495
Apportionment Gap Total	**96,095**	**120,095**	**155,095**	**159,095**	**164,095**

Source: Anthesis

4.5.12 This shows a shortfall over the forecast period of between 96k and 164ktpa, consisting of residual waste treatment (76-80ktpa), organic (0.4-6ktpa) and recyclate (16-81ktpa) capacity shortfall.

4.5.13 Although there are no plans for additional sites, all transfer stations within Lambeth are safeguarded for waste management use[24]. The total area of these four transfer stations total 1.01 hectares. Based upon the Babtie formula waste management capacity per hectare of development land, these sites could deliver 81,000 tonnes of waste management capacity towards the London Apportionment target.

4.5.14 However, different waste management technologies require different footprints, and therefore a robust average tonnage figure able to be treated per hectare is difficult to ascertain. However, Table 26 shows an average assumption for the treatment of each type of waste, and estimates the likely land required to develop enough capacity to meet the shortfall is approximately 3.59 ha (see Appendix 4 for details). Taking into account the 1.01 ha of safeguarded sites, the shortfall would be 2.58ha.

Table 26: Likely land required to meet shortfall in waste treatment capacity

Treatment type	Assumed tonnes/hectare	Hectares required
Organic waste treatment	32,300	0.19
Materials Recovery Facility to separate dry recyclables	37,500	2.17
Energy recovery from residual waste	62,500	1.22
Total		**3.59**

Source: Extrapolated by Anthesis from Office of the Deputy Prime Minister, "Planning for Waste Management Facilities", August 2004.

4.6 Conclusions

4.6.1 Modelling capacity against London Apportionment targets shows a shortfall over the forecast period of between 96k (2016) and 164ktpa (2036), consisting of residual waste treatment (76-80ktpa), organic (0.4-6ktpa) and recyclate (16-81ktpa) capacity shortfall.

4.6.2 All transfer stations within Lambeth are safeguarded for waste management use[25]. The total area of these four transfer stations is 1.01 hectares. Based upon the Babtie formula these sites could deliver 81,000 tonnes of waste management capacity towards the London Apportionment target.

4.6.3 Different waste management technologies require different footprints, and estimates of the likely land required to develop enough capacity to meet the shortfall is approximately 3.59ha.

4.7 London Borough of Wandsworth Capacity Gap

[24] Lambeth Local Plan 2015 Policy EN7 and Policies Map; Waste Evidence Base, November 2013

[25] Lambeth Local Plan 2015 Policy EN7 and Policies Map; Waste Evidence Base, November 2013

Waste arisings

4.7.1 Table 27 shows LBW's demand for waste treatment facilities, which is based on the GLA's London Plan apportionment figures, and broken down in the various types of wastes, using the methodology described in section 3.

Table 27: LBW's requirement to meet GLA's London Plan apportionment

	2016	2021	2026	2031	2036
Dry Recycling	101,975	136,013	174,649	189,939	193,415
Organics	4,233	6,587	9,764	11,861	12,185
Residual	111,793	109,400	117,588	105,200	107,400
Total	**218,000**	**252,000**	**302,000**	**307,000**	**313,000**

Source: GLA's London Plan (Table 5.3, Policy 5.17), broken down into waste stream by Anthesis

Capacities

Permitted capacity

4.7.2 There are several active permitted waste management sites in LBW according to the Environment Agency "Active Sites" listing for 2015, as shown in Table 28, with total permitted capacity of nearly 2 million tonnes a year. However, it is anticipated actual operational capacity is significantly lower, estimated at 907 ktpa using Environment Agency input data from the last 4 years to 2015. By applying GLA guidelines and including the recycling capacity of transfer stations, by looking at outputs per facility over the last 4 years to 2015, the overall capacity which can be counted towards the apportionment targets is estimated to be approximately 224 ktpa.

4.7.3 Key facilities include transfer stations at Cringle Dock and Smugglers Way which primarily ship bulked material to energy from waste and landfill capacity outside of the borough, but also deliver some recycling, which has been taken into account in the apportionment estimate. Discussions with the operator suggested there was little room to expand throughput or recycling rates at Cringle Dock[26], due to restricted access and health and safety reasons; there is scope for throughput expansion at Smugglers Way although this was difficult to quantify at this time. Recycling plants which contribute fully to the apportionment capacity include Sita South East Limited (now called Shukco 347 Ltd and part of Suez Recycling and Recovery Holdings Ltd), which although permitted as a transfer station appears to deliver up to 99% recyclate output, and metal recycling facility European Metal Recycling (EMR). In addition the Cory Environmental MRF at Smugglers Wharf delivers an addition 84,000tpa of recyclate segregation capacity.

4.7.4 Additional facilities for the processing of inert waste particularly from construction and demolition operations, have not been included in the apportionment capacities.

[26] The WRWA secured planning permission in July 2016 for the redevelopment of the Cringle Dock waste transfer station including the development of residential accommodation above the transfer station itself. This will not impact upon the throughput of the transfer station facility.

4.7.5 There are no pending facilities in the planning system likely to deliver additional local capacity in the forecast period.

Table 28: Active Permitted waste sites in LBW

Operator	Site Address	Facility Type	Input Waste	Site Area (ha)	Permitted tonnes (tpa)	Actual 2015 throughput (tpa)	Actual 2014 throughput (tpa)	Actual 2013 throughput (tpa)	Actual 2012 throughput (tpa)	Assumed Operational Capacity	Capacity applicable to London Apportio-nment	Safeguarded site (2011)
Cappagh Public Works Ltd	The Willows Materials Recycling Facility, Land/ premises at, Riverside Road, Wimbledon, London, SW17 0BA,	Material Recycling Facility	Inerts, C&D	0.57	499,999	52,721	67,653	62,693	75,393	75,393	0	Y
Cory Environmental Ltd	Smugglers Way, Wandsworth, London, SW18 1EG,	Material Recycling Facility	Mixed recyclates	0.65	84,000	71,570	72,683	74,642	76,139	84,000	84,000	**Y**
Day Group Ltd (Formerly Westminster Transerv)	Stewarts Lane Depot, 100 Silverthorne Road, Battersea, London, SW8 3EG,	Physical Treatment	Aggregates	0.27	35,000	1,533	11,100	11,060	14,193	14,193	0	

Operator	Site Address	Facility Type	Input Waste	Site Area (ha)	Permitted tonnes (tpa)	Actual 2015 throughput (tpa)	Actual 2014 throughput (tpa)	Actual 2013 throughput (tpa)	Actual 2012 throughput (tpa)	Assumed Operational Capacity	Capacity applicable to London Apportio-nment	Safeguarded site (2011)
Cory Environmental Ltd	Cringle Dock S W T S, Cringle Street, Battersea, London, SW8 5BX,	Non-Haz Waste Transfer	recycling and residual	1.13	300,000	288,554	263,675	233,922	218,140	300,000	21,519	
D Goldsmith Ltd	D Goldsmith Ltd, 2 Bendon Valley, Tooting, London, SW18 4LZ,	Inert Waste Transfer	Inert waste	0.04	2,829	143	989	950	993	993	0	Y
Wandsworth London Borough Council	Frogmore Depot, Dormay Street, Wandsworth, London, SW18 1HA,	Non-Haz Waste Transfer	recycling and residual		3,666	316	466	284	293	466	0	
Cory Environmental Ltd	Western Riverside S W T S, Smugglers Way, Wandsworth, London, SW18 3JU,	Non-Haz Waste Transfer	non-hazardous waste	1.18	893,637	221,523	219,683	218,362	202,197	300,000	16,810	

Operator	Site Address	Facility Type	Input Waste	Site Area (ha)	Permitted tonnes (tpa)	Actual 2015 throughput (tpa)	Actual 2014 throughput (tpa)	Actual 2013 throughput (tpa)	Actual 2012 throughput (tpa)	Assumed Operational Capacity	Capacity applicable to London Apportio-nment	Safeguarded site (2011)
Sita South East Limited (now called Shukco 347 Ltd)	British Rail Goods Yard, Pensbury Place, Wandsworth Road, London, SW8 4TR,	Non-Haz Waste Transfer	Commercial, industrial, Municipal, Construction & Demolition		75,000	21,390	20,529	20,214	30,237	30,237	21,081	
European Metal Recycling Ltd	Private Sidings, Pensbury Place, Wandsworth, London, SW8 4TR,	Metal Recycling	Metals	0.8	81,000	57,330	57,170	40,600	2,425	81,000	81,000	Y (Pensbury)
Duane's World Car Breakers/ D Champion T/A Rapid Recovery	8/10, The Goods Yard, Pensbury Place, London	Metal Recycling	Vehicles/Metals								0	
Total Dry Recyclables Capacity											224,410	
Total Organics Capacity											0	
Total Residual capacity											0	
Total Capacity				**4.64 ha**							**224,410**	

Source: Anthesis from EA and other data

Table 29: In-Active waste sites in LBW

Operator	Site Address	Facility Type	Input Waste	Sita Area (ha)	Permitted tonnes (tpa)	Assumed Current Operational Capacity (tpa)	Capacity applicable to London Apportionment	Safeguarded Site?
Biffa Waste Services	Pensbury Place, SW8	Vehicle Depot	-	0.18	-	0	0	Y (Pensbury)
SERCO Environmental Services Ltd	Garratt Park Depot, Maskell Road, SW17	Vehicle Depot		0.55	-	0	0	
Cory Environmental Ltd	Wandsworth Road Goods Yard, Wandsworth Road, Pensbury Place	Non-Haz Waste Transfer	recycling and residual (small trial MRF from 2015)	1.51		0	0	Y (Pensbury)

Source: Anthesis from EA and other data

Exempt capacity

4.7.6 The exempt sites within LBW include several pharmacies (T28 sort and denature controlled drugs for disposal). Other sites include:

- Scrap metal (Chase Metal);
- Several sites using waste in construction; and
- Quadron Services – 4 exemptions, covering disposal of dredgings (D1) and use as land spread (U11).

4.7.7 Main sites of interest to this study, i.e. relevant to the London apportionment, plus estimated capacity, are summarised in the following table, totalling 6,320 tpa:

Table 30: Waste sites with exemptions within LBW

Operator	Exemption	Assumed capacity
BVR (JAVIC) LTD	T10 sorting mixed waste T12 manually treating waste for reuse eg. bric-a-brac, furniture, clothing	520 60
OCS GROUP UK LTD	T23 aerobic composting and associated prior treatment	400
Quadron Services Ltd.	T23 aerobic composting and associated prior treatment	400
SOUTHERN RAILWAY LTD	T4 preparatory treatments, such as, baling, sorting, shredding (typical capacity given)	5000
Grand Total		6320
Total Dry Recyclables Capacity		5580
Total Organics Capacity		800
Total Residual capacity		0
Total Capacity		6380

Source: EA Register of waste exemptions

Apportionment Gap

By existing and future capacity

4.7.8 Table 31 presents LBW's total waste treatment capacity considered to meet the GLA's London Plan apportionment targets, totalling both permitted and exempt sites.

Table 31: Summary of LBW's waste management capacity (including exempt sites)

Waste stream	Waste management capacity (tonnes pa)
Dry Recycling	229,990
Organics	800
Residual	-
Total	230,790

Source: Anthesis

4.7.9 As there is no further capacity planned, this figure has assumed to remain static in the apportionment gap calculations.

4.7.10 Comparing the assumed available capacity of LACW and C&I waste by waste type to the apportionment targets, generates the following short term surplus and longer term shortfall in locally available capacity:

Table 32: Apportionment gap for LBW (tpa) (a negative figure represents a capacity surplus)

Waste Type	2016	2021	2026	2031	2036
Dry Recycling	-128,015	-93,977	-55,341	-40,051	-36,575
Organics	3,433	5,787	8,964	11,061	11,385
Residual	111,793	109,400	117,588	105,200	107,400
Apportionment Gap Total	**-12,789**	**21,210**	**71,211**	**76,210**	**82,210**

Source: Anthesis

4.7.11 This shows an approx. 12 ktpa surplus in capacity in 2016 becoming a shortfall over the forecast period of between 20 and 82ktpa, consisting of residual waste treatment (107-111ktpa shortfall) and organic (3-11ktpa shortfall). With local MRF and metals recycling capacity, there is a surplus of recycling capacity throughout the forecast period, when increased recycling included in the modelling produces a capacity surplus reducing to 36ktpa by 2036.

By Allocated and Safeguarded Sites

4.7.12 Reports "Waste Site Selection Document, LDF evidence base" (October2010) and "Waste Site Selection Document" (Update 2011) published by LBW, review available allocated and other sites in the borough suitable for waste management operations, and details the authority's strategy for safeguarding waste sites.

4.7.13 Key to this strategy is the Pensbury Place Waste Management Site, which consists of three sites (EMR, Biffa Waste Services depot and Cory Environmental Waste Transfer site) that have been merged to optimise the use of the site for waste management purposes. This site is in total 2.49ha, giving, using the Babtie formula, a potential output of 199,200 tpa.

4.7.14 Other safeguarded sites include the Cory Environmental Smugglers Ways MRF and the D Goldsmith waste transfer station.

4.7.15 The total area of active allocated waste management sites is 4.64 ha of which 2.06 ha is safeguarded and 1.49 ha contributes to the London Apportionment (x Babtie formula 80,000t per ha = 119,200 tonnes). In addition, 1.69 ha of in-active safeguarded waste management capacity is available (x 80,000 t per ha = 135,200 tonnes) giving a total safeguarded capacity potential of 254,400 tonnes, generating a surplus compared to the 2016 apportionment target, but a shortfall of some 58,600 tonnes from the 2036 apportionment target.

4.7.16 However, different waste management technologies require different footprints, and therefore a robust average tonnage figure able to be treated per hectare is difficult to ascertain. However, Table 33 shows an average assumption for the treatment of each type of waste, and estimates the likely land required to develop enough capacity to meet the actual capacity shortfall is approximately 1.06

ha (see Appendix 4 for details), taking into account the surplus recyclate capacity in the borough. This figure falls well within the available safeguarded inactive waste management site area of 1.69 ha, or the opportunity to develop further waste management capacity on existing sites (including boosted recycling at transfer stations).

Table 33: Likely land required to meet shortfall in waste treatment capacity (2032)

Treatment type	Assumed tonnes/hectare	Hectares required
Organic waste treatment	32,300	0.35
Materials Recovery Facility to separate dry recyclables	37,500	-1.02
Energy recovery from residual waste	62,500	1.72
Total		**1.06**

Source: Extrapolated by Anthesis from Office of the Deputy Prime Minister, "Planning for Waste Management Facilities", August 2004[27].

Conclusions

4.7.17 Based upon current active waste management capacity in LBW, a current surplus capacity against the London Apportionment of 13ktpa is forecast to become a capacity shortfall of 82ktpa by 2036. By waste type, this shortfall consists of residual waste capacity (107ktpa shortfall by 2036) and organic waste treatment (11ktpa shortfall by 2036).

4.7.18 As an option to alleviate this shortfall, the development potential of the allocated Pensbury Place Waste Management Site, in total 2.49ha, provides a potential future waste management output of 199,200 tpa (1.69ha, 132ktpa currently inactive), using the Babtie formula, which significantly exceeds the LBW forecast capacity shortfall in 2036.

4.7.19 The LBW report "Waste Sites Selection Document - Submission Version" Update 2011, notes that the Cory Materials Recovery Facility at Smugglers Ways delivers a significantly higher throughput per ha than the generic Babtie formula ie. 129,230 t/ha. Using this figure, the Pensbury Place site could have a potential capacity of 280,000tpa. This too significantly exceeds the LBW forecast capacity shortfall in 2036.

4.7.20 Examining the 2036 active capacity shortfall in terms of the land-take required to develop the type of waste management facility required (32.3kt/ha organic waste treatment, 62.5kt/ha residual waste energy recovery), shows an overall land requirement of 1.06ha, significantly less than the available area of allocated land available at Pensbury Place.

4.7.21 Therefore, on a LBW level, there appears to be sufficient allocated and safeguarded waste sites to be able to develop sufficient waste management capacity to meet London Apportionment requirements to 2036.

4.8 Western Riverside Waste Authority Summary

[27] The Babtie Formula 80,000 tonnes per hectare average is also based upon reported figures in this report

4.8.1 Table 34 summarises the waste treatment infrastructure demand for all authorities within the WRWA area, by waste material stream. It shows an increasing demand for facilities to treat dry recyclates and organics, due to an increase in recycling/composting targets, and a decreasing demand for residual waste treatment as more waste is diverted from recycling/composting. Overall capacity demand by 2036 is 981ktpa.

Table 34: The WRWA area requirement to meet GLA's London Plan apportionment

	2016	2021	2026	2031	2036
Dry Recycling	319,320	426,400	545,916	594,575	606,382
Organics	13,271	20,650	30,521	37,125	38,118
Residual	350,409	342,950	367,563	329,300	336,500
Total	**683,000**	**790,000**	**944,000**	**961,000**	**981,000**

4.8.2 Table 35 shows that overall capacity gap, taking into account relevant capacity in each of the WRWA boroughs. Note this does not include additional capacity potential from safeguarded or allocated sites in each of the boroughs. This shows a considerable capacity surplus in 2016 of 346ktpa, decreasing to 48ktpa by 2036.

Table 35: Apportionment gap for the WRWA area (tpa) (negative figures denote a capacity surplus)

	2016	2021	2026	2031	2036
Dry Recycling	-119,740	-12,659	106,857	155,516	167,323
Organics	2,272	9,649	19,521	26,124	27,117
Residual	-228,451	-235,910	-211,297	-249,560	-242,360
Apportionment Gap Total	**-345,919**	**-238,920**	**-84,919**	**-67,920**	**-47,920**

4.8.3 However, separating capacity requirement per process type shows an increasing shortfall in recyclate capacity from a surplus of 120ktpa in 2016 to a shortfall of 167ktpa in 2036, caused by an assumed increase in recycling rates. This is exacerbated by the assumed closure of the EMR facility at Scrubs Lane, Willesden.

4.8.4 Apart from some small exempt capacity, there is no local capacity for processing organics in the WRWA area giving a shortfall of between 2 and 27ktpa over the forecasting period. This does not take into account the type of organic waste and the specific type of technology required to deal with this waste i.e. ABPR compliant for food waste or not for garden waste.

4.8.5 Translating these shortfalls per process type into required land-take, the organic waste capacity shortfall would require 0.84ha of development land, 4.5ha for recyclate MRF capacity. Note the surplus residual waste capacity is equivalent to 3.87ha The Pensbury Place site in Wandsworth has the potential for 1.69ha of new waste management development. Although this appears insufficient for delivering the required capacity shortfall, actual land-take of active facilities within WRWA (e.g. Smugglers way MRF 129kt/ha, EMR Pensbury Place 101kt/ha) demonstrate that it is possible to deliver recycling capacity with land efficiency greater than the published average. In addition, increases in recyclate segregation can be delivered by increasing recycling rates at existing waste transfer stations, where space and access allows.

4.8.6 Similarly, capacity shortfalls could potentially be off-set by the repurposing of safeguarded facilities to increase recycling or organic waste processing capacity. However, care should be taken not to sacrifice significant transfer station capacity in this way, as current market requirements and contracts require a significant amount of transfer station capacity.

Table 36: Likely land required to meet shortfall in waste treatment capacity (2036

Treatment type	Assumed tonnes/hectares	Hectares required
Organic waste treatment	32,300	0.84
Materials Recovery Facility to separate dry recyclables	37,500	4.46
Energy recovery from residual waste	62,500	-3.87
Total		**1.42**

4.8.7 There is a considerable surplus of residual waste treatment capacity amounting to 228ktpa reducing to 242ktpa in 2036. However, this conclusion is based upon capacity at a single site (Powerday, Old Oak Sidings) and the assumption that this facility can produce RDF which meets the requirements of the Renewable Obligation Order. If this is not the case, an assumed 579ktpa capacity towards the London Apportionment is lost, giving an overall shortfall of 233ktpa in 2016 to 531ktpa in 2036 (equivalent to 2.9ha to 6.6ha of development land using the Babtie formula.

Table 37: Apportionment gap for WRWA area if Powerday, Old Oak Sidings RDF does not meet requirements of the Renewable Obligation Order (tpa) (negative figures denote a capacity surplus)

	2016	2021	2026	2031	2036
Dry Recycling	-119,740	-12,659	106,857	155,516	167,323
Organics	2,272	9,649	19,521	26,124	27,117
Residual	350,399	342,940	367,553	329,290	336,490
Apportionment Gap Total	**232,931**	**339,930**	**493,931**	**510,930**	**530,930**

Conclusions

4.8.8 Separating capacity requirement per process type shows an increasing shortfall in recyclate capacity from a surplus of 120ktpa in 2016 to a shortfall of 167ktpa in 2036, caused by an assumed increase in recycling rates. Similarly, organic waste processing shows a shortfall of between 2 and 27ktpa over the forecasting period.

4.8.9 Translating these shortfalls per process type into required land-take, the organic waste capacity shortfall would require 0.84ha of development land, 4.5ha for recyclate MRF capacity. However, actual land-take of active facilities within WRA demonstrate that it is possible to deliver recycling capacity with land efficiency greater than the published average. In addition, increases in recyclate segregation can be delivered by increasing recycling rates at existing waste transfer stations, where space and access allows.

4.8.10 There is a considerable surplus of residual waste treatment capacity amounting to 228ktpa reducing to 242ktpa in 2036.

5 Other waste types

5.1 Construction, demolition and excavation waste (CD&E)

What is this waste?

5.1.1 CD&E waste comprises of waste arising from the construction and demolition industries, including excavation during construction activities, and is made up of mainly inert materials such as soils, stone, concrete, brick and tile. However, there are also non-inert elements in this waste stream such as wood, metals, plastics, cardboard, and residual household-like wastes. Due to their weight, the inert elements make up the majority of the total tonnage.

5.1.2 CD&E waste is currently not apportioned in the London Plan. However, the GLA is considering whether this could be incorporated.

5.1.3 The London Plan targets that London will recycle and re-use 95% of CD&E waste by 2020.

Current and future arisings

5.1.4 Establishing the current waste arisings of CD&E waste is challenging due to the lack of robust data sources for this type of waste material.

5.1.5 The Environment Agency's Waste Data Interrogator collates data from waste returns from individual waste sites. There are some draw backs to this data, including potential double counting of waste streams, and the fact that it does not cover waste treated under exemptions, or at energy from waste facilities.

5.1.6 However, it is the best data available, and allows CD&E to be identified as it is coded under Chapter 17 (Construction and Demolition Waste) of the European Waste Catalogue (EWC). The origin WPA is also reported, and therefore it has allowed arisings to be identified for each of the constituent authorities. However data has not been able to be presented separately for the OPDC and instead is included in the LBHF figures.

5.1.7 The overall waste arisings have been based on a baseline year of 2015 and forecast using anticipated housing and commercial development until 2036[28], provided by each of the authorities, with the exception of LBL for which GLA's employment figures for the construction sector have been used as a proxy to forecast CD&E waste growth. A direct correlation between development and employment and waste arisings from construction has been assumed.

5.1.8 CD&E waste is highly influenced, particularly in London, by commercial and residential developments, including infrastructure, which means that peaks and troughs are often seen, and it does not necessarily follow a steady linear pattern.

[28] Note this does not take into account any strategic infrastructure projects

5.1.9 Table 38 and Figure 3 shows both the current and forecasted CD&E waste arisings. Both 2014 and 2015 figures are actuals taken from WDI, and this shows an increase in arisings from 756.5k tonnes to 915.5k tonnes in 2015. The forecasts show an anticipated peak in 2021, of over 1 million tonnes.

Table 38: Forecast CD&E waste arisings for each of the authorities within WRWA area (tonnes)

Authority / *Waste type*	**2014 (actual)**	**2015 (actual)**	**2016**	**2021**	**2026**	**2031**	**2036**
Hammersmith & Fulham	**146,364**	**190,576**	**194,788**	**261,962**	**379,235**	**178,208**	**158,921**
Inert / C&D	*146,134*	*190,497*	*194,707*	*261,854*	*379,078*	*178,134*	*158,855*
Hazardous	*230*	*79*	*81*	*109*	*157*	*74*	*66*
Kensington & Chelsea	**146,364**	**280,815**	**121,036**	**335,462**	**175,980**	**175,980**	**175,980**
Inert / C&D	244,779	280,736	121,002	335,368	175,930	175,930	175,930
Hazardous	54	79	34	94	49	49	49
Lambeth	**75,101**	**111,451**	**75,683**	**78,938**	**82,244**	**85,575**	**88,931**
Inert / C&D	74,956	111,365	75,596	78,847	82,149	85,477	88,828
Hazardous	146	86	87	91	94	98	102
Wandsworth	290,208	**332,634**	**372,307**	**405,130**	**245,295**	**83,815**	**83,815**
Inert / C&D	290,140	330,992	370,469	403,129	244,083	83,401	83,401
Hazardous	69	1,642	1,838	2,000	1,211	414	414
Total	**756,507**	**915,477**	**763,814**	**1,081,492**	**882,753**	**523,578**	**507,646**

Source: EA's WDI 2014, 2015 and Anthesis based on figures provided by authorities and GLA employment

5.1.10 CD&E waste is reported in two different categories in WDI: hazardous, and inert/C&D. The hazardous waste forms a relatively small proportion of the overall arisings i.e. <1%, with the remaining falling under the inert/C&D waste category. This proportion is assumed to remain static over the forecast period.

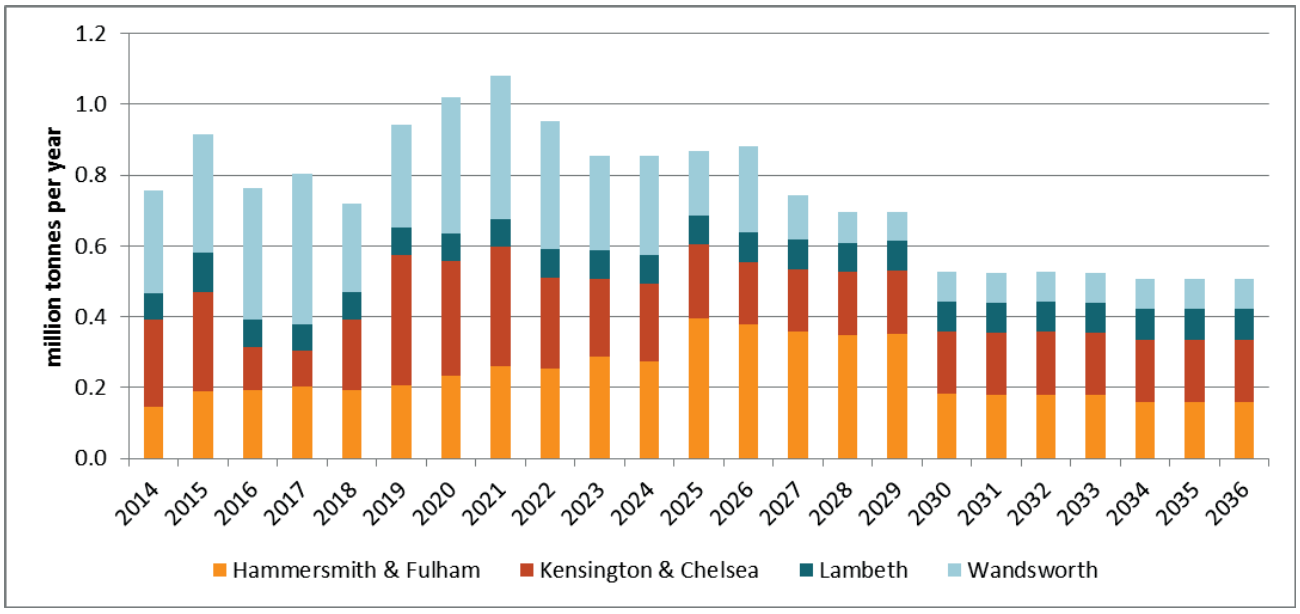


Figure 3: Actual (2104, 2015) and forecasted CD&E waste for WRWA (2016-2036)

Capacity gap

5.1.11 All sites which have been included in the capacity analysis for CD&E waste are included in the full site tables within each of the WPA sections in section 4 of this report. However a summary of the facilities has been included in Table 39 below. It should be noted, that all transfer capacity has been assumed to be available to the transfer CD&E waste in these calculations. In reality these facilities receive a mixture of CD&E, C&I and LACW wastes.

5.1.12 It has been assumed that the remaining 919,000 tonnes of operational capacity (i.e. 681k tonnes has been assumed to sort C&I and LACW, from a permitted capacity of 1.6 million tonnes) of the Powerday Old Oak Sidings facility is available for the sorting of CD&E waste.

Table 39: Existing CD&E waste capacity

WPA	Operator	Address	Facility type	Waste Types	Permitted capacity (tonnes per year)	Assumed Operational Capacity
LBHF (OPDC)	United Kingdom Tyre Exporters Ltd	108 Scrubs Lane, Willesden, London, NW10 6QY	Non-Haz Waste Transfer	Construction and demolition	244,305	0 (site for redevelopment)
LBHF (OPDC)	Powerday P L C	Old Oak Sidings, Off Scrubs Lane, Willesden, London, NW10 6RJ	Material Recycling Facility	Commercial, industrial, Municipal, Construction & Demolition	1,600,000	919,000
LBL	Powerday Plc	4-16 & 1-3 Belinda Road, Brixton, London, SW9 7DT,	Non-Haz Waste Transfer / Treatment	Commercial, industrial, Municipal, Construction & Demolition	300,000	72,052
LBL	Suez (permit holder Shukco 347 Ltd, a subsidiary of Suez)	Shakespeare Wharf, Shakespeare Road, Herne Hill, London, SE24 0LA	Non-Haz Waste Transfer	Commercial, industrial, Municipal, Construction & Demolition	87,750	23,850
LBW	Cappagh Public Works Ltd	The Willows Materials Recycling Facility, Land/premises At, Riverside Road, Wimbledon, London, SW17 0BA,	Material Recycling Facility	Inerts, C&D	499,999	75,393
LBW	Day Group Ltd (Formerly Westminster Transerv)	Stewarts Lane Depot, 100 Silverthorne Road, Battersea, London, SW8 3EG,	Physical Treatment	Aggregates	35,000	14,193
LBW	Sita South East Limited (now	British Rail Goods Yard, Pensbury Place,	Non-Haz Waste	Commercial, industrial,	75,000	30,237

WPA	Operator	Address	Facility type	Waste Types	Permitted capacity (tonnes per year)	Assumed Operational Capacity
	called Shukco 347 Ltd)	Wandsworth Road, London, SW8 4TR,	Transfer	Municipal, Construction & Demolition		
Total transfer capacity						126,139
Total MRF capacity						994,393
Total treatment capacity						14,193
Total						**1,134,725**

Source: EA's WDI, permits and Anthesis research

5.1.13 In total, the overall capacity is approximately 1.1m, with the majority of this being MRF capacity. When compared to the arisings figures as below in Table 40, it suggests that there is a surplus of capacity for the transfer, sorting and treatment of CD&E waste i.e. 371k tonnes in 2016, increasing to approximately 627k tonnes in 2036. The anticipated surplus is expected to be lower in 2021 as this year coincides with a peak in CD&E waste arisings.

Table 40: Arisings and capacity comparison by WPA and WRWA area as a whole (tonnes) (note a negative capacity gap denotes a capacity surplus)

WPA		2016	2021	2026	2031	2036
Hammersmith & Fulham	Waste arisings	194,788	261,962	379,235	178,208	158,921
	Transfer	0	0	0	0	0
	Materials Recovery	919,000	919,000	919,000	919,000	919,000
	Treatment	0	0	0	0	0
	Total capacity	919,000	919,000	919,000	919,000	919,000
	Capacity gap	**-724,212**	**-657,038**	**-539,765**	**-740,792**	**-760,079**
Kensington & Chelsea	Waste arisings	121,036	335,462	175,980	175,980	175,980
	Transfer	0	0	02	0	0
	Materials Recovery	0	0	02	0	0
	Treatment	0	0	02	0	0
	Total capacity	0	0	0	0	0
	Capacity gap	**121,036**	**335,462**	**175,980**	**175,980**	**175,980**
Lambeth	Waste arisings	75,683	78,938	82,244	85,575	88,931
	Transfer	95,902	95,902	95,902	95,902	95,902
	Materials Recovery	0	0	02	0	0
	Treatment	0	0	02	0	0
	Total capacity	95,902	95,902	95,902	95,902	95,902
	Capacity gap	**-20,219**	**-16,964**	**-13,658**	**-10,327**	**-6,971**

WPA		2016	2021	2026	2031	2036
Wandsworth	Waste arisings	372,307	405,130	245,295	83,815	83,815
	Transfer	30,237	30,237	30,237	30,237	30,237
	Materials Recovery	75,393	75,393	75,393	75,393	75,393
	Treatment	14,193	14,193	14,193	14,193	14,193
	Total capacity	119,823	119,823	119,823	119,823	119,823
	Capacity gap	**252,484**	**285,307**	**125,472**	**-36,008**	**-36,008**
Total WRWA	Waste arisings	763,814	1,081,492	882,753	523,578	507,646
	Transfer	126,139	126,139	126,139	126,139	126,139
	Materials Recovery	994,393	994,393	994,393	994,393	994,393
	Treatment	14,193	14,194	14,195	14,196	14,197
	Total capacity	1,134,725	1,134,726	1,134,727	1,134,728	1,134,729
	Capacity gap	**-370,911**	**-53,234**	**-251,974**	**-611,150**	**-627,083**

Source: Anthesis

5.1.14 As specified in paragraph 5.1.11, the transfer capacity has assumed all to be available for the transfer of CD&E waste, whereas in reality it is likely to receive a mixture of LACW, C&I and CD&E waste. What this split of material sources will actually be for a given year, will depend upon market forces at that time and cannot be adequately forecast. With this in mind, 12,046 tonnes of LBL's, and 21,081 tonnes of LBW's waste transfer recycling capacity included in Table 39 and Table 40 as CD&E capacity, is also included in the capacity calculations for LACW and C&I waste. If this 33,127 tonnes of capacity were used exclusively for LACW and C&I wastes, the total transfer capacity available for CD&E wastes would reduce from 126,139 to 93,012 tonnes a year. This would still be sufficient to meet the maximum estimated annual CD&E waste arisings over the plan period.

Destinations of WRWA's CD&E waste

5.1.15 Using the thresholds specified of 5,000 tpa, the WPAs outside to WRWA currently accepting CD&E waste, have been identified. Despite significant capacity within the WRWA area, Table 41 and Table 42 shows that over 97% of WRWA's CD&E waste is exported and treated outside authority areas. However, this may be due to the fact that some facilities including the Powerday Old Oak Sidings facility at LBHF (OPDC) records a large proportion of the waste as originating in 'London' rather than specifically to individual WPAs.

5.1.16 Over the two years examined, the same WPAs appear to be the most significant in terms of receiving the largest quantities of CD&E waste. Surrey has increased in significance over the two years, receiving just less than 100k tonnes in 2014 increasing to over 200k tonnes in 2015. Ealing has also significantly increased as it received around 33k tonnes in 2014 which has increased to 154k tonnes in 2015.

5.1.17 Thurrock, Havering, Greenwich and Hillingdon have all received 50k tonnes or more in both 2014 and 2015.

Table 41: Destination of Inert/C&D waste generated in the WRWA area (>5,000tpa) in 2015 (tonnes)

Recipient WPA	Hammersmith & Fulham	Kensington & Chelsea	Lambeth	Wandsworth	Total
Surrey WPA	32,441	96,645	8,592	72,657	**210,335**
Non-Haz Waste Transfer		*653*	*15*	*146*	*814*
Inert Waste Transfer	*16*		*16*	*416*	*448*
Physical Treatment	*1,463*		*508*	*8,250*	*10,221*
Non Haz (SNRHW) LF	*102*		*6,862*	*31,926*	*38,890*
Inert LF	*30,314*	*94,854*	*1,008*	*31,602*	*157,778*
Physical Treatment	*546*	*1,138*	*183*	*317*	*2,184*
Ealing WPA	23,395	28,460	1,778	100,663	**154,295**
Non-Haz Waste Transfer	*1,782*	*1,294*			*3,076*
Inert Waste Transfer	*21,613*	*27,166*	*1,778*	*100,663*	*151,219*
Thurrock WPA		102,320	837	40,595	**143,752**
Inert Waste Transfer		*2,516*	*17*	*1,458*	*3,991*
Deposit of waste to land (recovery)		*74,800*	*820*	*11,020*	*86,640*
Inert LF		*25,004*		*28,117*	*53,121*
Greenwich WPA	15,330	7,211	32,063	31,480	**86,085**
Physical Treatment	*15,330*	*7,211*	*32,063*	*31,480*	*86,085*
Havering WPA	15,589	3,959	10,887	38,448	**68,883**
Non-Haz Waste Transfer	*32*	*1,422*	*2,031*	*1,535*	*5,021*
Physical Treatment		*30*	*64*	*6,448*	*6,542*
Non Hazardous LF	*15,556*	*2,508*	*8,792*	*30,465*	*57,320*
Hillingdon WPA	34,998	8,985		5,685	**49,668**
Material Recycling Facility	*48*				*48*
Inert LF	*34,950*	*8,985*		*5,685*	*49,620*
Newham WPA	1,599	2,610	33,441	0	**37,650**
Non-Haz Waste Transfer	*54*		*10,461*		*10,515*
Physical Treatment	*1,545*	*2,610*	*22,980*		*27,135*
Haz Waste Transfer				*0*	*0*
Brent WPA	18,365	7,851			**26,216**
Non-Haz Waste Transfer	*18,365*	*7,851*			*26,216*
Merton WPA	6,401	6,462	7,760	5,136	**25,758**
Non-Haz Waste Transfer / Treatment	*6,401*	*6,462*	*7,760*	*5,136*	*25,758*
Milton Keynes WPA	23,304	102		1,216	**24,623**
Non Haz (SNRHW) LF	*23,304*	*102*		*1,216*	*24,623*
Wandsworth WPA	1,891	2,007	5,766	14,620	**24,284**

Recipient WPA	Hammersmith & Fulham	Kensington & Chelsea	Lambeth	Wandsworth	Total
Material Recycling Facility	*1,891*	*2,007*	*5,766*	*14,620*	*24,284*
Essex WPA	505	3,034	2,784	5,697	**12,020**
Non-Haz Waste Transfer		*17*	*13*		*30*
Non Hazardous LF		*18*	*289*	*1,819*	*2,126*
Inert LF	*505*	*2,998*	*2,482*	*3,879*	*9,864*
Buckinghamshire WPA	6,113	524	54	3,914	**10,605**
Non Haz (SNRHW) LF	*1,180*				*1,180*
Non Hazardous LF	*2,251*	*524*	*54*	*642*	*3,471*
Inert LF	*2,682*			*3,272*	*5,954*
Non-Haz Waste Transfer / Treatment			*0*		*0*
Barnet WPA	2,641	6,237	98	967	**9,942**
Non-Haz Waste Transfer	*2,641*	*6,237*	*98*	*967*	*9,942*
Slough WPA	2,161	622	103	4,635	**7,521**
Non-Haz Waste Transfer		*2*			*2*
Inert Waste Transfer	*1,591*	*125*	*103*	*150*	*1,969*
Inert LF	*570*	*495*		*4,485*	*5,550*
Hertfordshire WPA	2,616	2,737	255	1,394	**7,001**
Non-Haz Waste Transfer	*202*			*102*	*303*
Deposit of waste to land (recovery)		*374*			*374*
Inert LF	*2,414*	*2,363*	*255*	*1,292*	*6,324*
Kent WPA	16	69	4,574	1,631	**6,290**
Material Recycling Facility	*16*	*69*	*56*	*29*	*170*
Inert LF			*4,518*	*1,602*	*6,120*
Total	187,364	279,834	108,991	328,738	**904,928**

Source: EA's WDI 2015

Table 42: External destination of Inert/C&D waste generated in the WRWA area (>5,000tpa) in 2014 (tonnes)

Recipient WPA	Hammersmith & Fulham	Kensington & Chelsea	Lambeth	Wandsworth	Total
Thurrock WPA	5,523	100,967	9,950	44,879	**161,319**
Deposit of waste to land (recovery)		*80,080*	*6,600*	*12,840*	***99,520***
Inert LF	*3,083*			*9,270*	***12,353***
Inert Waste Transfer	*2,441*	*20,887*	*3,350*	*22,769*	***49,446***
Havering WPA	28,506	13,890	9,797	100,791	**152,984**

Recipient WPA	Hammersmith & Fulham	Kensington & Chelsea	Lambeth	Wandsworth	Total
Non Hazardous LF	*19,103*	*225*	*7,968*	*73,351*	***100,647***
Non-Haz Waste Transfer	*106*	*963*	*1,810*	*11,232*	***14,111***
Physical Treatment	*9,297*	*12,702*	*20*	*16,208*	***38,226***
Surrey WPA	5,030	28,207	1,230	62,655	**97,122**
Inert LF	*4,073*	*27,274*	*98*	*6,383*	***37,828***
Inert Waste Transfer				*80*	***80***
Non Haz (SNRHW) LF	*100*		*783*	*52,274*	***53,157***
Non-Haz Waste Transfer	*269*	*630*	*1*	*674*	***1,574***
Physical Treatment	*588*	*304*	*348*	*3,243*	***4,483***
Greenwich WPA	*18,383*	*7,350*	*18,679*	*29,058*	**73,469**
Physical Treatment	*18,383*	*7,350*	*18,679*	*29,058*	***73,469***
Hillingdon WPA	38,428	24,418		3,882	**66,728**
Inert LF	*38,428*	*24,418*		*3,882*	***66,728***
Ealing WPA	14,152	14,314	1,452	3,083	**33,001**
Inert Waste Transfer	*12,877*	*13,882*	*1,452*	*3,083*	***31,294***
Non-Haz Waste Transfer	*1,275*	*432*			***1,707***
Wandsworth WPA	4,017	4,450	6,155	16,028	**30,650**
Material Recycling Facility	*4,017*	*4,450*	*6,155*	*16,028*	***30,650***
Merton WPA	7,925	6,822	4,984	10,187	**29,919**
Non-Haz Waste Transfer / Treatment	*7,925*	*6,822*	*4,984*	*10,187*	***29,919***
Brent WPA	7,719	10,336			**18,055**
Non-Haz Waste Transfer	*7,719*	*10,336*			***18,055***
Newham WPA	714	2,028	11,607	1,087	**15,436**
Haz Waste Transfer	*7*	*0*	*0*	*0*	***7***
Non-Haz Waste Transfer			*10,054*		***10,054***
Non-Haz Waste Transfer / Treatment	*707*	*1,936*	*1,254*	*971*	***4,869***
Physical-Chemical Treatment		*92*	*298*	*115*	***506***
Buckinghamshire WPA	5,232	1,614	30	5,585	**12,461**
Inert LF	*570*	*639*		*165*	***1,374***
Non Haz (SNRHW) LF	*4,346*				***4,346***
Non Hazardous LF	*317*	*975*	*30*	*5,420*	***6,741***
Essex WPA	4,251	6,167	1,477	33	**11,928**
Inert LF	*340*	*6,089*	*585*		***7,014***
Non Hazardous LF	*3,911*	*58*	*879*	*21*	***4,868***
Non-Haz Waste Transfer		*21*			***21***

Recipient WPA	Hammersmith & Fulham	Kensington & Chelsea	Lambeth	Wandsworth	Total
Physical Treatment			*13*	*12*	***25***
Barnet WPA	2,501	6,675	195	507	**9,878**
Non-Haz Waste Transfer	*2,501*	*6,675*	*195*	*507*	***9,878***
Dorset WPA	***504***	***7,146***		***234***	**7,884**
Inert LF	*504*	*7,146*		*234*	***7,884***
Slough WPA	711	4,641	133	848	**6,333**
Inert LF	*105*	*4,065*		*750*	***4,920***
Inert Waste Transfer	*605*	*575*	*133*	*98*	***1,411***
Non-Haz Waste Transfer	*1*	*1*			***2***
Kent WPA	1	1	4,001	2,237	**6,241**
Inert LF			*3,942*	*2,178*	***6,120***
Material Recycling Facility	*1*	*1*	*59*	*59*	***121***
Total	**143,598**	**239,029**	**69,690**	**281,093**	**733,408**

Source: EA's WDI 2014

Imports of CD&E waste

5.1.18 Waste imports are shown in greater detail in Appendix 5, but a commentary has been provided in this section.

5.1.19 In both 2014, a similar pattern of CD&E waste exports is seen. LBHF receives the most CD&E waste from London (over 240,000 tonnes in both years, over 80% of which is to the Powerday Old Oak Sidings facility), but the origins have not been coded to specific WPAs.

5.1.20 LBW received approximately over 50,000 tonnes in both 2014 and 2015. Over 50% of the tonnages go to the Willows Materials Recycling Facility.

5.1.21 LBL received approximately 50,000 tonnes in both 2014 and 2015. Over 87% in both years go via the Powerday transfer facility at Belinda Road.

5.1.22 RBKC does not have any sites which receive CD&E waste.

5.2 Low level radioactive waste

5.2.1 Radioactive waste is any material that is either radioactive itself or is contaminated by radioactivity and for which no further use is envisaged. Most radioactive waste is produced from nuclear power stations and the manufacture of fuel for these power stations. This is referred to as "nuclear waste." Radioactive waste is not included in the definition of hazardous waste.

5.2.2 Radioactive waste also arises from nuclear research and development sites. Some also arises from Ministry of Defence sites and medical, industrial and educational establishments. This is sometimes referred to as "non-nuclear waste".

5.2.3 This waste stream is divided into four categories as follows:

1. High Level Wastes (HLW): These are highly radioactive materials that generate substantial amounts of heat. HLW is the product from reprocessing spent nuclear fuel at Sellafield in Cumbria. It arises as highly radioactive nitric acid, which is converted into glass within stainless steel containers in a process called vitrification which is carried out at Sellafield. If declared a waste, spent fuel can also be categorised as HLW.
2. Intermediate Level Wastes (ILW): These are wastes with radioactivity levels that are higher than for Low Level Waste, but which do not require heating to be taken into account in the design of management facilities. ILW is sufficiently radioactive to require shielding and containment. It arises mainly from the reprocessing of spent fuel and from operations and maintenance at nuclear sites, including fuel casing and reactor components, moderator graphite from reactor cores, and sludges from the treatment of radioactive effluents.
3. Low Level Waste (LLW): These are radioactive wastes other than that suitable for disposal with ordinary refuse. Radiation levels do not exceed 4 gigabecquerels per tonne of alpha activity, or 12 gigabecquerels per tonne of beta or gamma activity. (A Becquerel is the unit of radioactivity, representing one disintegration per second.) Unlike HLW and ILW, LLW does not normally require shielding during handling or transport. LLW consists largely of paper, plastics and scrap metal items that have been used in hospitals, research establishments and the nuclear industry. As nuclear plants are decommissioned, there will also be large volumes of this type of waste arisings in the form of soils, concrete and steel. LLW represents about 90% by volume of UK radioactive wastes but contains less than 0.0003% of the radioactivity.
4. Very Low Level Waste (VLLW): This is a sub-category of LLW, consisting of the same sorts of materials, and divided into Low Volume ("dustbin loads") and High Volume ("bulk disposal"). Low volume VLLW can be disposed of to unspecified destinations with municipal, commercial or industrial waste. High volume VLLW can be disposed of to specified landfill sites and controlled as specified by the environmental regulators.

5.2.4 Categories 3 and 4 are those of interest in this study. There are no facilities within the WRWA area for the processing of such material. Some activities which involve radioactive substances require a permit from the EA. No data on arisings and their destinations is held by the EA, as there is a different regime for its regulation.

5.2.5 The latest data available for this this type of waste is the Pollution Inventory Dataset from 2013. However this type of waste is reported in Becquerels, rather than by weight. . Over 8.6 million MBq was identified to be disposed of by the constituent authorities of the WRWA as shown in Table 43. All the waste identified as being generated within the four constituent authorities was reported to be disposed of either to air or to waste water and therefore places no requirement on waste management infrastructure. Therefore, no forecasts are required or have been carried out on this type of waste.

Table 43: Radioactive waste disposed of in WRWA

Authority	MBq
Hammersmith and Fulham	2,972,650
Kensington and Chelsea	2,826,700
Lambeth	2,289,458

Authority	MBq
Wandsworth	519,003
Grand Total	**8,607,810**

Source: EA's Pollution Inventory Dataset from 2013

5.3 Agricultural Waste

5.3.1 Since 2006, most agricultural waste has been subject to the same controls that have applied to other sectors for many years (with the exception of natural wastes including slurries and manures used as fertiliser on agricultural premises).

5.3.2 In the 2006 waste management regulations agricultural waste was defined as waste from premises used for agriculture within the meaning of the Agriculture Act 1947, the Agriculture (Scotland) Act 1948 or the Agriculture Act (Northern Ireland) 1949, and the Chartered Institute of Wastes Management (CIWM) refer to it as waste that has been produced on a farm in the course of 'farming'.

5.3.3 Similarly to CD&E and hazardous waste, WDI has been used to estimate current agricultural waste arisings. However, due to the urban nature of the boroughs, no waste from agricultural sources has been reported. Therefore there are no requirements on waste management infrastructure and no forecasts are required or have been carried out on this type of waste.

5.4 Hazardous Waste

5.4.1 Hazardous wastes are categorised as those that are harmful to human health, or the environment, either immediately or over an extended period of time. They range from asbestos, chemicals, and oil through to electrical goods and certain types of healthcare waste. Quantifying the amount of Hazardous waste is somewhat complicated, as not all hazardous waste is recorded in the same way. Hazardous waste requires a range of specialist facilities for treatment and disposal, and so often this waste may travel further than types of non-hazardous waste.

5.4.2 Estimates of hazardous waste were collated from the EA's WDI (2015), as this reports whether waste is hazardous or not. Therefore the estimates (presented in Table 44) within this section are also included in the household, C&I and CD&E estimates and should not be added to the total as this will mean they are double counted.

5.4.3 Hazardous waste has therefore been forecast using the growth rates shown in the GLA's waste arisings figures. Currently 6.6k tpa of hazardous waste is being produced, which is less than 1% of the overall waste arisings.

Table 44: Hazardous waste arisings in the WRWA area (tpa)

WPA	2015 (actual)	2016	2021	2026	2031	2036
Hammersmith & Fulham	1,167	1,167	1,167	1,167	1,177	1,187
Kensington & Chelsea	205	205	205	205	207	209
Lambeth	2,050	2,050	2,050	2,050	2,067	2,085
Wandsworth	3,216	3,216	3,216	3,216	3,243	3,271
Total	**6,638**	**6,638**	**6,638**	**6,638**	**6,695**	**6,751**

Source: EA's WDI, 2014 & 2015 *figures in this table are already included in the household, CI and CD&E estimates

5.4.4 Table 45 identifies two WPAs which receive more than 500 tpa of hazardous waste from the WRWA area, both of which are in the South East of England. The total presented below does not equal the total arisings as other WPAs receive hazardous waste in addition to those presented below.

Table 45: Destinations of Hazardous waste originating in the WRWA area (>500tpa, in tpa)

Destination	Hammersmith & Fulham		Kensington & Chelsea		Lambeth		Wandsworth	
	2015	**2014**	**2015**	**2014**	**2015**	**2014**	**2015**	**2014**
Enfield WPA	-	-	-	-	30	-	579	
Clinical Waste Transfer	-		-		*30*		*579*	
Medway WPA	413	14	9	201	1,571	488	797	361
Clinical Waste Transfer	*400*	-	*3*	*168*	*1,564*	*460*	*772*	*352*
Material Recycling Facility	*3*	*14*	*2*	*32*	*7*	*27*	*15*	*8*
Haz Waste Transfer		-		*1*		*1*		*1*
Hazardous landfill					-			
Physico-Chemical Treatment	*10*		*4*				*10*	
Wokingham WPA	509	569	24	32	1	2	0	-
Physical Treatment	*509*	*569*	*24*	*32*	*1*	*2*	-	
Total	**922**	**583**	**32**	**232**	**1,602**	**490**	**1,376**	**361**

Source: Environment Agency WDI, 2014/15

5.4.5 In 2015, 17k tonnes of hazardous waste was imported to the WRWA area. The majority of this has not been coded to specific WPAs.

5.4.6 Appendix 6 has more detail with regards to the imports of hazardous waste to the WRWA area. LBHF receive approximately 95% of the imports of hazardous waste. These are going to the EMR (Mayer Parry) site.

5.4.7 The Environment Agency Active Sites listing for 2015 identifies around 90ktpa of permitted hazardous waste capacity within the WRWA area, consisting of clinical waste transfer, vehicle depollution sites and car breakers. This total capacity is in considerable excess of the waste arisings forecast and therefore no provision needs to be made for additional capacity.

5.4.8 The treatment and disposal of hazardous wastes in complex and dedicated facilities tend to be required for specific hazardous waste types. This explains why the final destination for particular hazardous waste types can be outside the WRWA area, despite there being capacity locally.

5.5 Wastewater

5.5.1 Thames Water Limited is responsible for wastewater and sewage sludge treatment in London, and manages sewerage infrastructure as well as sewage treatment works. Thames Water operates across London and the Thames Valley supplying water services to 9 million customers and wastewater

services to 14 million. On average, each day the company supplies 2.6 billion litres of drinking water, and removes and treats more than 4 billion litres of sewage. For its wastewater services, assets include 350 sewage treatment works, 108,000 km of sewer and 2,530 pumping stations[29].

5.5.2 The WRWA borough's wastewater is treated at the sewage treatment works (STW) in Beckton, in the London Borough of Newham, which is the largest in Europe, and also treats the waste of other boroughs such as Newham, Hackney & Tower Hamlets too, serving a total population of 3.5 million people.

5.5.3 Based on population, the anticipated mass of dried sludge that each of the WRWA boroughs produced in 2014, is summarised in Table 46. These 4 boroughs account for about 26% of the total population treated at the Beckton STW.

Table 46: Mass Dry Sludge estimates, WRWA boroughs

Borough	Population estimate (GLA, 2014)	Sludge Make (kg/d)	Sludge produced (tonne dry solids/yr)
Hammersmith & Fulham	178,365	12,664	4,623
Kensington & Chelsea	156,190	11,090	4,048
Lambeth	318,216	22,594	8,247
Wandsworth	312,145	22,163	8,090
Total	**964,916**	**68,511**	**25,008**

Source: Thames Water, GLA population forecasts

5.5.4 Thames Water is undertaking an upgrade and expansion of this facility to both treat sewage to a higher standard, and increase the capacity to a population equivalent of 3.9 million.[30] This will build sufficient sludge processing plant to account for population growth in the catchment area up to 2035, and therefore no additional facilities are required. Beckton currently processes 263 dry tonnes of sewage sludge every day and this is expected to rise to 296 by 2035. The site has a 180tDS/day (tonnes dry solids per day) sludge powered generator and a 100tDS/day anaerobic digestion plant. Thames Water are looking to close the sludge powered generator and convert the entire process to anaerobic digestion with an alternative thermal disposal process in AMP7 (2019-2014). This may have future implications for the WRWA and it is proposed this is revisited in the future.

5.5.5 This facility also takes waste from other boroughs such as Newham, Hackney & Tower Hamlets.

6 Conclusions & Recommendations

6.1.1 The GLA's London Plan requires each authority to provide waste treatment facilities to meet the waste apportionment figures. This assessment suggests that as a group of authorities, the WRWA WPAs are currently meeting the apportionment target for 2016 (see Table 35).

[29] Thames Water: All Wastewater Treatment & Sewerage Forecasts

[30] Thames Water case studies: Beckton Upgrade

6.1.2 For future years, it is anticipated there will also be an overall surplus in waste treatment capacity, which decreases throughout the life of the London Plan, due to increasing apportionment targets. This means that the WRWA authorities collectively are forecast to meet their overall apportionment requirements over the forecast period.

Table 47: Apportionment gap for WRWA (tpa) (negative figures denote a capacity surplus)

	2016	2021	2026	2031	2036
Dry Recycling	-119,740	-12,659	106,857	155,516	167,323
Organics	2,272	9,649	19,521	26,124	27,117
Residual	-228,451	-235,910	-211,297	-249,560	-242,360
Apportionment Gap Total	**-345,919**	**-238,920**	**-84,919**	**-67,920**	**-47,920**

6.1.3 However, despite the forecast surplus overall, considerable shortfalls in capacity are evident for organic wastes (increasing from 2ktpa in 2016 to 27ktpa in 2036) and dry recyclate capacity (from a 120ktpa surplus in 2016 to 167ktpa shortfall in 2036). This does not impact on the authorities' ability to meet the apportionment requirements, as the London Plan apportionment targets are not split down by waste material type, but does indicate practical shortfalls in the local waste market.

6.1.4 Given this anticipated practical shortfalls, consultation with other authorities, both within and outside of London is necessary. It is recommended that the consultation should provide current destinations of WRWA WPAs generated waste, including specific facilities in the consulting WPA, so that specific responses can be provided. It is suggested that any letter sent as part of a consultation exercise asks whether continued waste exports are likely to be accommodated in the future (i.e. over the Plan period), or whether the capacity is likely to be used for waste originating in other WPA areas. Should also ask about expected closure of sites and any new sites.

6.1.5 In addition, given the surplus of residual and shortfall in recyclate and organic waste capacity at a WRWA area and individual WPA level, WPAs should consider encouraging re-orientation of safeguarded sites to increase their capacity to treat organics and recycle – although caution should be taken where this sacrifices significant transfer station capacity.

6.1.6 Whilst OPDC does not have its own waste apportionments, it is recommended that OPDC and LBHF continue to work closely together to meet the GLA's apportionment figures for LBHF.

6.1.7 As reflected in the apportionment targets, major new commercial and residential developments will generate additional waste, further impacting upon the availability of local waste management capacity as well as increasing the demand for local collection capacity. As already practised in RBKC, LBHF's emerging Local Plan Policy CC6, and other London boroughs, it is suggested that WPAs consider encouraging the development of small scale waste management capacity in new developments to absorb any increases in waste arisings. This could include, for instance, the provision of waste sorting facilities to maximise recycling rates, or small scale digesters or other similar equipment to process generated food waste.

6.1.8 For CD&E waste, reviewing available capacity within the WRWA areas has identified approximately 126ktpa of transfer capacity, 994ktpa of recycling (MRF) capacity and 14ktpa of treatment capacity, totalling 1,135ktpa. This suggests that there is a surplus of capacity for the transfer, sorting and treatment of CD&E waste i.e. 371k tonnes in 2016, increasing to approximately 627k tonnes in 2036.

This suggests that the existing capacity of waste management sites (including transfer) is sufficient to meet the projected CD& E waste arisings.

6.1.9 The London Plan is currently under review and, therefore, there may be potential for changes to the apportionment targets. The GLA may include apportionment targets for a CD&E. It is recommended that capacities are revisited once this review has been completed, and available capacity is re-examined on the basis of what types of facility will count towards meeting that apportionment target.

Appendix 1 Waste Imports to WRWA area

Table 48: Imports to WRWA constituent WPAs in 2015

Facility Type	Hammersmith and Fulham WPA	Lambeth WPA	Wandsworth WPA	Total
A11 : Household, Commercial & Industrial Waste T Stn	2,462	15,615	288,446	**306,523**
WPA not codeable (London)	*2,462*	*12,332*	*1,233*	*16,026*
WPA not codeable (South London)		*3,283*	*287,214*	*290,497*
A12 : Clinical Waste Transfer Station		1,021		**1,021**
WPA Not Codeable (Not Codeable)		*1,021*		*1,021*
A14 : Transfer Station taking Non-Biodegradable Wastes			143	**143**
WPA not codeable (London)			*143*	*143*
A15 : Material Recycling Treatment Facility	115,329		5,990	**121,319**
City of Westminster			*5,810*	*5,810*
WPA not codeable (London)	*115,329*		*180*	*115,509*
A20 : Metal Recycling Site (mixed MRS's)	133,232			**133,232**
WPA not codeable (South East)	*133,232*			*133,232*
A9 : Haz Waste Transfer Station			221,001	**221,001**
WPA not codeable (South London)			*221,001*	*221,001*
S0803 : HCI Waste TS + treatment		376		**376**
WPA not codeable (London)		*376*		*376*
S0821 : Metal recycling site			54,186	**54,186**
WPA not codeable (South East)			*54,186*	*54,186*
SR2011 No3: Vehicle Depollution Facility <5000 tps		178		**178**
WPA not codeable (Central London)		*178*		*178*
Grand Total	**251,023**	**17,190**	**569,766**	**837,979**

Source: Environment Agency's WDI, 2015

Table 49: Imports to WRWA constituent WPAs in 2014

Facility Type	Hammersmith and Fulham WPA	Lambeth WPA	Wandsworth WPA	Grand Total
Clinical Waste Transfer		863		**863**
WPA Not Codeable (Not Codeable)		*863*		*863*
Haz Waste Transfer			219,165	**219,165**
WPA not codeable (South London)			*219,165*	*219,165*

Facility Type	Hammersmith and Fulham WPA	Lambeth WPA	Wandsworth WPA	Grand Total
Inert Waste Transfer			989	**989**
Outside UK			*251*	*251*
WPA not codeable (London)			*492*	*492*
WPA not codeable (South London)			*246*	*246*
Material Recycling Facility	148,435		55,141	**203,575**
City of Westminster			*1,499*	*1,499*
WPA not codeable (London)	*148,426*		*56*	*148,482*
WPA Not Codeable (Not Codeable)	*9*			*9*
WPA not codeable (South London)			*53,585*	*53,585*
Metal Recycling	96,276		54,462	**150,738**
WPA not codeable (South East)	*96,276*		*54,462*	*150,738*
Non-Haz Waste Transfer		*8,076*	*276,078*	*284,154*
Merton		*6,021*		*6,021*
WPA not codeable (London)		*2,055*	*13,936*	*15,991*
WPA not codeable (South London)			*262,142*	*262,142*
Non-Haz Waste Transfer / Treatment		*2,949*		*2,949*
WPA not codeable (London)		*2,949*		*2,949*
Physical Treatment			*580*	*580*
WPA not codeable (London)			*580*	*580*
Vehicle Depollution Facility		408		**408**
WPA not codeable (London)		*408*		*408*
Grand Total	**244,711**	**12,296**	**606,415**	**863,422**

Source: Environment Agency's WDI, 2014

Appendix 2 Permitted Waste Management Sites – WRWA area

Table 50: Permitted waste sites in RBKC

Site Location Details	Type of facility	Licence /permit details	Capacity information	Waste sources	Outputs from facility (2014)	Additional information
Site name: Imperial College London, Emmanuel Kaye Building **Operator:** Pyropure Limited **Address:** Imperial College London, Emmanuel Kaye Building, 1b, Manresa Road, London, SW3 6NA **NGR:** TQ2710278073	Clinical Waste Transfer Station & treatment	**EPR:** AB3303LP/V002 **Waste restrictions:** store and treat certain hazardous and non-hazardous clinical and healthcare waste that are: (i) produced at that practice; and (ii) produced by staff from that medical practice providing care in the community (at premises other than a medical practice) and returned to that practice.	**Permit limit:** 100 tpa	Only treat that generated on-site and that generated by own staff	N/A	This is a variation on the original permit, which was an SR2008No25: 75kte: clinical waste and healthcare waste treatment and transfer station permit. Issued March 2016.

Source: Environment Agency Public Register website and Waste Data Interrogator and permit documents

Table 51: Permitted sites in LBHF

Site Location Details	Type of facility	Licence /permit details	Capacity information	Site lifetime of maximum capacity	Waste sources	Outputs from facility (2014)	Additional information
Site name: Scrubs Lane, Willesden **Operator:** United Kingdom Tyre Exporters Ltd **Address**: 108 Scrubs Lane, Willesden, London, NW10 6QY **NGR:** TQ2249682329	Non-Haz Waste Transfer	**EPR:** NP3096NM/V003 **Waste restrictions:**	**Permit limit:** 244,305 **Operational capacity:** 48,805	N/A	CD&E wastes	33,000 tonnes for onward transfer mainly to the south east and east of England	
Site name: Willesden Depot **Operator:** Mayer Parry Recycling Ltd **Site address:** 106 Scrubs Lane, Willesden, London, NW10 6QY **NGR:** TQ2252082345	Metal Recycling, vehicle depollution, end of Life fridge treatment	**EPR:** YP3991NQ/V006 **Waste restrictions:**	**Permit limit:** 419,000 **Operational capacity:** 370,000	N/A	Vehicles, Metals, Fridges	117,000 tonnes (>75%) for onward recovery to south east of England	
Site name: Reg Orpin Motorcycles **Operator:** Orpin Jane **Site address:** 145 Goldhawk Road, Shepherds Bush, London, W12 8EN **NGR:** TQ2284379520	Car Breaker/ vehicle end of life	**EPR:** WP3197NW/A001 **Waste restrictions:**	**Permit limit:** 5 **Operational capacity:** 5	N/A	Vehicles	5 tonnes for recovery in London and the south east of England	

Site Location Details	Type of facility	Licence /permit details	Capacity information	Site lifetime of maximum capacity	Waste sources	Outputs from facility (2014)	Additional information
Site name: 6powerday Waste Recycling & Recovery Centre **Operator:** Powerday P L C **Site address:** Old Oak Sidings, Off Scrubs Lane, Willesden, London, NW10 6RJ **NGR:** TQ2174082658	Material Recycling Facility	**EPR:** PP3093EE/V005	**Permit limit:** 1.6m **Operational capacity:** 1.6m	N/A	Commercial, industrial, Municipal, CD&E	328,000 tonnes to mixture of outlets. See main text of report	
Site name: Scrubs Lane Metal Recycling Site **Operator:** Capital Metal Recycling Ltd **Site address:** 104, Scrubs Lane, Willesden, London **NGR:** TQ2249982388	Metals recycling facility	**EPR:** DB3505CS/T001	**Permit limit:** unknown **Operational capacity:** unknown	N/A	Metals	No data	

Source: Environment Agency Public Register website and Waste Data Interrogator and permit documents

Table 52: Permitted waste sites in LBL

Site Location Details	Type of facility	Licence /permit details	Capacity information	Site lifetime of maximum capacity	Waste sources	Outputs from facility (2014)	Additional information
Site name: West Norwood Car Breakers **Operator:** Mr. Bill Kiernan **Address:** Windsor Grove, West Norwood, London, SE27 9NT **NGR:** TQ3226671756	Vehicle Depollution Facility	**EPR:** NP3795VP/A001 **Waste restrictions:** recovery (including storage) of all waste motor vehicles.	**Permit limit:** 75,000 tpa **Operational limit:** 85 tpa	N/A	Municipal	25 tonnes, Lambeth and Kent for recovery	
Site name: Golden Motor Care Ltd **Operator:** Golden Motor Care Ltd **Address:** Arch 439, Gordon Grove, Camberwell, London, SE5 9DW **NGR:** TQ3191076100	Vehicle Depollution Facility	**EPR:** PP3195VN/V002 **Waste restrictions:** recovery (including storage) of all waste motor vehicles.	**Permit limit:** 5,000 tpa **Operational limit:** 408 tpa	N/A	Municipal	400 tonnes, London for recovery	Original permit SR2008No20_75kte was issued in 2010. Varied to SR2011No3 in 2015, which reduced licensed capacity.
Site name: Vauxhall Mania Ltd **Operator:** Vauxhall Mania Ltd **Address:** Plot 1, Gordon Grove, Camberwell, London, SE5 9DW **NGR:** TQ3188575988	Vehicle Depollution Facility	**EPR:** CB3508KE/A001 **Waste restrictions:** recovery (including storage) of all waste motor vehicles.	**Permit limit:** 5,000 tpa **Operational limit:** 408 tpa	N/A	Municipal	No data available	Permitted in 2015
Site name: Clapham	Clinical Waste	**EPR:** MB3938RR/T001	**Permit limit:** 4,999	N/A	Commercial	1,007 tonnes,	Permit transferred in

Site Location Details	Type of facility	Licence /permit details	Capacity information	Site lifetime of maximum capacity	Waste sources	Outputs from facility (2014)	Additional information
Site **Operator:** OCS Group UK Limited **Address:** Clapham Site, 44 Southside, Clapham Common, London, SW4 9BU NGR: TQ 294 748	Transfer	**Waste restrictions:** Clinical waste site only	tpa **Operational limit:** 1,181			however no data available as to destinations.	2013.
Site name: Vale Street Civic Amenity Centre **Operator:** LBL **Address:** Vale Street Civic Amenity Centre, Vale Street, London, SE27 9PA **NGR:** TQ3260272005	Civic amenity site	**EPR:** UP3690ES/V002 **Waste restrictions**: Wastes having any of the following characteristics shall not be accepted: • Consisting solely or mainly of dusts, powders or loose fibres	**Permit limit:** 75,000 tpa **Operational limit:** 12,953	N/A	Household waste. General household waste and trade waste are not accepted, nor are vans or deliveries of recyclables from non-Lambeth residents.	2,152 tonnes, the majority for recovery in other London boroughs, with the remaining to other authorities in the south east, south west and the east of England.	Permit was varied in 2011.
Site name: Brixton Transfer Station **Operator:** Suez(permit holder Shukco 347 Ltd, a subsidiary of Suez) **Address:** Shakespeare Wharf, Shakespeare Road, Herne Hill, London, SE24 0LA **NGR:** TQ3170074800	Non-Haz Waste Transfer	**EPR:** AB3507LC/V002 **Waste restrictions:** none known	**Permit limit:** 87,750 tpa **Operational limit:** 23,850	N/A	Commercial & industrial, Construction & Demolition	18,054 tonnes, the majority for onward transfer, treatment or recovery in other London boroughs, with the remaining to other authorities in the south east and the east of England.	Permit was varied in 2016 to accommodate a change in operator name. Location in terms of proximity to residential properties restricts potential for future intensification and waste management.

Site Location Details	Type of facility	Licence /permit details	Capacity information	Site lifetime of maximum capacity	Waste sources	Outputs from facility (2014)	Additional information
Site name: Belinda Road (Brixton) Waste Transfer Facility **Operator:** Powerday Plc **Site address:** 4-16 & 1-3, Belinda Road, Brixton, London, SW9 7DT **NGR:** TQ3181075697	Non-Haz Waste Transfer / Treatment	**EPR:** JB3637RK/T001 **Waste restrictions:** no hazardous wastes; sludges or liquids; metal swarf, dusts, particulate scrap; leather processing waste; toxic metal slags; pulverized fuel ash and vanadium contaminated ash.	**Permit limit:** 300,000 tpa **Operational capacity:** 72,052	N/A	Municipal, Commercial & industrial, Construction & Demolition	40,995 tonnes, for recovery and transfer throughout London.	Potential for site to come into waste management use if the site access can be improved.
Site name: Wanless Rd Ts, Lambeth, SE24 **Operator:** LBL **Site address:** Public Health & Pest Control, 26, Wanless Road, London **NGR:** TQ3210575728	Clinical Waste Transfer	**EPR:** UP3190EV/A001 **Waste restrictions:** public health and pest control waste only	**Permit limit:** 1,005 tpa **Operational capacity**: 1,005	N/A	Municipal	No data	

Source: Environment Agency Public Register website and Waste Data Interrogator and permit documents

Table 53: Permitted waste sites in LBW

Site Location Details	Type of facility	Licence /permit details	Capacity information	Site lifetime of maximum capacity	Waste sources	Outputs from facility (2014)	Additional information
Site name: The Willows Materials Recycling Facility **Operator:** Cappagh Public Works Ltd	Material Recycling Treatment Facility	**EPR:** AP3495VU/A001	Permit limit: 499,999 tpa **Operational capacity**: 75,393	N/A	Construction	67,305 tonnes for recovery at sites in London and the south east of England.	

Site Location Details	Type of facility	Licence /permit details	Capacity information	Site lifetime of maximum capacity	Waste sources	Outputs from facility (2014)	Additional information
Site address: Land/premises At, Riverside Road, Wimbledon, London, SW17 0BA **NGR:** TQ2590071900							
Site name: W Riverside S W T S , Smugglers Way **Operator:** Cory Environmental Ltd **Site address:** Western Riverside S W T S, Smugglers Way, Wandsworth, London, SW18 3JU **NGR:** TQ2560075200	Material Recycling Treatment Facility	**EPR:** KP3690EV/T005	**Permit limit:** 84,000 **Operational capacity**: 84,000	N/A	Commercial, industrial, Municipal	Majority of 54,993 tonnes (2014) for recovery in London and the south East (non-codeable). Small proportion (3,156 tonnes) for incineration in LB of Bexley.	
Site name*:* Day Aggregates Stewarts Lane Depot **Operator:** Day Group Ltd **Site address:** Stewarts Lane Depot, 100 Silverthorne Road, Battersea, London, SW8 3EG **NGR:** TQ2904476672	Physical Treatment	**EPR:** CB3631AD/A001	**Permit limit:** 35,000 **Operational capacity:** 14,193	N/A	C&D/ Inert	11,069 tonnes (2014) for recovery within London (Greenwich)	
Site name: Cringle Dock Ts, Cringle St,	Non-Haz Waste Transfer	**EPR:** GP3790EN/T008	**Permit limit:** 300,000	N/A	Commercial, industrial	222,212 tonnes, majority of outputs	

Site Location Details	Type of facility	Licence /permit details	Capacity information	Site lifetime of maximum capacity	Waste sources	Outputs from facility (2014)	Additional information
Sw8 **Operator:** Cory Environmental Ltd **Site address:** Cringle Dock S W T S, Cringle Street, Battersea, London, SW8 5BX **NGR:** TQ2915577558			**Operational capacity:** 300,000			(>80%) goes for incineration at Belvedere (incorrectly coded as Kent WPA, rather than Bexley)	
Site name: D Goldsmith Ltd, Bendon Valley, Sw18 **Operator:** D Goldsmith Ltd **Site address:** D Goldsmith Ltd, 2 Bendon Valley, Tooting, London, SW18 4LZ **NGR:** TQ2588973520	Inert Waste Transfer	**EPR:** KP3390EH/A001	**Permit limit:** 2,829 **Operational capacity:** 993	N/A	Inert waste	993 tonnes for onward transfer (outside UK & non-coded destinations)	
Site name: Frogmore Depot **Operator:** Wandsworth London Borough Council **Site address:** Frogmore Depot, Dormay Street, Wandsworth, London, SW18 1HA	Non-Haz Waste Transfer	**EPR:** AB3700GY/V004	**Permit limit:** 3,666 **Operational capacity:** 466	N/A	Commercial, industrial	6 tonnes to landfill to Kent, 282 onward transfer within Wandsworth	

Site Location Details	Type of facility	Licence /permit details	Capacity information	Site lifetime of maximum capacity	Waste sources	Outputs from facility (2014)	Additional information
NGR: TQ2546575028							
Site name: W Riverside S W T S , Smugglers Way, Sw18 **Operator:** Cory Environmental Ltd **Site address:** Western Riverside S W T S, Smugglers Way, Wandsworth, London, SW18 3JU **NGR:** TQ2560075200	Non-Haz Waste Transfer	**EPR:** KP3690EV/T005	**Permit limit:** 893,637 **Operational capacity:** 300,000	N/A	non-hazardous waste	202,000 tonnes, majority (>97%) of which goes to incineration in London	
Site name: Wandsworth Transfer Station **Operator: Sita South East Ltd (now called** Shukco 347 Ltd) **Site address:** British Rail Goods Yard, Pensbury Place, Wandsworth Road, London **NGR:** TQ2930076400	Non-Haz Waste Transfer	**EPR:** AB3700GY/V004	**Permit limit:** 75,000 **Operational capacity:** 30,237	N/A	Commercial, industrial, Municipal, Construction & Demolition	24,000 tonnes, majority (94%) of which goes for recovery in London and the South East	
Site name: E M R Wandsworth **Operator:** European Metal Recycling Ltd **Site address:** Private	Metal Recycling	**EPR:** RP3890EL/V003	**Permit limit**: 81,000 **Operational capacity:** 81,000	N/A	Metals	2 tonnes, recovery at uncoded location	

Site Location Details	Type of facility	Licence /permit details	Capacity information	Site lifetime of maximum capacity	Waste sources	Outputs from facility (2014)	Additional information
Sidings, Pensbury Place, Wandsworth, London, SW8 4TR **NGR:** TQ2937876475							
Site name: Rapid Recovery **Operator:** Rapid Recovery **Site address:** 8/10, The Goods Yard, Pensbury Place, London **NGR:** TQ2925976491	Metal Recycling	**EPR:** KP3490EC/V002	**Permit limit:** unknown **Operational capacity:** unknown	N/A	Vehicles/Metals	No data	

Source: Environment Agency Public Register website and Waste Data Interrogator and permit documents

Appendix 3 Exempt Waste Management Sites – WRWA area

Table 54: RBKC's exempt sites

Operator / *Exemption type*	Sum of Max capacity	Sum of Assumed Capacity	Site Address	Grid Reference	Exemption reference
CADOGAN ESTATES LTD	**400**	**400**	Cadogan Place Gardens London SW1X 9PU	TQ2789679335	EPR/CE5784AW/A001
T23 aerobic composting and associated prior treatment	*400*	*400*			
Chelsea and Westminster NHS Foundation Trust	**150,000**	**5,000**	Chelsea and Westminster NHS Foundation Trust	TQ2635277730	EPR/JE5084VG/A001
T4 preparatory treatments, such as, baling, sorting, shredding (typical capacity given)	*150,000*	*5,000*			
Colville Area Forum	**800**	**800**			
T23 aerobic composting and associated prior treatment	*400*	*400*	221 Tavistock Crescent LONDON W11 1AE	TQ2461681564	EPR/AH0313BP/A001
T23 aerobic composting and associated prior treatment	*400*	*400*	Flat 17 Clydesdale House 255 Westbourne Park Road LONDON W11 1ED	TQ2476681324	EPR/GH0119MB/A001
GALLIFORD TRY CONSTRUCTION LTD	**60**	**60**			
T12 manually treating waste for reuse eg. bric-a-brac, furniture, clothing	*60*	*60*	57 Pont Street LONDON SW1X 0BD	TQ2766579111	EPR/RH0668VH/A001
Kensington and Chelsea London Borough Council	**1,200**	**1,200**			
T23 aerobic composting and associated prior treatment	*400*	*400*	133 St. Ervans Road LONDON W10 5QY	TQ2448181938	EPR/DH0518QK/A001
T23 aerobic composting and associated prior treatment	*400*	*400*	1a St. Ervans Road LONDON W10 5QX	TQ2467381803	EPR/UH0514QW/A001
T23 aerobic composting and associated prior treatment	*400*	*400*	Flat 1 Sybil Thorndike Casson House Kramer Mews LONDON SW5 9JG	TQ2547078202	EPR/NH0174QK/A002

Operator / *Exemption type*	Sum of Max capacity	Sum of Assumed Capacity	Site Address	Grid Reference	Exemption reference
Quadron Services Ltd.	**1,200**	**1,200**			
T23 aerobic composting and associated prior treatment	*400*	*400*	Kensington Memorial Park St Mark's Road London W10 6DQ	TQ2364281672	EPR/XE5855YE/A001
T23 aerobic composting and associated prior treatment	*400*	*400*	Holland Park Nursery Holland Park LONDON W8 6LU	TQ2482379588	EPR/EE5742BC/A001
T23 aerobic composting and associated prior treatment	*400*	*400*	Westfield Park Upcerne Road LONDON	TQ2621177218	EPR/TE5255YQ/A001
Royal Marsden NHS Trust	**150,000**	**5,000**			
T4 preparatory treatments, such as, baling, sorting, shredding (typical capacity given)	*150,000*	*5,000*	The Royal Marsden Hospital Fulham Road LONDON SW3 6JJ	TQ2695078467	EPR/SE5557DF/A001
SITA UK LTD	**450,000**	**15,000**			
T4 preparatory treatments, such as, baling, sorting, shredding (typical capacity given)	*150,000*	*5,000*	Tavistock Depot 72 Tavistock Road London W11 1AN	TQ2451381430	EPR/WE5950US/A001
T4 preparatory treatments, such as, baling, sorting, shredding (typical capacity given)	*150,000*	*5,000*	Walmer Road Depot Kensington Leisure Center Walmer Road LONDON W11 4PQ	TQ2400480923	EPR/AE5350UV/A001
T4 preparatory treatments, such as, baling, sorting, shredding (typical capacity given)	*150,000*	*5,000*	Pembroke Road Depot 37 Pembroke Road London W8 6PW	TQ2498178723	EPR/WE5150UH/A001
The Chelsea Physic Garden	**400**	**400**			
T23 aerobic composting and associated prior treatment	*400*	*400*	66 Royal Hospital Road LONDON SW3 4HS	TQ2766177809	EPR/NE5309WD/A001
THE WELLCOME TRUST LTD	**1,600**	**1,600**			
T23 aerobic composting and associated prior treatment	*400*	*400*	Communal Gardens Lennox Gardens London SW1X 0DE	TQ2760679003	EPR/WE5103VC/A001
T23 aerobic composting and associated prior treatment	*400*	*400*	East Garden Onslow Square LONDON SW7 3NX	TQ2681178557	EPR/UE5591PW/A001
T23 aerobic composting and associated prior treatment	*400*	*400*	Communal Gardens Off 2 - 30 Evelyn	TQ2655178225	EPR/WE5503V

Operator / *Exemption type*	Sum of Max capacity	Sum of Assumed Capacity	Site Address	Grid Reference	Exemption reference
			Gardens London SW7 3BG		D/A001
T23 aerobic composting and associated prior treatment	*400*	*400*	Communal Garden Onslow Square West London SW7 3NP	TQ2688878632	EPR/WE5203VN/A001
Grand Total	**755,660**	**30,660**			
Total included towards apportionment		**30,660**			

Source: EA Register of waste exemptions

Table 55: LBHF's exempt sites

Operator / *Exemption type*	Sum of Max capacity	Sum of Assumed Capacity	Site Address	Grid Reference	Exemption reference
CENTRAL WASTE SERVICES LTD	**181,720**	**7,920**			
T1 cleaning, washing, spraying or coating relevant waste	*31,200*	*2,400**	Yard B 41 - 47 Carnwath Road LONDON SW6 3EJ	TQ2547875636	EPR/CE5388UZ/A001
T10 sorting mixed waste	*520*	*520*	YARD B Yard B Hurlingham & Whiffen Wharf Carnwath Road London SW6 2TS	TQ2557975572	EPR/WF0832RD/A001
T4 preparatory treatments, such as, baling, sorting, shredding (typical capacity given)	*150,000*	*5,000*	Yard B 41- 47 Carnwath Road London SW6 3JX	TQ2560675657	EPR/DE5202YD/A001
Clipfine Limited	**150,000**	**5,000**			
T4 preparatory treatments, such as, baling, sorting, shredding (typical capacity given)	*150,000*	*5,000*	58 Wood Lane LONDON W12 7RZ	TQ2346780740	EPR/TH0917NL/A001
Envirowaste Solutions UK	**155,000**	**7,000**	Wormwood Scrubs Du Cane Road LONDON W12 0AE	TQ2219981199	EPR/VF0734AM/A001
T2 recovering textiles	*5,000*	*2,000*			
T4 preparatory treatments, such as, baling, sorting,	*150,000*	*5,000*			

Operator / *Exemption type*	Sum of Max capacity	Sum of Assumed Capacity	Site Address	Grid Reference	Exemption reference
shredding (typical capacity given)					
FIRST GREATER WESTERN LTD	**150,520**	**5,520**	First Great Western Old Oak Common Depot Old Oak Common Lane NW106DU	TQ2157782383	EPR/ME5659QP/A001
T10 sorting mixed waste	*520*	*520*			
T4 preparatory treatments, such as, baling, sorting, shredding (typical capacity given)	*150,000*	*5,000*			
Fulham Palace Trust	**400**	**400**	Fulham Palace Bishops Avenue LONDON SW6 6EA	TQ2403476120	EPR/FE5482WK/A001
T23 aerobic composting and associated prior treatment	*400*	*400*			
Hammersmith and Fulham London Borough Council	**400**	**400**	All council owned or maintained composting sites within the and Fulham	TQ2290078731	EPR/HE5792LX/A001
T23 aerobic composting and associated prior treatment	*400*	*400*			
nitin shah	5	5	Fulham pharmacy	TQ2486476862	EPR/EH0479AQ/A001
D6 disposal by incineration (wood waste)	*5*	*5*			
Quadron Services Ltd.	**1,200**	**1,200**	Wormwood Scrubs Depot Hammersmith London Hammersmith Park Hammersmith London Hammersmith Park London W12 7RJ	TQ2273981470 TQ2307980524 TQ2307980524	EPR/SE5644BM/A001 EPR/ME5144BC/A001 EPR/ME5755YS/A001
T23 aerobic composting and associated prior treatment	*1200*	*1200*			
Grand Total	**639,365**	**27,445**			
Total included towards apportionment		**25,045**			

*not counted towards the apportionment
Source: EA Register of waste exemptions

Table 56: LBL's exempt sites

Operator / *Exemption type*	Sum of Max capacity	Sum of Assumed Capacity	Site Address	Grid Reference	Exemption reference
2 G Environmental Ltd.	**166,180**	**6,780**	Myatts Field Lambeth SE5 9LP	TQ3140679887	EPR/TE5547PQ/A001
T1 cleaning, washing, spraying or coating relevant waste	*15,600*	*1,200**			
T10 sorting mixed waste	*520*	*520*			
T4 preparatory treatments, such as, baling, sorting, shredding (typical capacity given)	*150,000*	*5,000*			
T12 manually treating waste for reuse eg. bric-a-brac, furniture, clothing	*60*	*60*			
Covent Garden Market Authority	**150,580**	**5,580**	Covent House New Covent Garden Market LONDON SW8 5NX	TQ2997677352	EPR/LE5194NM/A001
T10 sorting mixed waste	*520*	*520*			
T4 preparatory treatments, such as, baling, sorting, shredding (typical capacity given)	*150,000*	*5,000*			
T12 manually treating waste for reuse eg. bric-a-brac, furniture, clothing	*60*	*60*			
herve buisson	**400**	**400**	Lark Hall School House Smedley Street LONDON SW4 6PH	TQ2997276241	EPR/EF0838RN/A001
T23 aerobic composting and associated prior treatment	*400*	*400*			
Remakery Brixton Limited	**21,180**	**3,780**	2 Paulet Road LONDON SE5 9HZ	TQ3187376433	EPR/SH0114AE/A001
T1 cleaning, washing, spraying or coating relevant waste	*15,600*	*1,200**			
T10 sorting mixed waste	*520*	*520*			
T2 recovering textiles	*5,000*	*2,000*			
T12 manually treating waste for reuse eg. bric-a-brac,	*60*	*60*			

Operator / *Exemption type*	Sum of Max capacity	Sum of Assumed Capacity	Site Address	Grid Reference	Exemption reference
furniture, clothing					
RESTORE THOROUGHSHRED LTD	**150,520**	**5,520**	44 Clapham Common South Side LONDON SW4 9BU	TQ2943574799	EPR/AF0739DD/A001
T10 sorting mixed waste	*520*	*520*			
T4 preparatory treatments, such as, baling, sorting, shredding (typical capacity given)	*150,000*	*5,000*			
Rob Hockey	**167,525**	**8,125**	95 Wandsworth Road LONDON SW8 2HG	TQ3020677777	EPR/NH0915PR/A001
D6 disposal by incineration (wood waste)	*5*	*5*			
T1 cleaning, washing, spraying or coating relevant waste	*15,600*	*1,200**			
T10 sorting mixed waste	*520*	*520*			
T23 aerobic composting and associated prior treatment	*400*	*400*			
T25 anaerobic digestion at premises not used for agriculture and burning resulting biogas	*1,000*	*1,000*			
T4 preparatory treatments, such as, baling, sorting, shredding (typical capacity given)	*150,000*	*5,000*			
Roupell Park RMC Ltd	**920**	**920**	Community Office Brockham Drive London SW2 3RY	TQ3056673664	EPR/TH0916NB/A001
T10 sorting mixed waste	*520*	*520*			
T23 aerobic composting and associated prior treatment	*400*	*400*			
Solarcentury Holdings Limited	**400**	**400**	91-94 Lower Marsh LONDON SE1 7AB	TQ3116279750	EPR/RE5205WN/A001
T23 aerobic composting and associated prior treatment	*400*	*400*			
SOUTHERN RAILWAY LTD	**150,000**	**5,000**	Streatham Hill Train Depot Drewstead Road LONDON SW16 1AB	TQ2996472736	EPR/DH0673CV/A001

Operator / *Exemption type*	Sum of Max capacity	Sum of Assumed Capacity	Site Address	Grid Reference	Exemption reference
T4 preparatory treatments, such as, baling, sorting, shredding (typical capacity given)	*150,000*	*5,000*			
Emmaus South Lambeth	*100*	*100*	8 Beadman Street SE27 0DN	TQ3196271903	N/A – not found in exemption search, but listed in Lambeth Local Plan Waste Evidence Base, November 2013
Grand Total	**807,805**	**36,605**			
Total included towards apportionment		**33,005**			

*not counted towards the apportionment
Source: EA Register of waste exemptions

Table 57: LBW's exempt sites

Operator / *Exemption type*	Sum of Max capacity	Sum of Assumed Capacity	Site Address	Grid Reference	Exemption reference
BVR (JAVIC) LTD	**580**	**580**			
T10 sorting mixed waste	*520*	*520*	13 Bellevue Road London SW17 7EG	tq2755373 445	EPR/LF0438FB/ A001
T12 manually treating waste for reuse eg. bric-a-brac, furniture, clothing	*60*	*60*	13 Bellevue Road London SW17 7EG	tq2755373 445	EPR/LF0438FB/ A001
OCS GROUP UK LTD	**400**	**400**			
T23 aerobic composting and associated prior treatment	*400*	*400*	Battersea Park Yard Albert Bridge Road SW11 4NJ	TQ275527 7141	EPR/BE5258EE/ A001
Quadron Services Ltd.	**400**	**400**			

Operator / *Exemption type*	Sum of Max capacity	Sum of Assumed Capacity	Site Address	Grid Reference	Exemption reference
T23 aerobic composting and associated prior treatment	*400*	*400*	Fountains Albert Bridge Road London Sw11 4NJ	TQ275337 7183	EPR/KE5754MH /A001
SOUTHERN RAILWAY LTD	**150,000**	**5,000**			
T4 preparatory treatments, such as, baling, sorting, shredding (typical capacity given)	*150,000*	*5,000*	Stewarts Lane Depot Dickens Street London SW8 3EP	TQ289167 6350	EPR/RH0073CA/ A001
Grand Total	**151,380**	**6,380**			
Total included towards apportionment		**6,380**			

Source: EA Register of waste exemptions

Appendix 4 Landtake requirements for waste treatment facilities

Waste Type	Facility Type	Tonnes per Hectare	Average tonnes per hectare
Organic	Compost	8,333 - 12,500	Organic treatment: 32,300
	IVC	12,500 - 25,000	
	AD (small)	33,333	
	AD (Large)	66,667	
Dry recycling	MRF	25,000 - 50,000	37,500
Residual waste	MBT	25,000 - 50,000	Energy recovery (residual waste): 62,500 MBT: 37,500 Landfill: 27,500
	Pyrolysis/gasification	25,000 - 50,000	
	Thermal	25,000 - 50,000	
	Thermal	50,000 - 125,000	
	Landfill	5,000 - 50,000	
All waste types	Transfer	171,430	

Source: Office of the Deputy Prime Minister, "Planning for Waste Management Facilities", August 2004, with average figures calculated by Anthesis

Appendix 5 CD&E waste imports

Table 58: Imports of CD&E waste to WRWA constituent WPAs in 2015

Facility Type	Hammersmith and Fulham WPA	Lambeth WPA	Wandsworth WPA	Grand Total
A11 : Household, Commercial & Industrial Waste T Stn	31,052	5,041	21,454	57,547
WPA not codeable (London)		*5,041*	*20,158*	*25,200*
WPA not codeable (South London)	*31,052*		*1,296*	*32,347*
A15 : Material Recycling Treatment Facility	231,949		28,437	260,386
Bexley			*36*	*36*
Bromley			*189*	*189*
Croydon			*1,787*	*1,787*
Epsom & Ewell			*1,235*	*1,235*
Hertfordshire			*29*	*29*
Hounslow			*78*	*78*
Kent			*280*	*280*
Kingston Upon Thames			*4,788*	*4,788*
Lewisham			*306*	*306*
Merton			*8,913*	*8,913*
Reigate & Banstead			*146*	*146*
Richmond Upon Thames			*2,166*	*2,166*
Southwark			*55*	*55*
Surrey			*4,603*	*4,603*
Sutton			*2,633*	*2,633*
Warwickshire			*45*	*45*
West Sussex			*95*	*95*
Windsor & Maidenhead UA			*23*	*23*
WPA not codeable (Bedfordshire)			*12*	*12*
WPA not codeable (London)	*231,949*		*1,018*	*232,967*
A16 : Physical Treatment Facility			1,533	1,533
WPA not codeable (London)			*1,533*	*1,533*
S0803 : HCI Waste TS + treatment		34,509		34,509
WPA not codeable (London)		*34,509*		*34,509*
S0821 : Metal recycling site			3,144	3,144
WPA not codeable (South East)			*3,144*	*3,144*
Total	**263,001**	**39,550**	**54,568**	**357,119**

Source: EA's WDI 2015

Table 59: Imports of CD&E waste to WRWA constituent WPAs in 2014

Facility Type	Hammersmith and Fulham WPA	Lambeth WPA	Wandsworth WPA	Grand Total
Haz Waste Transfer			12	12
WPA not codeable (South London)			*12*	*12*
Material Recycling Facility	197,701		37,128	234,829
Bexley			*91*	*91*
Bromley			*583*	*583*
Croydon			*2,857*	*2,857*
Epsom & Ewell			*623*	*623*
Hertfordshire			*200*	*200*
Hounslow			*301*	*301*
Kent			*920*	*920*
Kingston Upon Thames			*3,423*	*3,423*
Lewisham			*641*	*641*
Merton			*7,079*	*7,079*
Reigate & Banstead			*920*	*920*
Richmond Upon Thames			*1,830*	*1,830*
Southwark			*144*	*144*
Surrey			*9,027*	*9,027*
Sutton			*3,444*	*3,444*
Warwickshire			*242*	*242*
West Sussex			*633*	*633*
Windsor & Maidenhead UA			*137*	*137*
WPA not codeable (Bedfordshire)			*113*	*113*
WPA not codeable (London)	*197,701*		*3,920*	*201,621*
Metal Recycling			2,704	2,704
WPA not codeable (South East)			*2,704*	*2,704*
Non-Haz Waste Transfer	48,805	4,082	8,090	60,977
Merton		*3,104*		*3,104*
WPA not codeable (London)		*978*	*6,593*	*7,571*
WPA not codeable (South London)	*48,805*		*1,497*	*50,302*
Non-Haz Waste Transfer / Treatment		*38,107*		*38,107*
WPA not codeable (London)		*38,107*		*38,107*
Physical Treatment			10,519	10,519
WPA not codeable (London)			*10,519*	*10,519*
Grand Total	**246,506**	**42,189**	**58,454**	**347,149**

Source: EA's WDI 2014

Appendix 6 Hazardous waste imports

Table 60: Imports of hazardous waste to WRWA constituent WPAs in 2015

Facility type	Hammersmith and Fulham WPA	Lambeth WPA	Wandsworth WPA	Grand Total
A11 : Household, Commercial & Industrial Waste T Stn		62	45	108
WPA not codeable (London)		*62*		*62*
WPA not codeable (South London)			*45*	*45*
A12 : Clinical Waste Transfer Station		160		160
WPA Not Codeable (Not Codeable)		*160*		*160*
A15 : Material Recycling Treatment Facility	169			169
WPA not codeable (London)	*169*			*169*
A19 : Metal Recycling Site (Vehicle Dismantler)	2			2
Cambridgeshire	*0*			*0*
Cheshire West and Chester	*0*			*0*
Essex	*0*			*0*
Kent	*1*			*1*
Wiltshire	*0*			*0*
Wolverhampton	*0*			*0*
WPA not codeable (Bedfordshire)	*1*			*1*
A20 : Metal Recycling Site (mixed MRS's)	16,900			16,900
WPA not codeable (South East)	*16,900*			*16,900*
A9 : Haz Waste Transfer Station			522	522
WPA not codeable (South London)			*522*	*522*
S0820 : Vehicle depollution facility		68		68
WPA not codeable (London)		*68*		*68*
S0821 : Metal recycling site			1	1
WPA not codeable (South East)			*1*	*1*
Grand Total	**17,071**	**291**	**568**	**17,930**

Source: EA's WDI 2015

Table 61: Imports of hazardous waste to WRWA constituent WPAs in 2014

Facility type	Hammersmith and Fulham WPA	Lambeth WPA	Wandsworth WPA	Grand Total
Car Breaker	4			4
Bristol UA	*0*			*0*
Essex	*1*			*1*
Kent	*1*			*1*
North Lincolnshire UA	*1*			*1*
Wiltshire	*0*			*0*
WPA not codeable (Bedfordshire)	*0*			*0*
WPA not codeable (West Midlands)	*0*			*0*
Clinical Waste Transfer		144		144
WPA Not Codeable (Not Codeable)		*144*		*144*
Haz Waste Transfer			506	506
WPA not codeable (South London)			*506*	*506*
Material Recycling Facility	187			187
WPA not codeable (London)	*187*			*187*
Metal Recycling	18,273		4	18,277
WPA not codeable (South East)	*18,273*		*4*	*18,277*
Non-Haz Waste Transfer		349	36	385
Merton		*344*		*344*
WPA not codeable (London)		*5*		*5*
WPA not codeable (South London)			*36*	*36*
Vehicle Depollution Facility		85		85
WPA not codeable (London)		*85*		*85*
Grand Total	18,463	578	545	19,587

Source: EA's WDI 2014