



London Borough of Tower Hamlets

Waste Management Evidence Base Review 2017

Final

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London Borough of Tower Hamlets

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Abbreviations

Acronym	Definition
AD	Anaerobic Digestion
C&I	Commercial and Industrial Waste
CD&E	Construction, Demolition and Excavation Waste
Defra	Department for Environment, Food and Rural Affairs
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
LACW	Local Authority Collected Waste
LBTH	London Borough of Tower Hamlets
LLDC	London Legacy Development Corporation
LDF	Local Development Framework
LLW	Low Level Radioactive Waste
LWPF	London Waste Planning Forum
MBT	Mechanical Biological Treatment
MDC	Mayoral Development Corporation
MHT	Mechanical Heat Treatment
MRF	Materials Recycling Facility
MSW	Municipal Solid Waste
NPPW	National Planning Policy for Waste
SOC	Substance Oriented Classification
STW	Sewage Treatment Works
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

Glossary

Term	Definition
Aggregates	Granular material such as sand, gravel, crushed gravel, crushed stone, slag, and cinders; used in construction.
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 solid (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
Apportionment	The borough level requirement set by the GLA in the London Plan 2015, to ensure that London as a whole can become net self-sufficient to manage their household, commercial and industrial waste arisings. Boroughs must allocate sufficient land and identify waste management facilities to provide sufficient capacity to manage the tonnage of waste apportioned in the London Plan. Boroughs may collaborate by pooling their apportionment requirements.
Capacity	When referring to the capacity of a waste site, means total waste that can be accepted and processed at that site. Usually referred to as annual capacity.
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.
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 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.
Recycling	The reprocessing of waste either into the same product or a different one.

Residual Waste	Waste remaining after materials for re-use, recycling and composting have been removed.
Transfer capacity	The capacity (generally annual) specifically related to waste transfer sites.
Throughput	Similar to capacity i.e. when referring to the throughput of a waste site, means total amount of waste that can be accepted and processed at that site. Usually referred to as annual throughput.
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 policies 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.

Sources: Planning Portal, SEPA, Anthesis

Key Findings

The London Borough of Tower Hamlets (LBTH) is planning for its waste needs, in accordance with local and national planning policies. One of the London Plan's objectives is to achieve net self-sufficiency with regards to waste management and 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. Household and commercial and industrial waste streams are relevant to the apportionment.

Table 1 shows the existing gap between LBTH's apportionment target, the capacity of the existing operational waste sites (which meet the qualifying criteria) and capacity which could be provided given the current allocated sites (safeguarded for waste use). Therefore given this gap, before 2036, up to an additional 5.27 hectares of land for waste is expected to be required. Three areas of search have been identified to help meet this shortfall (Table 2) which are sufficient to meet LBTH's apportionment.

Table 1: LBTH apportionment capacity gap

	2016	2021	2026	2031	2036
Apportionment	218,000	252,000	302,000	307,000	313,000
LBTH permitted waste sites	2,654	2,654	2,654	2,654	2,654
LLDC permitted waste sites	10,539	0	0	0	0
Waste sites operating under exemptions	72,300	49,220	49,220	49,220	49,220
LBTH safeguarded waste sites	23,850 - 34,450	23,850 - 34,450	23,850 - 34,450	23,850 - 34,450	23,850 - 34,450
Sub-total capacity (low)	109,343 – 119,942	75,724 - 86,324	75,724 - 86,324	75,724 - 86,324	75,724 - 86,324
Capacity gap (low)	98,057 - 108,657	165,676 - 176,276	215,676 - 226,276	220,676 - 231,276	226,676 - 237,276
Additional land requirement (ha)	1.51 – 2.41	2.55 – 3.92	3.32 – 5.03	3.40 – 5.14	3.49 – 5.27
Additional land identified through areas of search	5.28	5.28	5.28	5.28	5.28

Table 2 Areas of search

Site	Status	Size of site (ha)	Potential contribution to the apportionment (tpa) ¹	Types of waste facility

¹ Assumed each site's throughput could range between 45,000 and 65,000 tonnes per hectare per year. See Appendix 7.

Site	Status	Size of site (ha)	Potential contribution to the apportionment (tpa) ¹	Types of waste facility
The Highway (Core)– Local Industrial Location	Industrial Estate – Multiple Uses (LBTH)	2.71 (0.65 ha could become available over plan lifetime)	29,250 – 42,250	Reuse/ refurbishment facility
Empson St–Strategic Industrial Location	Industrial Estate – Multiple Uses (LBTH)	10.07 (2.42ha could become available over plan lifetime)	108,900 - 157,300	Recycling, composting, waste treatment facility (including thermal treatment, anaerobic digestion, pyrolysis / gasification, mechanical biological treatment) or waste transfer station.
Fish Island –Fish Island Strategic Industrial Location B1a2	Industrial Estate – Multiple Uses (LLDC)	9.21 (2.21ha could become available over plan lifetime)	99,450 - 143,650	Recycling, composting, waste treatment facility (including thermal treatment, anaerobic digestion, pyrolysis / gasification, mechanical biological treatment) or waste transfer station.
Potential from areas of search		5.28	237,600 – 343,200	

The study also reviewed the need for other waste types. LBTH has some existing capacity for construction, demolition and excavation waste (CD&E), but will rely on facilities elsewhere in London and the wider south east region, so the duty to cooperate will apply. New facilities may come forward within the identified areas of search but facilities treating apportioned waste will be given preference. There is also some transfer capacity of hazardous waste, and given the specialist nature and wider-than-local catchment area of hazardous waste facilities, the borough will continue to rely on hazardous waste facilities outside the borough the duty to cooperate will apply.

No need for facilities for management of agricultural waste, low level radioactive waste (LLW) and waste water has been identified. Agricultural waste and LLW are being generated in very small quantities and therefore do not require specific consideration within the Local Plan.

Executive summary

ES1 Introduction

ES1-1 The London Borough of Tower Hamlets (LBTH) is a waste planning authority (WPA) and as such, has 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 LBTH Local Plan.

ES1-2 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. It should ensure that suitable sites and areas for the provision of waste management facilities are identified in appropriate locations. In particular, the London Plan (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.

ES1-3 The purpose of this study is to provide an up-to-date waste evidence base for LBTH. This has built on the work undertaken in producing the existing LBTH Waste Management Evidence Base (2016) to address all waste streams as required by the National Planning Practice Guidance, and to respond to a number of matters that were raised by statutory consultees during the Regulation 18 consultation.

ES1-4 The results and conclusions of this study are summarised as follows.

ES2 Waste arisings, destinations & forecasts

Apportioned waste arisings

ES2-1 Household and Commercial & Industrial (C&I) wastes are the apportioned waste streams. Table 3 shows the forecast arisings to 2036. Total figures for each of household and C&I waste streams have been taken from the London Plan (Policy 5.17). However, some additional modelling with regards to recycling rates has been carried out.

ES2-2 For household waste, two scenarios were modelled; one meeting the existing GLA municipal waste management strategy recycling target of 60% by 2031, and the other meeting an increased target to 65%, which is being considered by the GLA. The C&I waste was modelled to meet a 70% recycling target by 2020.

ES2-3 Defra's household waste statistics (2015/16) shows that performance in LBTH will need to be significantly improved to meet these targets (household recycling rate in 2015/16 was 26.7% and Defra's 2009 C&I waste survey (which is the most recent survey for C&I waste) indicated recycling rate of C&I waste was 52%). It is the duty of the WPA to plan for waste being managed up the waste hierarchy, and therefore these targets need to be considered whilst developing appropriate planning policy, both in considering the type of new waste management facilities required, but also in ensuring delivery of new mixed used and/or residential developments.

ES2-4 Figure 1 shows the forecasts of actual arisings produced for the existing London Plan (2016), for both household and C&I waste, and the apportionment target for LBTH. This shows that the actual arisings anticipated to be produced within LBTH falls below the apportionment target set in the London Plan from

2021 onwards, for which LBTH is required to plan capacity for. LBTH is therefore currently required to plan for management of more than 100% of the household and C&I wastes generated within the borough, to help London overall meet the goal of net self-sufficiency².

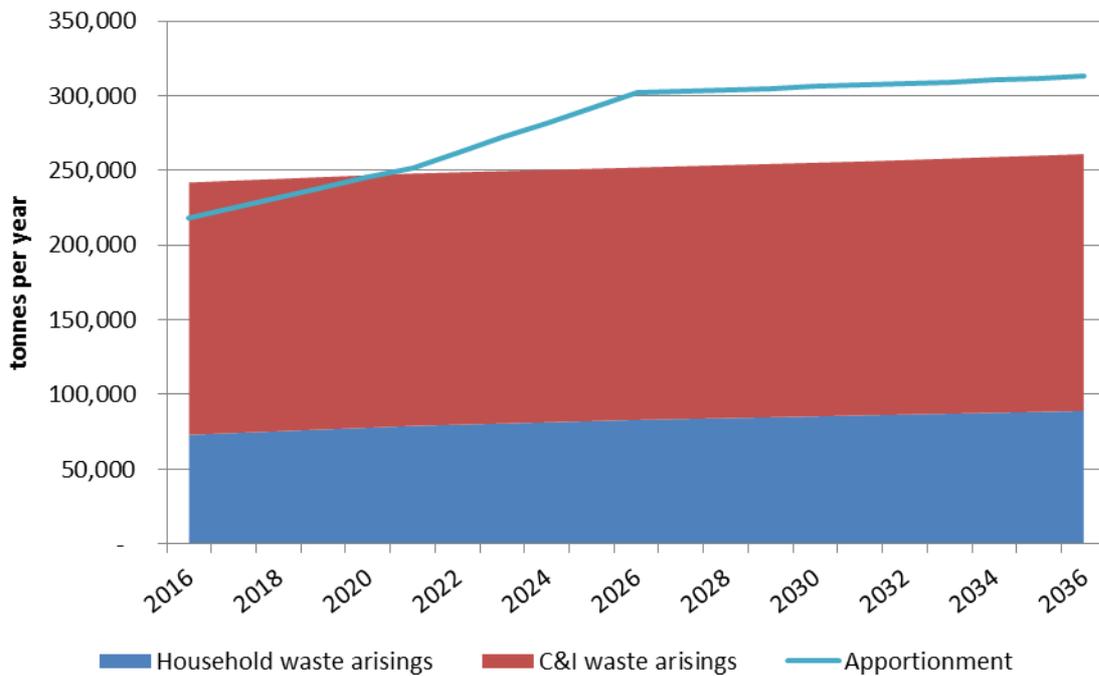
Table 3: Apportioned waste forecasts (tonnes)

Waste type		2016	2021	2026	2031	2036	
Household	Apportionment	87,000	104,000	127,000	131,000	135,000	
	60% recycling	Recycling	23,229	52,945	70,427	78,600	81,000
		Residual	63,771	51,055	56,573	52,400	54,000
		Recycling rate	26.7%	50.9%	55.5%	60.0%	60.0%
	65% recycling	Recycling	23,229	53,418	73,891	85,150	87,750
		Residual	63,771	50,582	53,109	45,850	47,250
		Recycling rate	26.7%	51.4%	58.2%	65.0%	65.0%
Commercial & Industrial	Apportionment	131,000	148,000	175,000	176,000	178,000	
	60% recycling	Recycling	68,120	103,600	122,500	123,200	124,600
		Residual	62,880	44,400	52,500	52,800	53,400
		Recycling rate	52.0%	70.0%	70.0%	70.0%	70.0%
Total	Apportionment	218,000	252,000	302,000	307,000	313,000	
	Recycling (65%)	91,349	157,018	196,391	208,350	212,350	
	Recycling (60%)	91,349	156,545	192,927	201,800	205,600	
	Residual (65%)	126,651	94,982	105,609	98,650	100,650	
	Residual (60%)	126,651	95,455	109,073	105,200	107,400	

Source: Anthesis & London Plan

² London Waste Apportionment Study, GLA, 2006

Figure 1: LBTH Household & C&I waste forecasts and apportionment

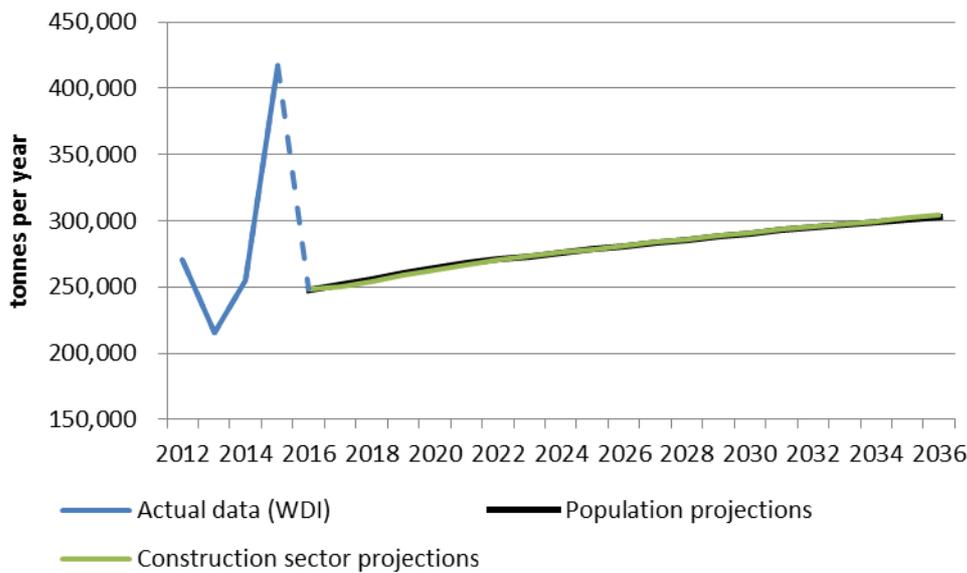


ES2-5 Over 87% of the borough’s household and business waste is treated within London, key recipients being Bexley (31%), Havering (20%) and Lewisham (17%). An additional 9% is being treated within Essex WPA.

CD&E waste arisings

ES2-6 CD&E waste is the largest waste stream, making up 51% of the overall waste generated within the LBTH in 2016. This was estimated using the Environment Agency’s Waste Data Interrogator (WDI) which collates data from waste returns from individual permitted waste sites and Figure 2 shows actual data from WDI for 2012 – 2015. The data shows a marked increase in the CD&E waste generated in 2015. This is thought to be linked to tunnelling work for the Crossrail development (e.g. Whitechapel), resulting in significant quantities of excavation waste. For this reason, the GLA figure of 248,000 tonnes has been used as a baseline, rather than the 2015 WDI data (approximately 420,000 tonnes), because this quantity of waste is thought to be an anomaly, compared to previous years.

Figure 2: CD&E waste arisings



ES2-1 Figure 2 demonstrates the two forecasts undertaken for CD&E waste: one is those presented in the London Plan based on population projections, and the second is based on employment growth in the construction sector. These both peak at around 300,000 tonnes by 2036. (The two forecasts are almost equal, hence being superimposed on the presented chart)

ES2-2 WDI reports 70% of this material as going to landfill, however it is believed (although not quantified) a high proportion of this is being used beneficially, such as for in landfill restoration. For example, Crossrail reports waste going to Pitsea and Rainham landfills as being used for landfill restoration. Although it is not known whether all the waste from LBTH to these landfills is from the Crossrail project, over 144,000 tonnes is sent to these landfills, which is approximately 35% of the total CD&E waste stream. Thurrock currently receives the greatest quantity (43%), with Havering (26%) and Essex (22%) also taking significant quantities.

Hazardous waste

ES2-3 Hazardous waste is approximately 2% of the waste generated in LBTH. Due to the specialist nature of the facilities required to treat this waste, and the relatively small quantity generated, provision for additional hazardous waste treatment facilities has not been made. Hazardous waste is being sent to locations as far away as Staffordshire, although a number of London and south east England WPAs have been identified to be receiving hazardous waste from LBTH.

Low level radioactive waste

ES2-4 The Pollution Inventory Dataset from 2015 (EA) was used to identify the quantity of this waste generated within LBTH. However this type of waste is reported in Becquerels (MBq), rather than by weight. Over 2.1 MBq was identified to be disposed of by 6 medical establishments within the borough. All the waste identified as being generated 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. Note that assuming this material was classified as low level radioactive waste at the upper limit of radioactivity for that classification, this quantity would amount to only 0.18-0.53Kg in 2015.

Agricultural waste

ES2-5 Data from WDI shows that less than 1 tonne of waste, coded as from agricultural sources (i.e. European Waste Code (EWC) 02 01) were generated within the LBTH in 2015. Given the very small tonnage of this waste, the predominantly urban character of the borough, it is not considered to need specific consideration.

Waste water

ES2-6 Thames Water Limited is responsible for wastewater and sewage sludge treatment in London, and manages sewerage infrastructure as well as sewage treatment works. Based on a population of 295,200, the anticipated mass of dried sludge LBTH produced in 2015 was 7,651 tonnes of dry solids.

ES2-7 LBTH'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 treats the waste of a population of 3.5 million people, with upgrade works to increase capacity to 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. Thames Water is looking to close the sludge powered generator and convert the entire process to anaerobic digestion with an alternative thermal disposal process in Asset Management Period (AMP) 7 (2020-2025)³. This may have future implications for LBTH and it is proposed that this is monitored to ascertain whether these changes are likely to alter the capacity that can be treated.

ES3 Waste management capacity

ES3-1 Current and future waste management capacity in LBTH has been established using a number of data sources, including the LBTH Waste Management Evidence base (2016, Site Identification & Assessment 2016, Table 1.2), Environment Agency "active sites" data, WDI and permitting data. For each site, its assumed operational capacity was assessed against the criteria included in the London Plan (Policy 5.17, paragraph 5.79) i.e. 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 reused, recycled or reprocessed in London; and
- it is a 'biomass fuel' as defined in the Renewable Obligation Order.

ES3-2 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 – see Appendix 4) this recycling capacity was included.

ES3-3 Exempt sites were included where capacity met the requirements of the London Plan. A list of exemptions assumed relevant to the London Plan apportionment, and assumed capacities per site, are given in section 4.2 of this report.

³ An 'Asset Management Period' is the five-year period covered by a water company's business plan. AMP7 is between 2020 and 2025 and is the period for which Thames Water are now planning.

Apportioned waste capacity gap

ES3-4 Existing operational waste facilities, and former waste sites, were identified and are presented in Table 4. Together they accept over 225,000 tonnes per year. However, only two of the currently operational facilities are deemed to make a contribution towards LBTH's apportionment target. All of the permitted facilities are transfer stations, however data from WDI (2013-2015) has been used to identify a proportion of the outputs which are recycled from two of the sites.

ES3-5 The LBTH Waste Evidence Base - Principal Waste Stream Apportionment, Capacity Gap & Provision Assessment (2016), section 4.2 and 4.3, identified 178,000 tonnes per year as qualifying as meeting the London Plan definition of 'managed waste'. However, this was arrived at using different assumptions to those utilised in this updated evidence base. For example, rather than attributing the activities of facilities operating within LBTH, the LBTH Waste Evidence 2016 considered how waste generated within LBTH was managed and counted this as contributing to the apportionment e.g. 59,000 tonnes was deemed to qualify as was sent to energy recovery facilities within London. The capacity of Northumberland Wharf transfer station was also included in qualifying tonnage, which while a strategically important site for London, cannot be counted as waste management through the definition of the London Plan as it is used for the bulking of residual waste for energy recovery.

ES3-6 McGrath House site on Hepscott Road had previously been identified as not contributing to the apportionment. However, taking into account sorting for recycling, WDI data identifies that a small proportion of the site's activities can be counted as contributing towards LBTH's apportionment target. The site is located within the LLDC and within a site allocation (SA1.3) area designated for mixed use development including employment, residential, creative and cultural uses and a linear park. Current plans are that operations at this facility will be moved to a site within another WPA within London and Tower Hamlets will therefore lose this capacity during the plan period.

ES3-7 Ailsa Street (site ID 8 in Table 4) is currently being used as a vehicle depot by Veolia and is therefore not currently an operational waste site. However, WDI shows that as recently as 2012, the whole site was used as a transfer station and received 32,160 tonnes. This site will continue to be safeguarded for waste use, and it is estimated that between 23,850 – 34,450 tpa could be managed on this site.

ES3-8 There are no pending facilities in the planning system likely to deliver additional local capacity in the forecast period.

Table 4: Identified waste sites in LBTH

Site ID	Site	Area (ha)	Status / WPA	Waste type	Operational Capacity (based on maximum over last 3 years) - tonnes	Current contribution towards apportionment	Conclusions with regards to site
1	Clifford House, Towcester Road, E3 3ND	0.46	Operational transfer station / LBTH	Hazardous	418	0	The portion of the site involved in waste management i.e. asbestos (0.0144 ha) to be safeguarded.
2	Northumberland Wharf, Yabsley Street, E14 9RG	0.88	Operational transfer station (safeguarded wharf) / LBTH	Household & C&I (specifically residual waste)	107,500	0	Will continue to operate under safeguarded wharf designation.
			Operational CA site (0.2 ha) / LBTH	Household	3,743	2,654	
3	McGrath House, Hepscott Road, E9 5HH	2.8.47	Operational transfer station / LLDC	Household & C&I, CD&E	73,064*	10,539	LBTH are unable to safeguard the site itself, but will liaise with LLDC to ensure this site remains safeguarded until the planning application has been accepted and it has been demonstrated that replacement capacity will be provided. LBTH will lobby GLA to take account of this loss of waste capacity from LBTH either through a reduction in apportionment or brokering a deal with LBTH and other LB.
4	455 Wick Lane, J B Riney, E3 2TB	0.47	Operational transfer station / LLDC	CD&E	36,958	0	LBTH are unable to safeguard the site itself but will list this site in the policy as an existing waste site which should be safeguarded by LLDC. (the policy will only refer to the part of the waste site that is used for waste purposes ancillary to the main business which equates to 0.027ha)

Site ID	Site	Area (ha)	Status / WPA	Waste type	Operational Capacity (based on maximum over last 3 years) - tonnes	Current contribution towards apportionment	Conclusions with regards to site
5	Blackwall Marine Diesel Ltd, Unit 2 Ailsa Street, E14 0LE	0.04	Operational vehicle depollution facility, LBTH	Vehicles	No data	0	This site is currently subject to a live planning application for housing. If planning permission is granted it will be removed from the list.
6	DR Plant Solutions, Unit 3 Ailsa Street, E14 0NE	0.1	Operational treatment & transfer / LBTH	CD&E	4,155	0	This site is currently subject to a live planning application for housing. If planning permission is granted it will be removed from the list.
8	40 Gillender Street, E14 6RH (referred to as Ailsa Street in the report)	0.53	Safeguarded former waste site / LBTH	N/A	N/A	Potential contribution 23,850 – 34,450 ⁴	No longer has an environmental permit and not currently operating as a waste site. However, Veolia suggest that they may wish to bring it back into use as a transfer station and that was an operational waste facility in recent past (2012).
9	Unit 6, Stour Road, e£ 2NT	0.03	Former waste site / LLDC	N/A	N/A	0	Site no longer suitable for waste use as surrounding area being used for activities which potentially conflict with waste activities. Remove from list.
Total					225,838	Operational: 13,192 Including potential: 37,043 – 47,643)	

Source: WDI 2015, Waste Evidence base (Site Identification & Assessment 2016, Table 1.2).

*31% of this is household and C&I, 69% is CD&E waste

⁴ Assumed each site's throughput could range between 45,000 and 65,000 tonnes per hectare per year. See Appendix 7.

ES3-9 An additional 72,300 tpa of waste management capacity is operating under exemptions within LBTH. The majority of this is the preparation of dry recyclates for onward transport direct to reprocessors and recovery of scrap metal (see Table 21 and Appendix 6). A number of these exemptions are operating on Ailsa Street are within an area due to be redeveloped. The loss of these sites during the plan period has been accounted for in the forward projections of waste management capacity.

ES3-10 Under the definition of ‘management’ in the London Plan (and therefore able to count towards the apportionment) LBTH currently has existing operational waste management capacity of 85,493 tonnes, through its permitted and exempt sites. However, this is likely to decrease to 49,374 tonnes per year, if both the McGrath facility on Hepscott Road and the waste operations currently being undertaken through Ailsa Road exemptions are lost to redevelopment. These reductions in the existing capacity have been assumed to have been made by 2019, to allow for analysis of the capacity gap. However the potential capacity from safeguarded waste sites (Ailsa St - 23,850 – 34,450 tpa) has also been included.

ES3-11 Figure 3 and Table 5 show, the capacity gap for apportioned waste is likely to increase from around 98,057- 108,657 tpa in 2018 to 226,676-237,276 tpa by 2036. The land requirement for additional sites to meet the 2036 apportionment targets is between 3.49 and 5.27 ha based on a higher (65,000tpa) and lower (45,000tpa) range of throughput per hectare.

Figure 3: Apportioned waste capacity gap

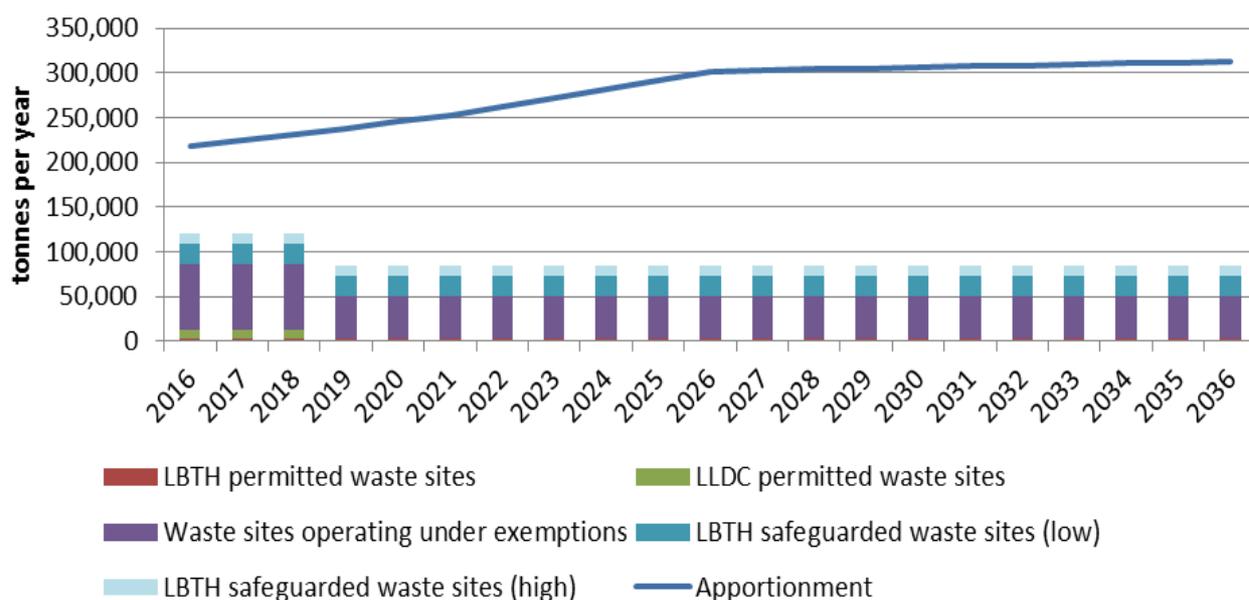


Table 5: Apportioned waste capacity gap

	2016	2021	2026	2031	2036
Apportionment	218,000	252,000	302,000	307,000	313,000
LBTH permitted waste sites	2,654	2,654	2,654	2,654	2,654
LLDC permitted waste sites	10,539	0	0	0	0
Waste sites operating under exemptions	72,300	49,220	49,220	49,220	49,220
LBTH safeguarded waste sites (low)	23,850	23,850	23,850	23,850	23,850

	2016	2021	2026	2031	2036
Sub-total capacity (low)	109,343	75,724	75,724	75,724	75,724
Capacity gap (low)	108,657	176,276	226,276	231,276	237,276
LBTH safeguarded waste sites (high) - additional	10,600	10,600	10,600	10,600	10,600
Sub-total capacity (high)	119,943	86,324	86,324	86,324	86,324
Capacity gap (high)	98,057	165,676	215,676	220,676	226,676

CD&E waste capacity gap

ES3-12 As shown in Table 4, the total current transfer capacity for CD&E waste is 91,340 tonnes per year (50,277 (Hepscott Road) + 36,958 + 4,155 tpa) . However, this is likely to decrease to 36,985 tpa due to redevelopment of two of the sites (Hepscott Road and DR Plant Solutions).

ES3-13 The capacity gap of CD&E waste is likely to be approximately 266,000 tonnes per year by 2036 (250,000 tpa in 2031 and 260,500 tpa in 2033). There is no existing capacity which could be considered ‘treatment’ or the final destination for this waste. However output data (EA’s WDI, years 2013 – 2015 inclusive) from some of these sites suggests that there is a level of sorting undertaken which leads to some materials being sent directly to reprocessors for recovery operations.

Hazardous waste capacity gap

ES3-14 There is one hazardous waste transfer station (Clifford House, Towcester Road). The permit allows them to accept up to 5 tonnes of asbestos a day. However WDI data from the last three years has been used to calculate an operational capacity of 418 tpa. The operator at the time of writing this report confirmed that the waste is ancillary to the main business and that no other business can dispose of hazardous waste at this location.

ES3-15 This is compared to existing arisings of 7,650 tonnes (2015). Therefore there is a significant gap. However given the specialist nature of hazardous waste facilities, their wider-than-local catchment areas and the relatively small quantities of hazardous waste being generated within the borough (2% of total waste), it has been concluded that no new specialist hazardous waste facilities are required within the LBTH, and as such, opportunities for additional hazardous waste management capacity have not been identified in as part of this study.

Potential to meet the apportionment target

ES3-16 LBTH Waste Evidence Base – Site Identification & Assessment (2016) identified a number of areas of search (section 1.13) which could be suitable for waste management purposes, but the whole area is not suitable for allocating for waste uses alone. Table 6 provides a summary of the contribution towards the apportionment each of the areas could make and the types of facility which may be suitable. Two of the areas of search are within LBTH and one is within LLDC. LBTH has liaised with the LLDC to confirm that waste uses are appropriate for this area of search.

ES3-17 An assumption of how much of the area may become available within the Local Plan period has been made. This is based on GLA vacancy and business turnover rates and estimates that 5.28 hectares of land could come forward over the plan period.

ES3-18 The additional 5.28 hectares will be able to manage between 237,600 – 343,200 tpa. The estimated capacity gap in 2036 is 237,276 tonnes (assuming all identified sites and areas manage the lower throughput estimate of 45,000 tpa).

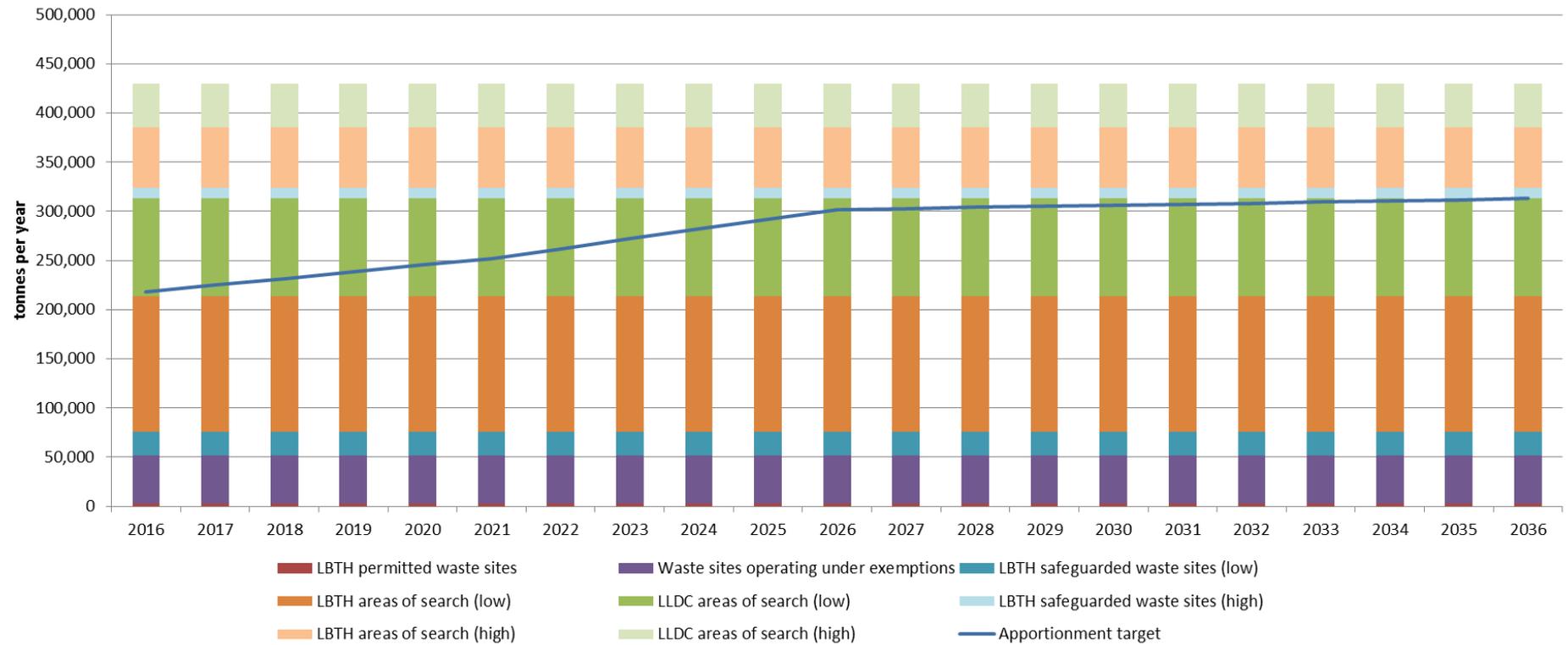
ES3-19 Figure 4 shows that, through these areas of search, LBTH can identify sufficient land in the borough to meet the London Plan apportionment targets.

Table 6: Areas of search

Site	Status	Size of site (ha)	Potential contribution to the apportionment (tpa) ⁵	Types of waste facility
The Highway (Core)– Local Industrial Location	Industrial Estate – Multiple Uses (LBTH)	2.71 (0.65 ha could become available over plan lifetime)	29,250 – 42,250	Reuse/ refurbishment facility
Empson St–Strategic Industrial Location	Industrial Estate – Multiple Uses (LBTH)	10.07 (2.42ha could become available over plan lifetime)	108,900 - 157,300	Recycling, composting, waste treatment facility (including thermal treatment, anaerobic digestion, pyrolysis / gasification, mechanical biological treatment) or waste transfer station.
Fish Island –Fish Island Strategic Industrial Location B1a2	Industrial Estate – Multiple Uses (LLDC)	9.21 (2.21ha could become available over plan lifetime)	99,450 - 143,650	Recycling, composting, waste treatment facility (including thermal treatment, anaerobic digestion, pyrolysis / gasification, mechanical biological treatment) or waste transfer station.
Potential from areas of search		5.28	237,600 – 343,200	

⁵ Assumed each site’s throughput could range between 45,000 and 65,000 tonnes per hectare per year. See Appendix 7.

Figure 4: Potential to meet apportionment



New development

ES3-20 Policies should be included in the LBTH's Local Plan, in order to help ensure that waste management is considered in new developments, to boost recycling rates and minimise the increasing burden on the waste collection services. These are recommended to:

- A requirement for new developments to include provision for the collection and storage of segregated waste (residual, organic and recyclates) for collection;
- A requirement for new residential developments to incorporate on-site material collection systems that are compatible with our waste collection services e.g. compactors, underground storage containers and automated waste collection systems, to reduce the burden on waste collection services; and
- A recommendation to explore the viability and deliverability of including recyclate sorting, food waste treatment (e.g. AD), residual waste treatment (e.g. pyrolysis) to get value from the waste generated in their development (and potentially neighbouring developments) and to reduce the loading on LBTH waste collection services.

ES4 Conclusions & Recommendations

ES4-1 LBTH has identified existing capacity and sufficient land suitable for new waste management facilities to meet their apportionment target. The capacity gap equates to between 3.49 and 5.27 ha by 2036 which is anticipated to come forward on existing industrial land.

ES4-2 As LBTH depends upon facilities in other WPA areas to deal with its waste, it needs to continue to cooperate with these authorities to identify challenges or barriers to continuing with this waste movement and processing in the future. A duty to Cooperate exercise was carried out as part of this evidence gathering (see Appendix 8). However it should be noted that the destinations of waste changes regularly as it is a competitive market, and therefore this list of authorities for engagement should be reviewed regularly through annual monitoring reports.

ES4-3 LBTH should continue to engage with LLDC to ensure that LBTH can meet its apportionment targets. This is especially important, as a significant proportion of land identified as suitable for waste management falls with the LLDC planning authority. It should be noted that paragraph 182 of the NPPF, says "the plan should be prepared based on a strategy which seeks to meet objectively assessed development and infrastructure requirements, including unmet requirements from neighbouring authorities where it is reasonable to do so and consistent with achieving sustainable development." The London Plan also states that "where a Mayoral Development Corporation (MDC) exists or is established within a Borough the MDC will cooperate with the Borough to ensure that the Borough's apportionment requirements are met." The LLDC will be tested on this basis.

ES4-4 In both LBTH and LLDC policies, waste management activity should be directed towards the areas of search identified in this evidence base, and actively encourage this type of development on these sites. Any new waste management facilities which come forward should be assessed against policies in the development plan.

ES4-5 Whilst this evidence base works towards LBTH meeting their obligations under the current London Plan requirements, the GLA are currently reviewing this policy, and therefore it is recommended that any

changes to the London Plan are monitored to assess whether there are any implications for LBTH, in particular whether the apportionment targets have been altered.

ES4-6 Policies regarding new developments should include a requirement for the appropriate provision for the collection and storage of segregated waste (residual, organics and dry recyclates), to help boost recycling rates. In the case of large-scale development, developers should be required to produce a recycling and waste management strategy with their planning application.

ES4-7 Policies should include a requirement for all large-scale residential developments (and some small-scale as well, where considered practical) to include more innovative waste collection mechanisms, such as compactors, underground storage containers and/or automated waste collection systems such as vacuum systems, to help reduce vehicle movements and not increase the burden on waste collection services. Rather than being overly prescriptive by defining a specific technology or system, developers should be asked to engage in discussion with planning officers and the waste management team to ensure any systems are compatible with existing collection regimes.

ES4-8 Policies could include a recommendation to include recyclate sorting, food waste treatment or residual waste treatment, to potentially get value from the waste in their development (and potentially neighbouring developments) and reduce the loading on LBTH waste collection services. Further work would be required on the viability and management implications of such schemes.

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1 Introduction

1.1 Background

1.1-1 The London Borough of Tower Hamlets (LBTH) is a waste planning authority (WPA) and as such, has 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 LBTH Local Plan.

1.1-2 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 5). It should ensure that suitable sites and areas for the provision of waste management facilities are identified in appropriate locations.

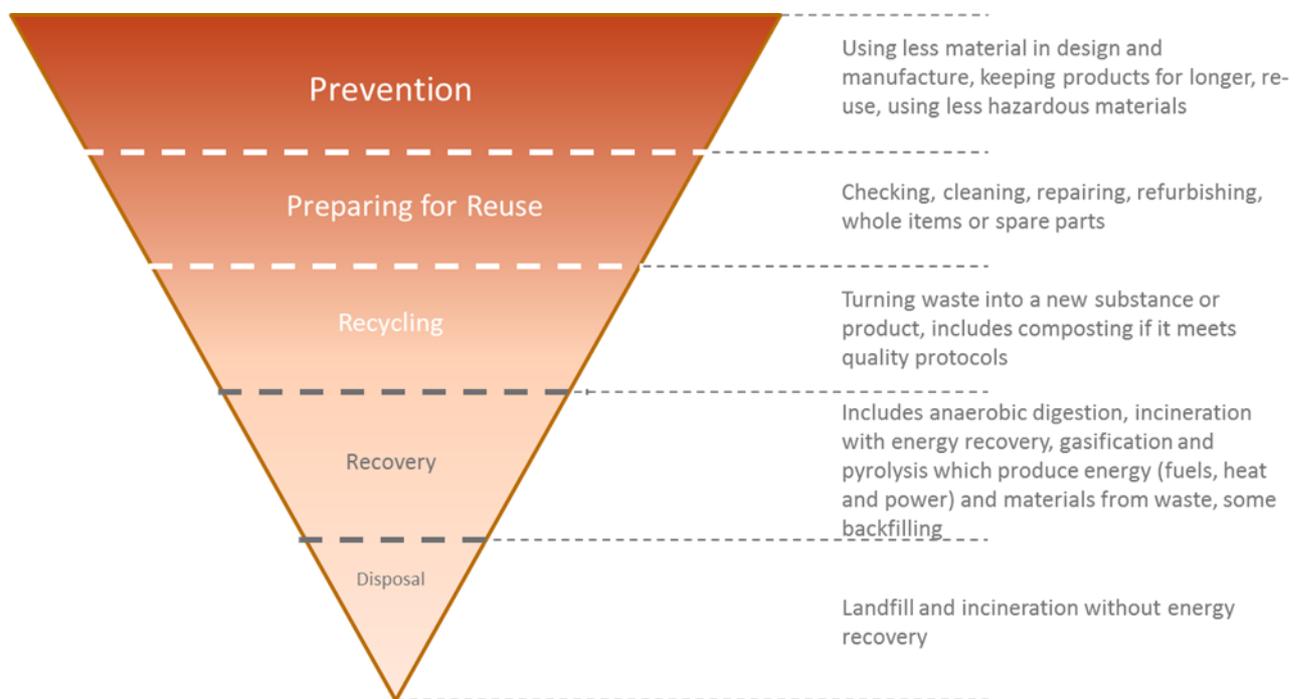


Figure 5: The Waste Hierarchy

1.1-3 The LBTH is in the process of preparing a new Local Plan to guide development in the borough over the next 15 years, and finished consulting on the draft Local Plan (Regulation 18 stage) in January 2017. Since the adoption of the Core Strategy in 2010, there have been a number of key policy changes, both nationally and regionally, including the National Planning Policy Framework (2012), National Planning Policy for Waste (NPPW) (2014), the Localism Act (2011) and various changes to the London Plan, including new ambitious employment and housing targets for LBTH.

1.2 Scope of this work

1.2-1 This study has been delivered to update and work alongside the LBTH Waste Management Evidence Base (2016), address all waste streams as required by the National Planning Practice Guidance, and to respond to a number of matters that were raised by statutory consultees during the Regulation 18 consultation (see Appendix 1).

1.2-2 This study is intended to inform and support the preparation of LBTH’s Local Plan documents, and as such needs to be robust and defensible at Examination. This study provides evidence for the preparation of waste management policies within the LBTH Local Plan, and will inform discussions with other waste planning authorities and the GLA on the approach to waste management. The following stages have been undertaken in development of this study.

Existing waste arisings

1.2-3 In developing an evidence base for LBTH, the first key stage is to gain an understanding of how much waste requires management, and where it comes from. Baselines for each of the waste types shown in Table 7 have been developed using a variety of data sources of varying quality:

Table 7: Waste types and data sources

Waste stream	Data sources
Municipal/household (MSW) or Local Authority Collected Waste (LACW)	London Plan (further alterations published in March 2015), WasteDataFlow (2015/16)
Commercial & Industrial waste (C&I)	London Plan (further alterations published in March 2015), Waste Data Interrogator (EA) 2015
Construction, Demolition & Excavation waste (CD&E)	London Plan (further alterations published in March 2015), Waste Data Interrogator (EA) 2015, GLA construction sector employment figures (2016)
Low level radioactive waste	Pollution Inventory (EA) 2015
Agricultural waste	Waste Data Interrogator (EA) 2015
Hazardous waste	Waste Data Interrogator 2015 and Hazardous Waste Data Interrogator (EA) 2015
Wastewater	Population estimates (Office for National Statistics – published in 2016 for estimate for 2015), Thames Water factors

Source: Anthesis

Future waste projections

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 projections for interim years 2021, 2026 and 2031, are presented. For household and commercial and industrial (C&I) waste, London Plan projections have been used. Two scenarios have been considered for construction, demolition and excavation (CD&E) waste, calculated based on both population projections and growth in construction sector employment.

Routes and destinations for waste management

1.2-5 This study ascertains current routes and destinations for further management and/or disposal of each of the waste streams using data from the Waste Data Interrogator WDI (EA) for 2015 (latest data available).

Waste management capacity in LBTH

1.2-6 This study collates information relating to all existing waste sites within the borough, as required by the NPPG. It also builds on work undertaken in the LBTH Waste Management Evidence Base (2016), to understand the likelihood of LBTH being able to meet their apportionment through the development of

additional waste management facilities, ensuring that appropriate policies are put in place in the Local Plan to maximise this potential. This is through the identification of areas of search.

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 as follows:

- Revised European Waste Framework Directive 2008;
- EU Review of Waste Policy and Legislation 2014;
- Planning Act 2008;
- Localism Act 2011;
- National Planning Policy Framework (2012);
- Waste Management Plan for England 2013 (and predecessor documents);
- National Planning Policy for Waste;
- National Planning Practice Guidance; and
- London Plan.

2.1-2 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 Much of the impetus for meeting waste targets, such as increasing recycling and diversion of waste from landfill, come from European Union legislation.

2.2-2 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. Tower Hamlets' Local Plan will form part of the UK's Waste Management Plan and will need to contain locational criteria in order to meet the requirements of the Directive.

2.2-3 A published Review of Waste Policy and Legislation by the EU in December 2015, has introduced a range of higher targets for recycling 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.

2.2-4 The government's recent Brexit White Paper (February 2017) confirmed that the current framework of environmental regulation set out in EU Directives will be transposed into UK law. This provides a degree of certainty in terms of policy direction for the immediate future, although monitoring will be essential during and after the transitional period of leaving the EU. It is currently unclear if the higher targets will become law before or after Brexit.

2.3 Localism Act 2011

2.3-1 The Localism Act 2011 gave the responsibility for strategic planning back to local authorities acting individually. However, 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 reaching agreement on where waste management facilities will be built.

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. For example, 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.

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

2.4-1 National Planning Policy for Waste and the National Planning Practice Guidance require waste planning authorities to plan for seven waste streams. These waste streams are:

- Municipal/household;
- Commercial/industrial;
- Construction, Demolition & Excavation;
- Low Level Radioactive;
- Agricultural;
- Hazardous; and
- Waste water.

2.4-2 In order to plan for these waste streams, Waste Planning Authorities must identify the need for waste management facilities and identify suitable sites and areas to meet that need.

2.4-3 Paragraph 4 of the NPPW under Identifying Suitable Sites and Areas makes clear that suitable areas can be identified as well as sites.

2.4-4 “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.”

2.4-5 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 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.”

2.5-2 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.

2.5-3 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. 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 Order⁶

2.5-4 This definition means that waste transfer capacity cannot be included as "managing" apportioned waste unless there is some sorting or bulking taking place.

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 CD&E⁷ 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.

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.

2.5-8 The London Plan is being reviewed and a draft is due for consultation in November 2017. This review will include new waste arisings and apportionment figures and amendments to waste policies. The timing of Tower Hamlets' Local Plan means that any changes will be known after the regulation 19 consultation.

Co-operation between London Waste Planning Authorities

2.5-9 Tower Hamlets is a unitary waste planning authority, waste collection authority and waste disposal authority. 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. This is done through the duty to co-operate (see 1.3 above) which involves direct engagement with planning authorities which receive significant amounts of waste from Tower Hamlets.

1.1.1 ⁶ London Plan paragraph 5.79

1.1.2 ⁷ Referred to as CD&E waste in this report.

2.5-10 The London Plan specifies “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.” This is particularly relevant for LBTH as the London Legacy Development Corporation (LLDC) is an MDC and partially located within LBTH’s boundary.

2.5-11 The London Waste Planning Forum (LWPF) is a regular meeting of council officers with responsibility for waste planning where data is shared and policies discussed. It is another component of meeting the Duty to Co-operate and active participation by LBTH officers shows a commitment to joint working.

3 Waste arisings estimates, destinations and forecasts

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 publically available sources (such as WasteDataFlow and EA’s Waste Data Interrogator), and then use this data, along with factors which are likely to influence arisings in the future, to generate arisings forecasts per waste type to 2036.

3.2 Definitions

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. Therefore what is traditionally been termed municipal is categorised as Local Authority Collected Waste in this report (as described in Section 3.3).

3.2-2 For planning purposes, it is important to know how much waste in total requires management. 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 are held by local authorities, which they then use to report on WasteDataFlow.

3.2-3 The remainder of waste arisings (such as commercial, industrial and construction wastes), 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 recorded by the LBTH, 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 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 waste⁸. 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 (i.e. Commercial & Industrial) 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 a large proportion of the waste which is collected by the local authorities. In Tower Hamlets' case, in 2015/16 it was reported as 65%. The GLA's London Plan waste apportionments are reported as household and commercial, and this report has taken the same approach.

3.3-4 Table 5.2 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. The London Plan is currently being reviewed and this includes the forecasts for waste arisings generated by each of the Boroughs, and the apportionment. However, these have not yet been published, and therefore the waste forecasts presented in this evidence base and used in the analysis, are those from the FALP. Assumptions used in the waste modelling of LACW can be viewed at the GLA website⁹ at the time of writing. Table 8 below shows these arisings figures, and also shows actual reported arisings for the year 2015/16.

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). The methodology used to assign each borough an apportionment was devised for the original London Plan in 2011¹⁰, and has not been amended since. However it is currently under review. This methodology assessed each borough against a series of criteria: capacity, proximity, ability to use sustainable transport, road network, land availability unconstrained by environmental factors, flood risk and social issues. LBTH ranked 7th in the combined weighted suitability index and as a consequence, has an apportionment target which is higher than actual arisings.

3.3-6 Table 8 shows that LBTH's apportionment (for household waste specifically) is higher than the household arisings. 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.

⁸ Household clinical waste is not deemed hazardous unless a particular risk has been identified (based on medical diagnosis)

⁹ <http://www.webarchive.org.uk/wayback/archive/20151111145752/http://www.london.gov.uk/priorities/planning/london-plan/draft-further-alterations-to-the-london-plan>

¹⁰ London Waste Apportionment Study, GLA, 2006

Table 8: Household waste arisings and apportionment targets produced by GLA in London Plan (tonnes)

	2015/16 (actual)	2016	2021	2026	2031	2036
Arisings	74,545	73,000	79,000	83,000	86,000	89,000
Apportionment	N/A	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 2015/16 which is sourced from Defra’s Local Authority Collected Waste Statistics - Local Authority data 2015/16

3.3-7 In order to facilitate planning for what types of facilities are required, this has been broken down into recycling and residual waste streams. Defra’s household waste statistics (2015/16) were used to ascertain the proportion of waste assigned to each of these waste streams currently. This showed a recycling/composting rate of 26.7% (24.9% dry recycling, 1.8% organic recycling), with the remaining 73.3% 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 50% of their waste by 2020, and 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 target, and therefore in the modelling it has been assumed that an increasing proportion of infrastructure suitable for composting/recycling, compared to ‘residual’. Therefore by 2031, 40% of the waste is expected to require residual waste treatment, with 60% being either composted or recycled. It has been assumed that this recycling rate increases gradually, meeting the target in 2031 and remaining at 60% until 2036. Although it is not current policy, the GLA may look to increase the recycling target to 65% and so this has been included as an additional scenario. The forecasts are presented in Table 9.

Table 9: Household waste apportionment by waste management type (tonnes)

		2016	2021	2026	2031	2036
Apportionment		87,000	104,000	127,000	131,000	135,000
60% recycling	Recycling	23,229	52,945	70,427	78,600	81,000
	Residual	63,771	51,055	56,573	52,400	54,000
	Recycling rate	26.7%	50.9%	55.5%	60.0%	60.0%
65% recycling	Recycling	23,229	53,418	73,891	85,150	87,750
	Residual	63,771	50,582	53,109	45,850	47,250
	Recycling rate	26.7%	51.4%	58.2%	65.0%	65.0%

Source: Anthesis

How is this waste currently managed?

3.3-9 As a Unitary authority, LBTH have responsibility for both the collection and the disposal of the LACW. Residual waste is managed under a 9.5 year contract, under which the contractor sends the residual waste to the Riverside EfW in Bexley. Some residual waste is also sent to a dirty MRF where further sorting takes place to extract materials for recycling and generate refuse derived fuel (RDF), which is then sent for energy generation.

3.3-10 LBTH collects dry recyclates (paper, card, glass, cans, cartons, plastics and aerosols) co-mingled, which are sorted at Bywaters Materials Recovery Facility in Newham.

3.3-11 Food and garden waste is co-collected from most street level properties and food waste is collected from a small number of flats. This is treated in an In-Vessel Composting (IVC) facility in Blaise in Kent.

3.3-12 LBTH provides a public Re-use and Recycling Centre in the borough at which householders can dispose of a variety of Household Waste items for re-use, recycling and disposal.

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, these amounts have assumed to be the demand required, as per the household waste. Table 10 presents both the existing London Plan’s arisings forecasts and apportionment targets.

Table 10: Commercial waste arisings and apportionment targets produced by GLA in London Plan (tonnes)

	2016	2021	2026	2031	2036
Arisings	169,000	169,000	169,000	170,000	172,000
Apportionment	131,000	148,000	175,000	176,000	178,000

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 estimates are reliant on surveys undertaken at certain times. The last survey was undertaken in 2009, however it 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, which together with 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 website¹¹.

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 composted/recycled and for residual waste treatment.

3.4-5 The survey reported that the recycling rate for London was 52% for C&I waste. 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. Table 11 and Figure 6 show the overall C&I apportionment broken down into recycling and residual waste, with the proportion which is for recycling increasing from 52% to 70% of the total and the residual decreasing accordingly.

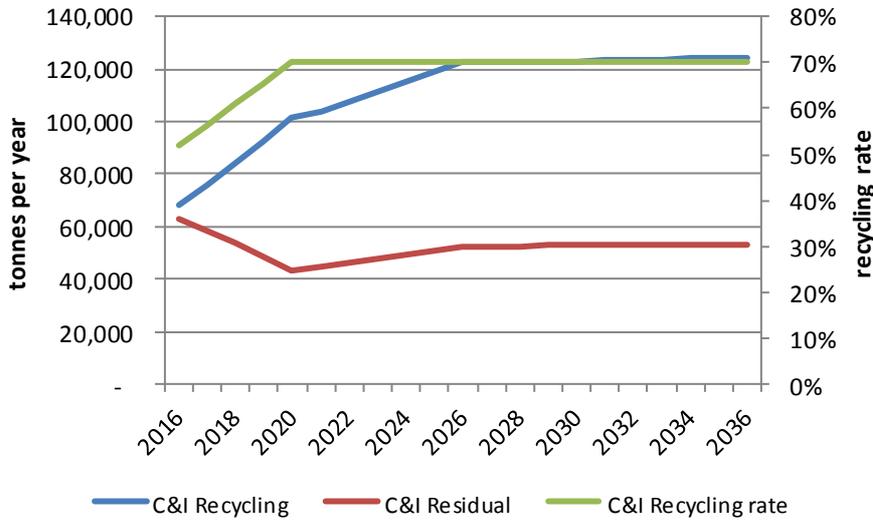
3.4-6 It is the duty of the WPA to plan for waste being managed up the waste hierarchy, and therefore these targets need to be considered whilst developing appropriate planning policy, both in considering the type of new waste management facilities required, but also in ensuring the delivery of new mixed used and/or residential developments.

Table 11: C&I waste apportionment by waste management type (tonnes)

		2016	2021	2026	2031	2036
Apportionment		131,000	148,000	175,000	176,000	178,000
70% recycling	Recycling	68,120	103,600	122,500	123,200	124,600
	Residual	62,880	44,400	52,500	52,800	53,400
	Recycling rate	52%	70%	70%	70%	70%
	Proportion which is residual waste	48%	30%	30%	30%	30%

¹¹ <http://www.webarchive.org.uk/wayback/archive/20151111145752/http://www.london.gov.uk/priorities/planning/london-plan/draft-further-alterations-to-the-london-plan>

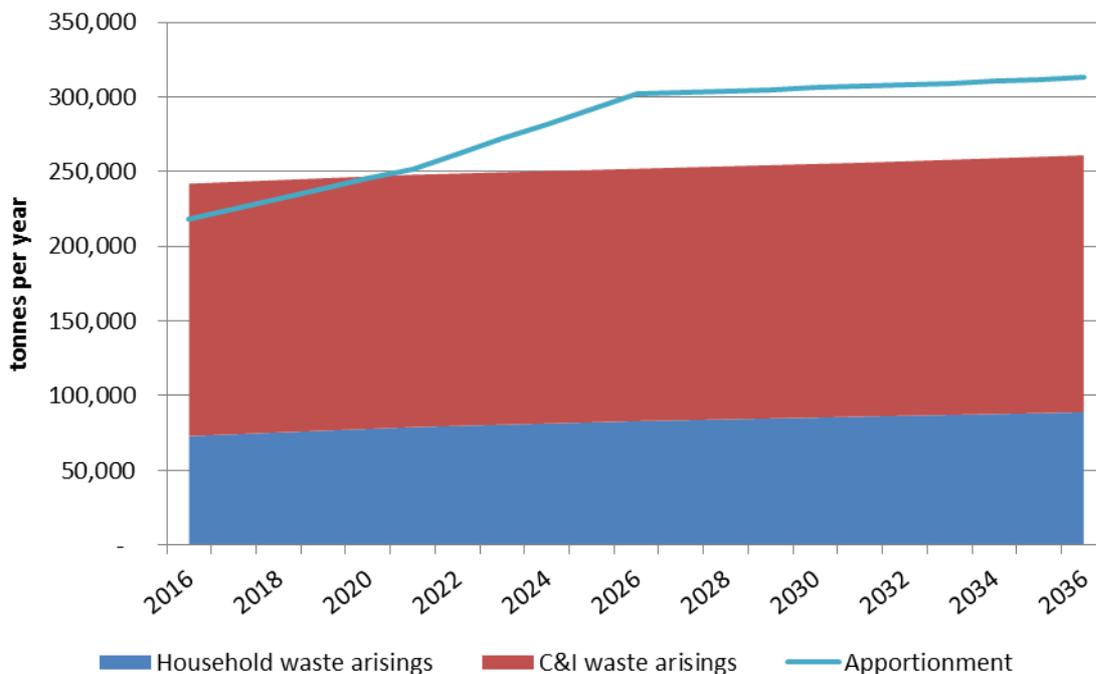
Figure 6: C&I waste forecasts



3.5 Summary of apportioned waste arisings

3.5-1 Household and C&I waste streams are the apportioned waste streams. Figure 7 shows the forecasts produced for the existing London Plan, for both household and C&I waste, fall below the apportionment target, for which LBTH is required to plan capacity for. LBTH is therefore currently required to plan for management of more than 100% of the household and C&I wastes generated within the borough from 2021 onwards, to help London overall meet the goal of net self-sufficiency.

Figure 7: LBTH Household & C&I waste forecasts and apportionment in the current London Plan



Destinations of LBTH’s apportioned waste

3.5-2 Table 12 shows the destination WPAs receiving greater than 1,000 tonnes per year of household and C&I waste¹². Bexley currently receives the greatest quantity, which is LACW being sent to the Energy from Waste (EfW) facility operated by Cory Environmental (see Section 3.3) under their current waste disposal contract. Refer to Appendix 2 for more specific information related to these sites.

Table 12: Destination WPAs of apportioned waste (tonnes)

Local Authority	Waste Planning Authority	Household/ Commercial / Industrial	Proportion of exported waste
Bexley	Bexley	36,120	31%
Havering	East London Waste Authority	23,469	20%
Lewisham	Lewisham	19,570	17%
Waltham Forest	North London Waste Authority	12,760	11%
Essex	Essex	10,207	9%
Newham	East London Waste Authority	8,759	8%
Other WPAs	N/A	4,250	4%
Total		115,136	100%

Source: WDI 2015 and WasteDataFlow (2015/16)

3.5-3 These authorities account for 96% of the exports of household and C&I waste from the LBTH in 2015. According to WDI, only 1.5% of LBTH’s apportioned waste is shown to be managed at sites within the borough itself. However, there is a large tonnage within the WDI database as a whole, for which destination is not identified i.e. ‘WPA non-codeable’. This includes waste being transferred through the Northumberland Wharf transfer station (within LBTH), as the origin for all inputs to this site are coded as ‘WPA non-codeable’. It is known that waste which is taken to the EfW in Bexley is transferred through Northumberland Wharf, and therefore in reality, 32% of LBTH’s waste utilises waste sites within the borough. However, this does not fall under the definition of ‘waste management’ as according to the London Plan (as discussed further in Section 4.3).

3.6 Construction, demolition and excavation waste

What is this waste?

3.6-1 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.

3.6-2 There are multiple large scale infrastructure projects within London, one of which of Crossrail which is likely to have had a significant impact in CD&E waste arisings in LBTH over the last few years, for example through the redevelopment of Whitechapel and Canary Wharf stations.

¹² A commonly used threshold by a number of other London local authorities (including North London Waste Plan and West London Waste Plan), as well as East of England and South East WPAs.

Current and future arisings

3.6-3 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. Projections in the existing London Plan are based on a survey undertaken in 2005 and projections are based on population growth¹³ (see Table 13).

3.6-4 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. 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).

3.6-5 The WDI data shows a marked increase in the CD&E waste generated in 2015. This is thought to be linked to tunnelling work for the Crossrail development, resulting in significant quantities of excavation waste. For this reason, the GLA figure of 248,000 tonnes has been used as a baseline, rather than the 2015 WDI data, because this quantity of waste is thought to be an anomaly, as can be seen in

3.6-6 Figure 8, compared to previous years.

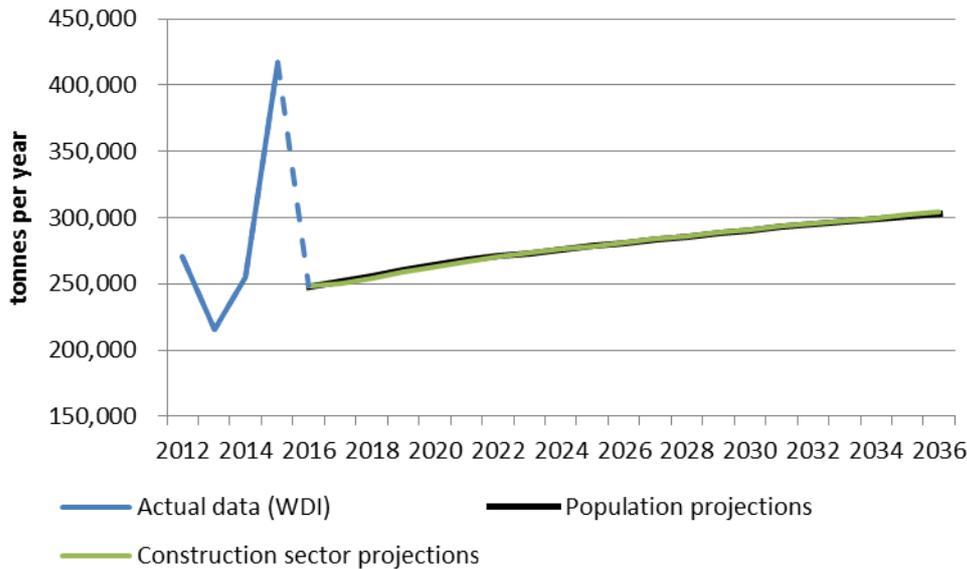
3.6-7 An alternative growth scenario has been applied, to compare against the population growth factor used by the GLA. This has used employment in the construction sector (set to growth by 1% annually in London) as a basis for growth of CD&E waste.

Table 13: CD&E waste forecasts (tonnes)

	2012	2013	2014	2015	2016	2021	2026	2031	2036
WDI data	270,157	215,513	254,720	416,883	N/A	N/A	N/A	N/A	N/A
Existing London Plan evidence base	N/A	N/A	N/A	N/A	248,000	268,000	281,000	293,000	303,000
Construction sector growth					248,000	266,640	281,184	293,506	304,010

¹³ Full assumption found on the GLA website:
<http://www.webarchive.org.uk/wayback/archive/20151111145752/http://www.london.gov.uk/priorities/planning/london-plan/draft-further-alterations-to-the-london-plan>

Figure 8: CD&E waste forecasts



3.6-8 As Figure 8 and Table 13 show, the two scenarios are very similar with regard to the anticipated CD&E waste likely to be generated in the future. However, due to the nature of CD&E waste, in that it is highly influenced by development, a linear pattern is unlikely.

3.6-9 The London Plan targets that London will recycle and re-use 95% of CD&E waste by 2020. WDI returns data does not detail how much CD&E arisings are recycled on site, as this is an exempt activity.

3.6-10 In 2015, WDI shows that 70% of the CD&E arisings were sent to landfill, with the remaining 30% going to sites permitted for transfer and treatment. However the data does not provide the detail as to what proportion of the arisings going to landfill were used for restoration purposes. For example, Crossrail reports restoration of RSPB nature reserve at Pitsea Landfill, and landfill restoration at Rainham and Calvert landfills¹⁴. WDI data from 2015 shows that Pitsea Landfill received 79,000 tonnes and Rainham received 65,000 tonnes in 2015. Calvert did not report any received from LBTH.

Destinations of CD&E waste

3.6-11 Table 14 shows the destination WPAs receiving greater than 5,000 tonnes¹⁵ per year of CD&E waste, based on WDI 2015. Thurrock currently receives the greatest quantity, with Havering and Essex also taking significant quantities. Appendix 2 provides more detail with regards to specific sites being used.

Table 14: Destination WPAs of CD&E waste (tonnes)

Local Authority	Waste Planning Authority	Total	Proportion of exported waste

¹⁴ <http://www.crossrail.co.uk/sustainability/environmental-sustainability/materials-and-waste>

¹⁵ A commonly used threshold by a number of other London local authorities (including North London Waste Plan and West London Waste Plan), as well as East of England and South East WPAs.

Local Authority	Waste Planning Authority	Total	Proportion of exported waste
Thurrock	Thurrock	177,937	43%
Havering	East London Waste Authority	109,780	26%
Essex	Essex	92,155	22%
Greenwich	Greenwich	22,399	5%
Other WPAs		14,612	4%
Total		416,883	100%

Source: Environment Agency Waste Data Interrogator, 2015

3.6-12 WDI shows that 96% of CD&E waste is being sent to WPAs identified in Table 14. Although WDI suggests that none of LBTH’s CD&E waste is being managed within the borough itself, there is a significant quantity of waste labelled as ‘WPA non-codeable’, so it is likely some of LBTH’s is included within this figure.

LBTH relies heavily on WPAs outside of its boundaries to manage its CD&E waste and the duty to co-operate will be key to planning for this waste stream over the plan period.

3.7 Hazardous Waste

3.7-1 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.

3.7-2 The Hazardous Waste Data Interrogator (HWDI) identified 7,650 tonnes of hazardous waste originating in the LBTH in 2015; this tonnage is based on consignment notes completed by waste hauliers. In the previous 2014 data, 13,050 tonnes were identified through HWDI. These records are likely to provide a high level of accuracy, however, not all hazardous waste is subject to consignment notes, and significant tonnages may be delivered directly to waste sites by producers, and would therefore not be captured by consignment notes.

3.7-3 The WDI identifies 1,883 tonnes of hazardous waste originating within the LBTH in 2015, which obviously highlights a discrepancy in the two data sets. However HWDI is likely to be more accurate and therefore the two data sets have been used together, to understand current management and destinations of this waste type. Table 15 below shows the hazardous waste originating in LBTH as shown in HDWI.

Table 15: Hazardous waste originating in LBTH

Waste type	Tonnes
C&D Waste and Asbestos	5,383
Not Otherwise Specified	1,002
Oil and Oil/Water Mixtures	575
Healthcare	294
Municipal and Similar Commercial Wastes	228
Solvents	86
Packaging, Cloths, Filter Materials	34
Waste/Water Treatment and Water Industry	15
MFSU Paints, Varnish, Adhesive and Inks	10
Metal Treatment and Coating Processes	8

Waste type	Tonnes
Inorganic Chemical Processes	4
Photographic Industry	4
Shaping/Treatment of Metals and Plastics	3
Organic Chemical Processes	2
Petrol, Gas and Coal Refining/Treatment	2
Grand Total	7,650

Source: HWDI 2015

3.7-4 It is important to note, that hazardous waste estimates 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.

3.7-5 Hazardous waste requires a range of specialist facilities for treatment and disposal, and given the relatively small quantities being generated, it has been concluded that there is no additional need for new capacity within the LBTH, and as such, opportunities for additional hazardous waste management capacity have not been identified in as part of this study. As most hazardous waste is exported to be managed outside the borough, the duty to co-operate will form an important part of planning for this waste stream.

3.7-6 Table 16 shows the destinations for hazardous waste as identified by both HWDI and WDI. It shows that hazardous waste is treated in facilities as far away as Staffordshire (although HWDI cannot identify the specific facility). The WPAs identified here receive 89% of the exported hazardous waste from LBTH, as identified by HWDI. Appendix 2 provides more details of the sites receiving wastes, as provided in WDI.

Table 16: Destinations of hazardous waste exports from LBTH

Deposit WPA	HWDI	WDI
Staffordshire	2,418	
Newham	1,413	
Surrey	820	
Kent	737	
Derbyshire	362	
Bexley	326	
Essex	225	
Havering	138	
East Sussex	130	
Walsall	127	1,340
Brent	107	
Other WPAs	821	333
Total	7,626	1,798

Source: HWDI and WDI, 2015

3.8 Low level radioactive waste

3.8-1 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.

3.8-2 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”.

3.8-3 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 (4MBq/Kg) of alpha activity, or 12 gigabecquerels per tonne (12MBq/Kg) 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 arising 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.

3.8-4 Categories 3 (LLW) and 4 (VLLW) are those of interest in this Plan. 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.

3.8-5 The latest data available for this this type of waste is the Pollution Inventory Dataset from 2015. However this type of waste is reported in Becquerels, rather than by weight. Over 2.1 MBq was identified to be disposed of by 6 medical establishments within the borough. All the waste identified as being generated was reported to be disposed of either to air (e.g. fume extraction from laboratories) 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. Note that assuming this material was classified as low level radioactive waste at the upper limit of radioactivity for that classification, this quantity would amount to only 0.18-0.53Kg in 2015.

3.9 Agricultural Waste

3.9-1 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).

3.9-2 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'.

3.9-3 Data from WDI shows that less than 1 tonne of waste, coded as from agricultural sources (i.e. EWC 02 01) were generated within the LBTH in 2015.

3.9-4 Given the very small tonnage of this waste, the predominantly urban character of the borough, it is not considered to need specific consideration.

3.10 Wastewater

3.10-1 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 stations¹⁶.

3.10-2 The LBTH'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 & City of London too, serving a total population of 3.5 million people.

3.10-3 Based on population of 295,200, the anticipated mass of dried sludge LBTH produced in 2015 was 7,651 tonnes of dry solids.

3.10-4 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. 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 is looking to close the sludge powered generator and convert the entire process to anaerobic digestion with an alternative thermal disposal process in Asset Management Period (AMP) 7 (2020-2025)¹⁷. This may have future implications for LBTH and it is proposed this is monitored to ascertain whether these changes are likely to alter the capacity that can be treated. However it is not necessary to allocate new land in Tower Hamlets over this Plan period for the management of waste water.

¹⁶ Thames Water: All Wastewater Treatment & Sewerage Projects

¹⁷ An 'Asset Management Period' is the five-year period covered by a water company's business plan. AMP7 is between 2020 and 2025 and is the period for which Thames Water are now planning.

3.11 Summary of current and future waste arisings

3.11-1 All current waste arisings and projections have been summarised below in Table 17. Some key points are:

- CD&E waste is the largest waste stream, made up 51% of the overall waste generated¹⁸ within the LBTH in 2016. WDI reports 70% of this as going to landfill, however it believed (although not quantified) a high proportion of this is being used beneficially, such as for in landfill restoration¹⁹.
- Household waste is approximately 15% of LBTH’s waste and C&I is 34%. Together these total 248,000 tonnes in 2016, and are anticipated to rise to over 300,000 tonnes by 2036. These waste streams are those considered apportioned waste in the GLA’s London Plan, which aims to make London net self-sufficient with regards to waste management of these types of wastes. LBTH has been assigned a higher apportionment target than has been forecasted to arise within the borough. Over 87% of apportioned waste is treated within London, with an additional 9% being treated within Essex WPA.
- Hazardous waste is approximately 2% of the waste generated in LBTH. Due to the specialist nature of these facilities, and the relatively small quantity generated, provision for additional hazardous waste treatment facilities has not been made. Hazardous waste is being sent to locations as far away as Staffordshire, although a number of London and south east England WPAs have been identified to be receiving hazardous waste from LBTH.
- Similarly, no provision for additional facilities has been made for agricultural waste, LLW and wastewater, due to no identified need.

Table 17: Current waste arisings and projections generated in the LBTH (tonnes)

	2016	2021	2026	2031	2036
Household	73,000	79,000	83,000	86,000	89,000
C&I	169,000	169,000	169,000	170,000	172,000
Sub-total household and C&I waste	242,000	248,000	252,000	256,000	261,000
CD&E (average)	248,000	267,320	281,092	293,253	303,505
Total	490,000	515,320	533,092	549,253	564,505
Apportionment	218,000	252,000	302,000	307,000	313,000

Source: Anthesis

¹⁸ This could also be described as CD&E waste “managed through LBTH facilities” as a large quantity of that generated is likely to be recycled and reused on site – this is not quantified in any publically available dataset.

¹⁹ <http://www.crossrail.co.uk/sustainability/environmental-sustainability/materials-and-waste> and WDI 2015

4 Waste management capacity

4.1 Introduction to waste management capacity

4.1-1 This section of the report addresses the waste facilities within LBTH, 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 LBTH’s apportionment targets, the assumptions reported in the GLA London Plan have been used as detailed in Table 18 following, showing London Plan criteria and examples of facility types these could include:

Table 18: Assumptions used in calculating 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 ²⁰	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 meeting a borough’s 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 the level of recycling at individual transfer stations, the outputs of these facilities were examined using data from the Environment Agency’s WDI datasets for years 2013 to 2015, inclusive (with the latter being the latest data set available at the time of writing this report) 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.

²⁰ 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 (i.e. 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.

4.2-3 T4 exempt sites (preparatory treatments, such as, baling, sorting, shredding – see Table 19) 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 LBTH has been provided by the Environment Agency. Those exemptions relevant to this study are summarised in Table 19. 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 guidance²¹) 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 19: Assumed Exemptions relevant to London Apportionment targets

Exemption Description	Maximum Capacity (tpa)	Assumed Capacity (tpa)
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²¹ Defra’s New Methodology to Estimate Waste Generation by the Commercial and Industrial Sector in England, 2014

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
T2 recovering textiles	5,000	2,000
T4 preparatory treatments, such as, baling, sorting, shredding (typical capacity given)	150,000	5,000 (although higher for some materials e.g. 15,000 for paper and cardboard)
T8 mechanical treatment of end of life tyres	3,120	60
T9 recovery of scrap metal	2,500	2,500
T10 sorting mixed waste	520	520
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

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.

4.3 Existing waste facilities and sites in LBTH

4.3-1 Existing operational waste facilities, and former waste sites, were identified in Table 1.2 in the LBTH Waste Evidence Base - Site Identification & Assessment (October 2016) (site IDs 1 to 9). Table 20 presents these sites, and shows that they accept over 225,000 tonnes per year.

4.3-2 The LBTH Waste Evidence Base - Principal Waste Stream Apportionment, Capacity Gap & Provision Assessment (2016), section 4.2 and 4.3, identified 178,000 tonnes per year as qualifying as meeting the London Plan definition of ‘managed waste’. However, this was arrived at using different assumptions to those utilised in this updated evidence base. For example, rather than attributing the activities of facilities operating within LBTH, the LBTH Waste Evidence 2016 considered how waste generated within LBTH was managed and counted this as contributing to the apportionment e.g. 59,000 tonnes was deemed to qualify as was sent to energy recovery facilities within London.

4.3-3 However, this effectively double counts the contribution these EfW facilities are making, and therefore does not help London in meeting the goal of net self-sufficiency.

4.3-4 In addition, 98,000 tonnes was identified as being bulked through Northumberland Wharf transfer station, for onward transport to the Belvedere EfW in London Borough of Bexley. Although bulking of materials for reuse, reprocessing or recycling does qualify, the bulking of waste for energy recovery does not. Northumberland Wharf is an important facility for LBTH and London as a whole – however the capacity cannot

be counted as 'waste management' through the definition in the London Plan. The site will continue to be safeguarded as a wharf and a waste site.

4.3-5 Assumptions used in this evidence base were discussed and agreed in principle in a meeting with the GLA and EA (see Appendix 3).

4.3-6 Only two of the currently operational facilities are deemed to make a contribution towards LBTH's apportionment target. All of the facilities are transfer stations, however data from WDI (2013-2015) has been used to identify a proportion of the outputs which are recycled (as described in section 4.2-2) from two of the sites.

4.3-7 McGrath House site on Hepscoot Road had previously been identified as not contributing to the apportionment. However, taking into account sorting for recycling, WDI data identifies that a small proportion of the site's activities can be counted as contributing towards LBTH's apportionment target. The site is located within the LLDC and within a site allocation (SA1.3) area designated for mixed use development including employment, residential, creative and cultural uses and a linear park. Current plans are that operations at this facility will be moved to a site within another WPA within London and Tower Hamlets will therefore lose this capacity during the plan period.

4.3-8 Ailsa Street is currently being used as a vehicle depot by Veolia and is therefore not currently an operational waste site. However, WDI shows that as recently as 2012, the whole site was used as a transfer station and received 32,160 tonnes. This site will continue to be safeguarded for waste use, and it is estimated that between 23,850 – 34,450 tpa could be managed on this site²².

4.3-9 More details are available on these sites in Appendix 4. Appendix 5 provides a summary of the correspondence with site owners, leaseholders and where relevant, the LLDC, for each of the sites, which has been used to help reach a conclusion for sites designation and identification.

4.3-10 There are no pending facilities in the planning system likely to deliver additional local capacity in the forecast period.

²² Assumed each site's throughput could range between 45,000 and 65,000 tonnes per hectare per year. See Appendix 7.

Table 20: Identified waste sites in LBTH

Site ID	Site	Area (ha)	Status / WPA	Waste type	Operational Capacity (based on maximum over last 3 years) - tonnes	Current contribution towards apportionment	Conclusions with regards to site
1	Clifford House, Towcester Road, E3 3ND	0.46	Operational transfer station / LBTH	Hazardous	418	0	The portion of the site involved in waste management i.e. asbestos (0.0144 ha) to be safeguarded.
2	Northumberland Wharf, Yabsley Street, E14 9RG	0.88	Operational transfer station (safeguarded wharf) / LBTH	Household & C&I (specifically residual waste)	107,500	0	Will continue to operate under safeguarded wharf designation.
			Operational CA site (0.2 ha) / LBTH	Household	3,743	2,654	
3	McGrath House, Hepscott Road, E9 5HH	2.8	Operational transfer station / LLDC	Household & C&I, CD&E	73,064*	10,539	LBTH are unable to safeguard the site itself, but will liaise with LLDC to ensure this site remains safeguarded until the planning application has been accepted and it has been demonstrated that replacement capacity will be provided. LBTH will lobby GLA to take account of this loss of waste capacity from LBTH either through a reduction in apportionment or brokering a deal with LBTH and other LB.
4	455 Wick Lane, J B Riney, E3 2TB	0.47	Operational transfer station / LLDC	CD&E	36,958	0	LBTH are unable to safeguard the site itself but will list this site in the policy as an existing waste site which should be safeguarded by LLDC. Note that only 0.027 ha of the site is used for waste purposes ancillary to the civil engineering business.
5	Blackwall Marine Diesel Ltd, Unit 2 Ailsa Street,	0.04	Operational vehicle depollution facility,	Vehicles	No data	0	This site is currently subject to a live planning application for housing. If planning

Site ID	Site	Area (ha)	Status / WPA	Waste type	Operational Capacity (based on maximum over last 3 years) - tonnes	Current contribution towards apportionment	Conclusions with regards to site
	E14 OLE		LBTH				permission is granted it will be removed from the list.
6	DR Plant Solutions, Unit 3 Ailsa Street, E14 ONE	0.1	Operational treatment & transfer / LBTH	CD&E	4,155	0	This site is currently subject to a live planning application for housing. If planning permission is granted it will be removed from the list.
8	40 Gillender Street, E14 6RH (referred to as Ailsa Street in the report)	0.53	Safeguarded former waste site / LBTH	N/A	N/A	Potential contribution 23,850 – 34,450 ²³	No longer has an environmental permit and not currently operating as a waste site. However, Veolia suggest that they may wish to bring it back into use as a transfer station and that was an operational waste facility in recent past (2012).
9	Unit 6, Stour Road, eE 2NT	0.03	Former waste site / LLDC	N/A	N/A	0	Site no longer suitable for waste use as surrounding area being used for activities which potentially conflict with waste activities. Remove from list.
Total					225,838	Operational: 13,192	Including potential: 37,043 – 47,643)

Source: WDI 2015, Source: WDI 2015, Waste Evidence base (Site Identification & Assessment 2016, Table 1.2).

.Note: Site ID 7 (Iceland Wharf) is operating under an exemption and is discussed further in section 4.6.

*31% of this is household and C&I, 69% is CD&E waste

²³ Assumed each site's throughput could range between 45,000 and 65,000 tonnes per hectare per year. See Appendix 7.

4.4 Existing sites operating under exemptions in LBTH

4.4-1 According to the EA, there are a number of sites which manage waste under an exemption, as opposed to requiring full permits. Table 21 presents the information regarding the relevant sites which are considered to count towards meeting the GLA apportionment target (see Appendix 6 for full details). These have been determined as described in section 4.2.

4.4-2 The total approximate waste treatment capacity operating under exemptions is 72,300 tpa. The majority of this is the preparation of dry recyclates for onward transport direct to reprocessors and recovery of scrap metal.

Table 21: Sites operating under exemptions in LBTH

Exemption	No. of sites operating under this exemption type	Total capacity (tpa)
T1	1	2,400
T10	2	1,040
T4	5	55,000
T8	1	60
T9	6	15,000
Total		72,300
Total (excluding Ailsa St sites)		49,220

Source: EA Register of waste exemptions

4.4-3 Five of these exemptions are located on Ailsa Street. Some parts of Ailsa Street are part of the Poplar Riverside Housing Zone and likely to contribute to the Borough's 15 year housing land supply. Therefore it is unclear whether these sites will be able to continue their current operations, and therefore the capacity these currently provide towards meeting the apportionment has been discounted in future estimates.

4.5 Existing capacity gaps

Appportioned waste

4.5-1 It has been identified that LBTH currently has existing operational waste management capacity of 85,493 tonnes, through its permitted and exempt sites, which can count towards meeting the apportionment. However, this is likely to decrease to 49,374 tonnes per year, if both the McGrath facility on Hepscoot Road, and the waste operations currently being undertaken through Ailsa Road exemptions are lost to redevelopment. These reductions in the existing capacity have been assumed to have been made by 2019, to allow for analysis of the capacity gap.

4.5-2 As Figure 9 shows, the capacity gap for appportioned waste is likely to increase from around 98,057-108,657 tpa in 2018 to 226,676-237,276 tpa by 2036. Therefore the land requirement for additional sites to meet the 2036 apportionment targets is between 3.49 and 5.27 ha based on a higher (65,000tpa) and lower (45,000tpa) range of throughput per hectare.

Figure 9: Apportioned waste capacity gap



Table 22: Apportionment capacity gap

	2016	2021	2026	2031	2036
Apportionment	218,000	252,000	302,000	307,000	313,000
LBTH permitted waste sites	2,654	2,654	2,654	2,654	2,654
LLDC permitted waste sites	10,539	0	0	0	0
Waste sites operating under exemptions	72,300	49,220	49,220	49,220	49,220
LBTH safeguarded waste sites (low)	23,850	23,850	23,850	23,850	23,850
Sub-total capacity (low)	109,343	75,724	75,724	75,724	75,724
Capacity gap (low)	108,657	176,276	226,276	231,276	237,276
LBTH safeguarded waste sites (high) - additional	10,600	10,600	10,600	10,600	10,600
Sub-total capacity (high)	119,943	86,324	86,324	86,324	86,324
Capacity gap (high)	98,057	165,676	215,676	220,676	226,676

Note: High and low refer to the throughput assumption being used i.e. high is 65,000 tph, low is 45,000 tph

CD&E waste

4.5-3 As Table 20 shows, there are three facilities currently acting as transfer stations for CD&E waste. These are:

- McGrath House, Hepscott Road: operational capacity (for CD&E waste) of 50,227 tonnes per year;
- 455 Wick Lane, J B Riney: operational capacity of 36,958 tonnes per year; and
- DR Plant Solutions, Unit 3 Ailsa Street: operational capacity of 4,155 tonnes per year.

4.5-4 Therefore the total current transfer capacity for CD&E waste is 91,340 tonnes per year. However, given the loss of the McGrath site on Hepscott Road (see paragraph 4.3-7) and DR Plant Solutions (see Table 20), this will reduce to 36,985 tonnes per year.

4.5-5 Table 23 shows that the capacity gap for transfer is likely to be approximately 266,000 tonnes per year by 2036. There is no existing capacity which is could be considered ‘treatment’ or the final destination for this waste. However output data from some of these sites suggests that there is a level of sorting undertaken which leads to some materials being sent directly to reprocessors for recovery operations.

Table 23: Capacity gap for CD&E waste

	2016	2021	2026	2031	2036
CD&E transfer capacity	91,340	36,985	36,985	36,985	36,985
CD&E gap (arisings growth pop*)	156,660	231,015	244,015	256,015	266,015
CD&E gap (arisings construction sector employment growth**)	156,660	229,655	244,199	256,521	267,025

Source: Anthesis

*Gap calculated using the GLA growth population projections

** Gap calculated using the GLA construction sector employment growth projections

4.5-6 Only DR Plant Solutions is within the LBTH boundary, with the other two being in within LLDC. 455 Wick Lane is the only site currently not subject to redevelopment. LBTH are unable to safeguard the site itself but will list this site in the policy as an existing waste site which should be safeguarded by LLDC, but only take into account that area (0.027 ha) of the site that is currently used for waste purposes.

4.5-7 Potential additional areas of search have been identified in section 4.7, which may be appropriate to receive CD&E waste and enhance capacity (although preference will be given to facilities that treat apportioned waste).

Hazardous waste

4.5-8 There is one hazardous waste transfer station (Clifford House, Towcester Road). The permit allows them to accept up to 5 tonnes of asbestos a day. However WDI data from the last three years has been used to calculate an operational capacity of 418 tpa. It should be noted that the operators have advised that the transfer station is ancillary to the main business and only deals with hazardous waste in relation to the business.

4.5-9 This is compared to existing arisings of 7,650 tonnes. Therefore there is a significant gap. However given the specialist nature of hazardous waste facilities, and given the relatively small quantities being generated (2% of total waste), it has been concluded that there is no additional need for new capacity within the LBTH, and as such, opportunities for additional hazardous waste management capacity have not been identified in as part of this study.

4.6 Potential to meet the apportionment target

4.6-1 The contribution the existing waste sites make to the apportionment is summarised in section 4.2.

4.6-2 Although it is possible some of these activities could be intensified, or changed to manage household and C&I waste (apportioned waste), there is still a requirement for transfer stations within London, to treat a range of wastes, and as there is still a need and market, it is unlikely these facilities would change their current operations. Therefore all existing sites, taking into account the loss of some sites due to redevelopment, are

not expected to intensify to help meet the apportionment. Therefore new areas of search have been identified to help meet the gap in meeting the apportionment.

4.6-3 LBTH Waste Evidence Base – Site Identification & Assessment (2016) identified a number of areas of search (section 1.13) which could be suitable for waste management purposes, but the whole area is not suitable for allocating for waste uses alone. Table 24 provides a summary and the reasoning behind identifying these areas of search in LBTH policies (see Table 1.8 of LBTH Waste Evidence Base – Site identification & Assessment 2016). Two of the areas of search are within LBTH and one is within LLDC. LBTH has liaised with the LLDC to confirm that waste uses are appropriate for this area of search. Table 24 and Appendix 5 provide more details on these sites.

4.6-4 Two specific sites within the Fish Island SIL (within LLDC) have also been identified. However, due to issues raised in correspondence with the LLDC these have not been allocated as specific sites in the policies. Appendix 5 provide more details on these sites. Similarly, Iceland Wharf was identified as a site suitable for allocation in the LBTH Waste Evidence Base – Site Identification & Assessment (2016 – Table 1.8) but has been discounted in discussion with the LLDC. Iceland Wharf is currently within an OIL (Other Industrial Location) and LBTH should seek LLDC to identify waste uses as suitable for sites of this designation.

4.6-5 For the areas of search, an assumption of how much of the area may become available within the Local Plan period has been made. This is based on GLA vacancy and business turnover rates²⁴ and estimates that 5.28 hectares of land could come forward over the plan period.

4.6-6 The additional 5.28 hectares will be able to manage between 237,600 – 343,200 tpa. Therefore it is estimated that LBTH has assigned sufficient land to meet its apportionment target, as the estimated capacity gap in 2036 is 237,276 tonnes (assuming all identified sites and areas manage the lower throughput estimate of 45,000 tpa).

4.6-7 Figure 10 shows that with these additional areas of search, LBTH will have identified sufficient land in the borough to meet the London Plan apportionment targets.

²⁴ 5% of industrial land is vacant at any one time, and that 20% of the remaining site will become available within the Plan period.

Table 24: Areas of search

Site	Status	Size of site (ha)	Potential contribution (tpa) ²⁵	Suitability of site for waste management purposes
The Highway (Core)– Local Industrial Location	Industrial Estate – Multiple Uses (LBTH)	2.71 (0.65 ha could become available over plan period)	29,250 – 42,250	<p>The estate is considered to be suitable to be identified as an ‘area of search’ for a proposed waste management facility, rather than allocation as a specific site. The estate has a number of units and buildings which could be suitable to accommodate a proposed waste management facility with access direct onto the A1203.</p> <p>Although the estate includes a number of residential properties, a hotel and is adjacent to further residential properties and the Shadwell Centre, it is considered that a waste management facility could be accommodated onsite subject to careful design and satisfactory mitigation of any amenity issues at the planning application stage.</p> <p>The estate also has opportunities for co-location and the potential to develop a synergy with the Cemex Stepney Plant located within the estate.</p> <p>Any proposed waste management facility would be required to take into account the heritage designations located within the estate and the walking routes adjacent to the estate. A Transport Assessment would also be required.</p> <p>However, a proposed waste management facility at the estate may be considered out of character when compared to the existing uses on the site and within the locality although a lower intensity facility such as a refurbishment and reuse social enterprise might present a good fit.</p> <p>Most suitable waste facility: Reuse / refurbishment facility.</p>
Empson St–Strategic Industrial Location	Industrial Estate – Multiple Uses (LBTH)	10.07 (2.42ha could become available over plan period)	108,900 - 157,300	<p>The estate is considered to be suitable to be identified as an ‘area of search’ for a proposed waste management facility rather than allocation as a specific site. The estate has a number of units and buildings which would be suitable to accommodate a proposed waste management facility. Vehicles would have to</p>

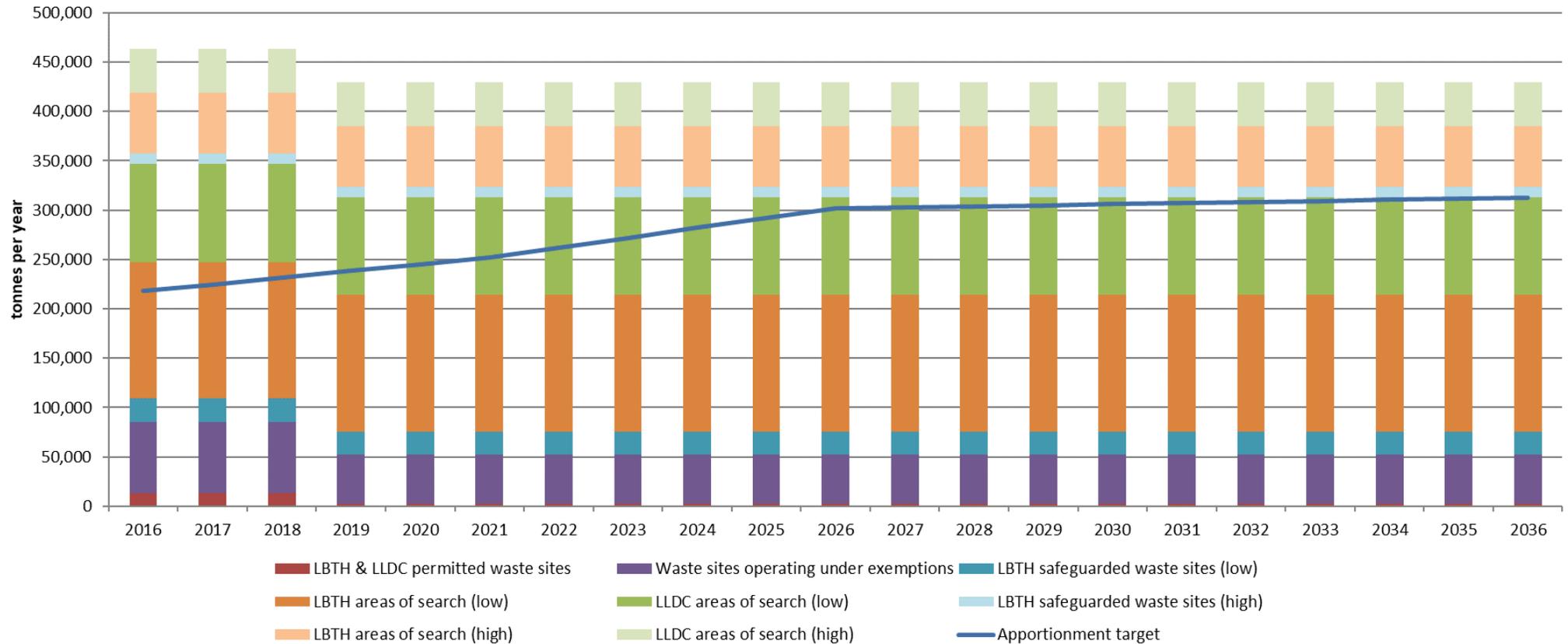
²⁵ Assumed each site’s throughput could range between 45,000 and 65,000 tonnes per hectare per year. See Appendix 7.

Site	Status	Size of site (ha)	Potential contribution (tpa) ²⁵	Suitability of site for waste management purposes
				<p>travel along the B140. However, HGVs and waste management vehicles already leave the site and use this route to join the A12.</p> <p>Although the estate is adjacent to residential properties it is considered that a proposed waste management facility could be accommodated onsite subject to careful design and satisfactory mitigation of any amenity issues at the planning application stage.</p> <p>The estate also has the potential to develop a synergy with the Mix It concrete plant and/or the existing waste management facility (Clifford House, Towcester Road) which are located within the site.</p> <p>Any future planning applications will need to be accompanied by a FRA, a Transport Assessment and assess the potential impacts on the Limehouse Cut SINC, Limehouse Cut Conservation Area and the walking routes within and out of the site.</p> <p>Most suitable waste facility: Recycling, composting, waste treatment facility (including thermal treatment, anaerobic digestion, pyrolysis / gasification, mechanical biological treatment)..</p>
Fish Island –Fish Island Strategic Industrial Location B1a2	Industrial Estate – Multiple Uses (LLDC)	9.21 (2.21ha could become available over plan lifetime)	99,450 - 143,650	<p>The estate is considered to be suitable to be identified as an ‘area of search’ for a proposed waste management facility rather than allocation as a specific site. The estate has a number of units and buildings which would be suitable as a proposed waste management facility and has direct access on to the A12.</p> <p>Although the estate is adjacent to residential properties it is considered that a proposed waste management facility could be accommodated onsite subject to careful design and satisfactory mitigation of any amenity issues at the planning application stage.</p> <p>The estate already contains one waste management facility (455 Wick Lane) and is adjacent to another (Iceland Wharf). The estate also contains a facility which is used for concrete batching, aggregates and the importation of concrete blocks (Bow Midland Depot). The location of these facilities within the estate provides opportunities for co-location and the possibility of synergies being created between the existing uses and/or a proposed waste management facility.</p> <p>The estate also contains a site (Bow Midland Depot) which has an existing</p>

Site	Status	Size of site (ha)	Potential contribution (tpa) ²⁵	Suitability of site for waste management purposes
				<p>operational railhead. However, the possibility of using the railhead is uncertain as discussions with the operator will need to be undertaken.</p> <p>Any future planning applications will need to be accompanied by a FRA, a Transport Assessment and assess the potential impacts on the Lea Valley SINC, Archaeological Priority Area and walking routes adjacent to the site.</p> <p>Most suitable waste facility: Recycling, composting, waste treatment facility (including thermal treatment, anaerobic digestion, pyrolysis / gasification, mechanical biological treatment) or waste transfer station.</p>
Potential from areas of search		5.28	237,600 – 343,200	

Source: LBTH Waste Evidence Base - Site Identification & Assessment (October 2016) & Anthesis

Figure 10: Potential to meet apportionment



Source: Anthesis

4.7 Potential Options for New Developments

4.7-1 The general move to adopt the requirements of a circular economy²⁶, reflected in EU Circular Economy legislation adopted in December 2015, and supported by Defra and the UK government, includes moves to further increase recycling rates for both local authorities and businesses (through packaging recycling targets), and promote re-use and industrial symbiosis to minimise discarded materials going into the waste stream. The London Waste & Recycling Board publication (LWARB) “Towards a Circular Economy” also stresses the importance of the circular economy in London to reduce waste and drive better resource productivity. The report concludes that “by adopting a circular economy approach, London can unite business interests with the city’s wider development needs. This will help London remain globally competitive”.

4.7-2 With LBTH needing to achieve significant GLA recycling targets, any new housing or commercial developments will increase the amount of waste produced in the borough and therefore increase the load on the borough’s waste collection and recycling service. Any steps which developers can take to mitigate this impact, by at least designing for the collection and storage of the waste their development produces, but also potentially by installing waste management capacity to sort recyclates, or treat food waste or residual waste, will mitigate this impact and potentially assist in LBTH achieving capacity to deal with the waste apportioned to it under the London Plan.

4.7-3 The London Plan itself includes relevant policies for both the construction and operational phases of new development:

- Developers should maximise the use of existing resources and materials and minimise waste generated during the demolition and construction process through the implementation of the waste hierarchy (LP policy 5.3, 5.20); and
- The design of development should meet borough requirements for the size and location of recycling, composting and refuse storage and its removal (LP policy 5.3, 5.17).

4.7-4 Moreover, the LWARB report “Waste Management Planning Advice for New Flatted Properties”, December 2014 examined options for such developments and produced a number of recommendations including:

- All developers need to consider recycling and waste management systems at the early stage of design and planning;
- Planning Policy officers need to liaise with Development Management officers to help ensure policies are implementable and can be applied as envisaged; and
- Authorities need clear planning policy that provides certainty over waste management requirements for consideration by developers and has teeth in determining applications.

The report concludes that even basic consideration of storage and collection systems in design will be helpful e.g. the environment in which containers are placed, internal storage, ease of access and participation etc. It

²⁶ “A circular economy is an alternative to a traditional linear economy (make, use, dispose) in which we keep resources in use for as long as possible, extract the maximum value from them whilst in use, then recover and regenerate products and materials at the end of each service life” (WRAP)

also proposes that developers, architects, managing agents, planners and waste managers need to look at the development holistically and consider waste as a fourth utility.

4.7-5 There is some uptake of these ideas in planning policy and practise in other parts of London. A selection of relevant examples is given in Table 25 following:

Table 25: Examples of policies developed by other London boroughs to encourage the use of waste management solutions in new developments

London Borough	Relevant Policy or Guidance
City of London	<p>Policy DM 17.1 Provision for waste in development schemes</p> <ol style="list-style-type: none"> 1. Waste facilities must be integrated into the design of buildings, wherever feasible, and allow for the separate storage and collection of recyclable materials, including compostable material. 2. On-site waste management, through techniques such as recycle sorting or energy recovery, which minimises the need for waste transfer, should be incorporated wherever possible. <p>(City of London local plan 2015)</p>
Enfield	<p>All new development should:</p> <ol style="list-style-type: none"> a. Make appropriate provision (within individual units and as part of the overall development as appropriate) for waste storage, sorting and recycling, and adequate access for waste collection; and b. Encourage non waste related development to provide on-site solutions for treating/managing waste generated by the development (i.e. composting, dedicated AD plants for food waste). <p>(Enfield Council Enfield's Development Management Document Adopted (November 2014))</p>
Southwark	<p>Enough space should be provided on-site to securely and safely store waste and recycling bins. Space for composting organic waste should be provided in residential development. This should be designed as part of private or communal green spaces on a site. This should be located in an easily accessible location that is well drained and receives as much sun as possible. Space should be provided inside buildings where occupants can separate out waste into separate containers for recyclables, organic waste and non-recyclables.</p> <p>(Southwark Council Feb 2009 Sustainable design and construction)</p> <p>2.4 Organic waste options within purpose built flats</p> <p>Purpose built flats should consider on site in-vessel food waste digesters storage space including maturing areas; storage areas for communal food waste containers; storage space inside kitchens for seven litre containers; food waste disposal units.</p> <p>(Waste management guidance notes for residential developments Southwark Council Feb 2014)</p>
City of Westminster	<p>Policy S44 Sustainable Waste Management</p> <p>In order to ensure sufficient opportunities for the provision of waste management facilities in appropriate locations, in accordance with the London Plan waste apportionment, the council will; Require major new development to provide on-site recycling and composting waste management facilities, except where the council considers that it is inappropriate or unfeasible to do so. In such cases, new facilities will be provided off-site and may include shared provision with another development or an existing waste facility in the vicinity that has capacity, except where the council considers that it is inappropriate or unfeasible to do so. Where it is not possible to provide either onsite, off-site or shared waste facilities, a payment in lieu will be required to a Waste Management Fund to allow the council to provide suitable facilities in the vicinity. (City of Westminster Local Plan Nov 2016)</p>

London Borough	Relevant Policy or Guidance
Wandsworth	<p>5.5 Any practical proposals to reduce the quantity of waste requiring collection will normally be welcomed. In larger developments this could potentially include on-site energy recovery from waste. (Wandsworth Local Plan Supplementary Planning Document Refuse and recyclables in developments Feb 2014)</p>
Newham	<p>Section 7 Alternative Waste Management Technologies The London Borough of Newham will expect to see a detailed strategy/plan for all new development sites, setting out how it is proposed to manage household and/or commercial waste being generated across the entirety of the development, in accordance with the guidelines in this document. Many of the problems associated with waste collection and storage for large developments can be negated through the use of alternative on-site technologies to treat waste generated by the occupants. The use of such technologies can significantly reduce the need to allocate as much space for waste storage, minimise the noise and disruption caused when waste collections are undertaken, and can help new developments to achieve a higher environmental performance standard. The London Borough of Newham strongly recommends that alternative waste technologies are investigated for all new large-scale developments. Some examples of technologies that are already in use elsewhere in London, the UK and abroad are given below, and developers may also wish to refer to the guidance given in Section 5 in relation to alternative on-site waste storage systems. (Waste Management Guidelines for Architects and Property Developers Newham Council)</p>

Source: Anthesis

4.7-6 Note that although the LWaRB report suggests “Authorities need clear planning policy that provides certainty over waste management requirements for consideration by developers and has teeth in determining applications” this is challenging, and most boroughs suggest the inclusion of waste management technologies in new developments using language such as “should be incorporated wherever possible”, “should consider”, “strongly recommends”, “encourage”. The most prescriptive is the City of Westminster in stating that “the council will require major new development to provide on-site recycling and composting waste management facilities, except where the council considers that it is inappropriate or unfeasible to do so.”

4.7-7 The LBTH evidence base document “Review of Options For Efficiently Managing Waste Collection In High Density Development” (October 2016) provides detail of a number of suitable collection and storage systems for new developments. This includes:

- Underground containers (at a cost of £5,500-£6,000/5m³ unit – with manufacturers claiming 80 containers collected twice a week could serve 10,000 residents);
- Vacuum systems (at an estimated cost of £1.25m for 9,000 apartments); and
- On Site Compaction Containers (£10,000-£16,000 for 25m³ container).

These and other suitable systems are relatively straight forward to deliver, and should be considered for inclusion in suitable future developments in the borough.

4.7-8 Larger scale waste management options could be used to deal with waste on an area basis, or for a collection of buildings. Table 26 gives examples of smaller scale waste management equipment commercially available, with throughput, capital cost and physical footprint. Also calculated are the number of households needed to fill the capacity of such equipment, based upon national statistics for average waste produced per household.

Table 26: Footprint and capital cost of examples of small scale waste management processing options

Waste Type	Technology Type	Capacity (tpa)	Costs	Physical Footprint	No of households ²⁷
Food Waste	Bio-digester	65 per unit	Capital cost £12,500, running costs typical unit £2,500pa	1m x 1m x 1.3m(h)	833
	In Vessel Composting	7 – 2,200	£11,500 (450Kg/week) capital cost plus £1,100pa utilities and maintenance to £56,000 capital cost (4,000Kg/week) £40 per week utilities £3,375pa utilities and maintenance	Typical unit 4m x 1m x 1.9m(h)	90-28,000
	Small-scale AD	200 – 1,000	Capital cost £150k-£500k depending upon throughput	11m x16m to 11m x28m	2,560-12,000
	Micro -AD	182.5-1,095	£275,000	120m ²	600 in report ²⁸
General Waste	Pyrolysis	2,000 – 10,000	Typical capital cost of £1m for a 2,000 tpa solution. Consumables estimated as £35k per annum, maintenance £50-£60k per annum.	12m x 8m x 4m(h)	3,600-18,000

Source: Anthesis & LBTH Waste Evidence Base (October 2016)

4.7-9 As shown, for some technologies development size will need to be significant to fill the equipment and ensure viability. There is also the question in delivering waste management capacity of this type into a large development, how the installed equipment will be run on a long term basis, and how will it integrate with borough waste strategy and collection policy.

4.7-10 It is therefore recommended that LBTH include in their relevant policies:

- A requirement for new developments to include provision for the collection and storage of segregated waste (residual, organic and recyclates) for collection;
- A requirement for new residential developments to incorporate on-site material collection systems that are compatible with our waste collection services e.g. compactors, underground storage containers and automated waste collection systems, to reduce the burden on waste collection services; and
- A recommendation to explore the viability and deliverability of including recycle sorting, food waste treatment (e.g. AD), residual waste treatment (e.g. pyrolysis) to get value from the waste generated in their development (and potentially neighbouring developments) and to reduce the loading on LBTH waste collection services.

²⁷ Based upon England waste statistics food waste 78Kg/household/yr (WRAP, 2016); Residual waste 550Kg/household/year Defra summary of waste statistics, ONS No of Households.

²⁸ Review of Options For Efficiently Managing Waste Collection In High Density Development, London Borough of Tower Hamlets, BPP Consulting, October 2016

5 Conclusions & Recommendations

5.1 Overall Conclusions

5.1-1 There are significant gaps in existing waste management capacity for apportioned waste (household and C&I wastes), CD&E and hazardous wastes in LBTH. The existing facilities within the borough are predominantly waste transfer stations, which although are not classed as waste management, and cannot count towards the apportionment (except in circumstances where separation of recyclates occurs), are still important waste infrastructure and are safeguarded as such.

5.1-2 Through the identification of three additional areas of search, sufficient land has been identified in the borough which is suitable for new waste facilities to meet the London Plan apportionment target (i.e. household and C&I wastes) by 2036.

5.1-3 CD&E: the borough has some existing capacity but will rely on new facilities coming forward within identified areas and on facilities elsewhere in London and the wider south east region, and the duty to cooperate will apply.

5.1-4 Hazardous: the borough has some existing capacity, however it is considered unlikely that new facilities will come forward within identified sites and areas given their specialist nature and wider-than-local catchment area. Therefore, the borough will continue to rely on hazardous waste facilities outside the borough and the duty to cooperate will apply.

5.1-5 The WPAs receiving waste from LBTH above the identified thresholds²⁹ are identified in Table 27 below (quantities shown in Table 12, Table 14 and Table 16). The outcomes of the engagement undertaken as part of this evidence base are summarised in Appendix 8.

Table 27: Major Recipients of LBTH waste (by WPA)

Construction & Demolition Wastes		Local Authority and Commercial & Industrial wastes		Hazardous wastes	
Thurrock	177,937	Bexley	36,120	Staffordshire	2,418
Havering (East London Waste Authority)	109,780	Havering (East London Waste Authority)	23,469	Newham (East London Waste Authority)	1,413
Essex	92,155	Lewisham	19,570	Walsall	1,340
Greenwich	22,399	Waltham Forest (North London Waste Authority)	12,760	Surrey	820
		Essex	10,207	Kent	737
		Newham (East London Waste Authority)	8,759	Derbyshire	362
				Derbyshire	362
				Bexley	326

²⁹ Above 5,000 tpa of CD&E waste, 1,000 tpa of apportioned waste or over 100 tpa of hazardous wastes.

Construction & Demolition Wastes		Local Authority and Commercial & Industrial wastes		Hazardous wastes	
				Essex	225
				Havering (East London Waste Authority)	138
				East Sussex	130
				Brent (West London Waste Authority)	107

Source: Anthesis

5.1-6 No need for facilities for management of agricultural waste, LLW and waste water has been identified. Agricultural waste and LLW are being generated in very small quantities and therefore do not require specific consideration within the Local Plan. Wastewater is being managed by Thames Water and there is currently sufficient capacity to account for population growth in the catchment area up to 2035. They are likely to implement some technology changes to the existing infrastructure so it suggested that LBTH continue to monitor this to identify any implications for the wastewater capacity.

5.2 Recommendations

5.2-1 LBTH should safeguard existing waste sites and identify land suitable for new waste facilities (areas of search) in policies in the Local Plan. LBTH should work closely with LLDC to ensure that existing waste sites and land suitable for new waste facilities are similarly identified in their Local Plan.

5.2-2 LBTH should continue to engage with LLDC to ensure that LBTH can meet its apportionment targets. This is especially important, as a significant proportion of land identified as suitable for waste management falls with the LLDC planning authority.

5.2-3 LBTH should continue to engage with LLDC to ensure that LBTH can meet its apportionment targets. This is especially important, as a significant proportion of land identified as suitable for waste management falls with the LLDC planning authority. It should be noted that paragraph 182 of the NPPF, says “the plan should be prepared based on a strategy which seeks to meet objectively assessed development and infrastructure requirements, including unmet requirements from neighbouring authorities where it is reasonable to do so and consistent with achieving sustainable development.” The London Plan also states that “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.” The LLDC will be tested on this basis.

5.2-4 In both LBTH and LLDC’s policies, waste management activity should be directed towards the areas of search identified in this evidence base, and actively encourage this type of development on these sites. Any new waste management facilities which come forward should be assessed against policies in the development plan.

5.2-5 As LBTH will continue to depend upon facilities in other WPA areas to deal with some of its waste throughout the plan period, it needs to continue to co-operate with the authorities identified in Table 27 to identify challenges or barriers to continuing with this waste movement and processing in the future. However it should be noted that the destinations of waste changes regularly as it is a competitive market, and therefore this list of authorities for engagement should be reviewed regularly through annual monitoring reports.

5.2-6 Whilst this evidence base works towards LBTH meeting their obligations under the current London Plan requirements, the GLA are currently reviewing this policy, and therefore it is recommended that any changes to the London Plan are monitored to assess whether there are any implications for LBTH, in particular whether the apportionment targets have been altered.

5.2-7 Policies regarding new developments should include a requirement for the appropriate provision for the storage and collection of segregated waste (residual, organics and dry recyclates), to help boost recycling rates. In the case of large-scale development, developers should be required to produce a recycling and waste management strategy with their planning application.

5.2-8 Policies should include a requirement for all large-scale residential developments (and some small-scale as well, where considered practical) to include more innovative waste collection mechanisms, such as compactors, underground storage containers and/or automated waste collection systems such as vacuum systems, to help reduce vehicle movements and not increase the burden on waste collection services. Rather than being overly prescriptive by defining a specific technology or system, developers should be asked to engage in discussion with planning officers and the waste management team to ensure any systems are compatible with existing collection regimes.

5.2-9 Policies could include a recommendation to include recyclate sorting, food waste treatment or residual waste treatment, to potentially get value from the waste in their development (and potentially neighbouring developments) and reduce the loading on LBTH waste collection services. Further work would be required on the viability and management implications of such schemes.

Appendix 1 Regulation 18 consultation responses

Consultee	Representation	How this has been addressed
North London Waste Plan	<p>Our comments in this letter relate to the waste management section of Tower Hamlets’ Draft Local Plan (Policy ES8: Waste Management with paras 4.9.9.1-12 and Policy ES9: Waste Management in Development with paras 4.9.10.1-4). We assume that the numbering errors and repeat paragraphs in this section will be rectified in the next iteration. Policy ES8 appears only to plan for apportioned waste, although it is not clear from the Plan how much this is (tonnes) and how the borough intends to meet any capacity gap (facilities and land required). Also, as we noted in our letter of February 2016: We draw your attention to the National Planning Policy for Waste (NPPW) paragraph 3 which states “Waste planning authorities should prepare Local Plans which identify sufficient opportunities to meet the identified needs of their area for the management of waste streams.” The National Planning Practice Guidance (NPPG) sets out these waste streams in paragraph 13 which states “Waste planning authorities should plan for the sustainable management of waste including: ☐ Municipal/household ☐ Commercial/industrial ☐ Construction/demolition ☐ Low Level Radioactive ☐ Agricultural ☐ Hazardous ☐ Waste water Only the first two of these waste streams is apportioned through the London Plan (Local Authority Collected Waste and Commercial and Industrial Waste). The Local Plan consultation document only sets out a plan to meet apportioned waste. However, we believe the Local Plan will not meet the requirements of NPPW or NPPG if all the waste streams are not planned for.</p>	<p>This evidence base and the policies/supporting text now include all seven waste streams</p>
Environment Agency	<p>Please note that the policy reference in the box is different to the sub-heading. We have attempted to locate the sites listed in tables 8, 9 and 10 to check the information presented, however without addresses or grid references we have not been able to locate them all. We suggest you include maps, addresses or grid references in order that they can be identified and check our public register to request further information about the permitted sites within the borough https://environment.data.gov.uk/public-register/view/index. Table 8 1. Clifford House – apportionment capacity: 37,000. This is an asbestos waste transfer station which can accept 5 tonnes of asbestos a day. They cannot accept any other waste. Permit holder – Clifford Devlin Ltd Site address – Clifford House, Towcester Road, Bow Permit reference - EAWML 80134 2. Northumberland Wharf– apportionment capacity: 16,000. There are two permits at this site for a civic amenity site and transfer station: EA information: Permit holder – Veolia ES (UK Limited Site address – Northumberland Wharf Transfer station, Yabsley Street Permit reference – EAWML 80133 This is a civic amenity site which can accept 24,999 tonnes per year Permit holder – Cory Environmental Limited Site address – Northumberland Wharf Transfer station, Yabsley Street Permit reference – EAWML 104101 This is a transfer station which can accept 195,000 tonnes per year Table 9 1. Iceland Metal</p>	<p>This evidence base has provided detailed site information and consistently named sites throughout this document and the policies.</p> <p>Information provided on specific sites has been taken into account whilst producing this revised evidence base. A different approach has been taken to existing waste sites, so that only the scale of the existing operations are considered in terms of their contribution to the apportionment, rather (as per the 2016 evidence base) than using the size</p>

Recycling– apportionment capacity: 35,000. There was a permitted facility at this site which was trading as Iceland Metal Recycling, but it has not existed since 2010 when the permit holder dissolved the company. There is currently an exemption on this site for the storage and treatment of up to 1,000 tonnes of scrap metal as follows: EA information: Exemption holder – City Metals Recycling Ltd Site address – Iceland Wharf, London E3 2JP Exemption type and reference – T9 exemption (recovering scrap metal) reference EPR/ME5643MG/A001 2. Land at Wick Lane, Fish Island– apportionment capacity: 55,000. We are unsure which site this refers to. 3. 455 Wick Lane– apportionment capacity: 38,000. This is a construction and demolition waste transfer station which allows up to 50,000 tonnes per year. EA information: Permit holder – J.B Riney & Co Limited Site address – 455 Wick Lane, Bow, E3 2TB Permit reference – EAWML 80137 Table 10 We are unsure of the locations for these potential sites. If more details are provided we could provide more advice on their suitability for waste operations.

of the site and a tonnage throughput assumption to work out their potential.

GLA

The overall approach set out in the policy of identifying safeguarded waste sites then a schedule of industrial sites where a waste use, is broadly acceptable in terms of the London Plan. However, there are a number of more detailed issues that need to be resolved to improve the clarity of the policy wording so that the draft Local Plan’s approach to waste is clear:

- The National Planning Practice Guidance for waste refers to waste authorities dealing with seven waste streams, neither the policy nor the supporting text sets out which waste streams this policy will apply to and which it does not. The supporting text should explain which waste streams are not being planned for under this policy and why, or if they addressed in another policy.
- London Plan Policy 5.16 sets out recycling targets for Household, Commercial and Construction waste streams, ES 8 should be amended to show what progress LBTH is making on its own recycling targets for these waste streams, as part of London’s overall drive to boost recycling.
- The policy contains three tables labelled 8, 9 and 10. However the text in Section 3 refers to tables 2 and 3, this needs to be clarified. The titles of the three tables would benefit from greater clarity. If Table 8 is safeguarded sites, can the title be changed to reflect this? It is assumed that the next 2 tables are areas of search where a waste uses would be acceptable in principle, it is unclear why these are separate tables, if they are subject to a different policy test, this needs to be clarified in the text. In 3b clause iv there appears to be some wording omitted after ‘pollutants’ such as ‘unless they are mitigated...

This evidence base and the policies/supporting text now include all seven waste streams.

D.MW3 specifies LBTH’s existing recycling rate for household waste as a benchmark, and puts in place measures for how new development should consider waste management and allow for segregation of waste streams, throughout the operation of the site, to enable residents and businesses to contribute towards meeting the recycling targets.

S.MW1 requires developers to submit a plan for on-site waste to demonstrate how much construction, demolition and excavation waste will be reused and recycled, taking account of the London Plan target of 95%.

There is limited data as to how much Commercial and Construction waste

		<p>streams are being recycled, however this evidence presents the latest available datasets on which assumptions have been made. The authority itself also has limited power over the management of these wastes. The planning process is one of the ways it can have an impact and this is recognised through the development of these policies.</p> <p>Labelling of tables has been made clearer in the policies.</p>
<p>North London Waste Plan</p>	<p>Paragraph 4.9.9.4 includes three sites “not deemed suitable for continued safeguarding”. However, there is no reference to the London Plan policy for replacement capacity (5.17H). As we wrote in our letter of February 2016: It is worth highlighting that London Plan policy 5.17G states that “If, for any reason, an existing waste management site is lost to non-waste use, an additional compensatory site provision will be required that normally meets the maximum throughput that the site could have achieved.” Replacement waste management capacity will therefore be a requirement if existing waste sites are redeveloped and the Local Plan should make reference to this. Has Tower Hamlets consulted the GLA about de-allocating waste sites from safeguarding and sought their support for this approach?</p>	<p>The requirement for replacement capacity if existing waste sites are redeveloped has been added to the policies.</p>
<p>Environment Agency</p>	<p>We would also like to reiterate our concerns regarding the estimation methods for calculating waste capacity. The justification is given within the waste evidence document that the Exeter Energy from Waste plant has less than one hectare within a maximum capacity of 60,000 tonnes per annum. Our records show that this site has an area of 0.9Ha and has treated approximately 54,000 tonnes of waste in the last 12 months. We consider this supports the figure we suggested of 60,000 tonnes per hectare rather than the 80,000 tonnes used in the analysis.</p>	<p>A revised range for assumed throughput has been used: 65,000 – 45,000 tonnes per hectare. This is explained in Appendix 7.</p>
<p>Environment Agency</p>	<p>Please note that the policy reference in the box is different to the sub-heading. In our experience traditional dust abatement measures make a positive contribution to reducing dust and particulate pollution but we have evidence to suggest that the most effective way of reducing dust and particulate pollution is through enclosure of waste facilities. This is our preferred option and is often the most cost effective and environmentally sustainable in the long term. We recommend this policy includes additional wording to ensure that any new or expansion of existing waste sites are carried out in a covered building.</p>	<p>This has been taken on board and added to Policy D.MW2.</p>

This would also ensure that you are aligned with the North London Waste Plan (NLWP) which proposes a policy to require enclosure of waste sites. We advised the NLWP to define enclosure and suggested the following wording: “We regard it as best practice that the operations are carried out within a covered building enclosed on all vertical sides with access and egress points covered by fast acting doors which default closed in order to minimise local public health and environmental impact”. Large open fronted buildings should be avoided as this provides a low pressure pathway for dust and particulate to escape the control of the operator. All sites handling significant quantities of waste require an Environmental Permit from the Environment Agency. Our guidance “How to Comply with your Environmental Permit” requires that adequate impermeable surface and sealed drainage is in place at operational sites, especially in areas where waste is received, stored or processed. In our experience, many existing industrial units are not suitable for waste activities as they do not have adequate drainage, a suitably robust and impermeable floor, or secondary containment for tanks and liquids. Some sites can be modified to improve their suitability, however these are still a concern and tend to require more maintenance. It is better for new developments to be placed in purpose built facilities for the relevant waste activities where the controls can be engineered in from the start.

Appendix 2 Waste exports from LBTH as reported in WDI 2015

Region	WPA	Site	Operator	HIC (tonnes)	Inert / C&D (tonnes)	Hazardous (tonnes)	Total tonnes to WPA
Outside London	Thurrock	Bluelands Quarry	S Walsh & Son Ltd		17,871		178,829
		East Tilbury Quarry	S Walsh And Son Limited		156,366		
		Land at North Tilbury	S Walsh And Son Limited		3,700		
		Juliette Way Materials & WEEE ATF	BPR Group Europe Ltd	892			
East London	Havering	Crow Metals Ltd	Crow Metals Ltd			28	133,300
		Kilnbridge Construction Services Ltd	Kilnbridge Construction Services Ltd	4	3,087	23	
		Rainham Landfill	Veolia ES Landfill Lt	13,848	65,288		
		Rainham MRF	Veolia E S Cleanaway (U K) Ltd	265			
		Veolia Inert Soils Coldharbour Lane	Veolia E S Cleanaway (U K) Ltd		41,404		
		Frog Island	Shanks Waste Management Limited	9,352			
Outside London	Essex	Franklin Hire	Franklin Hire Ltd		136		102,390
		Highwood Quarry Inert Landfill	Sewells Reservoir Construction Limited		12,933		
		Nirro Ltd	Nirro Ltd			3	
		Pitsea Landfill	Veolia ES Landfill Limited	10,207	79,081		
		Roydon Lea Farm	R B Whitbread (Plant Hire) Ltd		5		
		S M H Products Ltd (London Branch)	S M H Products Limited			25	
South East London	Greenwich	Greenwich Integrated Waste Management And Recycling Facility	Veolia E S Cleanaway (U K) Ltd	51			22,912
		Victoria Deep Water Terminal	H Sivyer (Transport) Limited	462	22,399		

London Borough of Tower Hamlets, Waste Management Evidence Base 2017

Region	WPA	Site	Operator	HIC (tonnes)	Inert / C&D (tonnes)	Hazardous (tonnes)	Total tonnes to WPA
North London	Waltham Forest	Bywaters (1986) Limited	Bywaters (1986) Limited	12,731	2,120	3	15,450
		Malby Waste Disposal Ltd	Dem'cy Contractors Ltd	29	567		
East London	Newham	Bywaters Recycling And Recovery Centre	Bywaters (Leyton) Ltd	3,024			8,801
		Harrow Green - Silvertown Recycling Centre	Harrow Green Ltd	10			
		Jenkins Lane WM Facility EPR/WP3433BY	Shanks Waste Management Limited	5,713			
		Unit 3 Charles Street Industrial Estate	Williams Environmental Management Ltd	12		42	
South East London	Bexley	Crayfords Materials Recycling Facility	Viridor Waste Management Ltd	1,022			36,120
		Riverside Resource Recovery Limited	Cory Environmental	35,098			
South East London	Lewisham	SELCHP	Veolia	19,570			19,570
Outside London	Walsall	Envirosol Environmental Management Facility Brownhills	Envirosol Ltd		5	1,340	1,345
Other WPAS		Multiple	Multiple	2,845	11,921	333	19,196
Total exported				115,136	416,883	1,798	533,817

Source: Environment Agency's Waste Data Interrogator, 2015

Appendix 3 Meeting minutes with LBTH, EA & GLA

Subject: LBTH Local Plan Waste Management Evidence Base approach

Stakeholders: LBTH/GLA/EA

Venue: Mullberry Place

Time: 16:00-17:30

Date: 10/04/2017

Attendees:

GLA: Peter Heath, Andrew Richmond

EA: David Elphick, Jane Wilkin

Anthesis: Hannah Dick, Victoria Manning

LBTH: Terunesh McKoy

Apologies: Hong Chen (LBTH)

Purpose:

- 1) To address/discuss comments received from the GLA and EA in relation to the Local Plan Reg.18 document
- 2) Agree an approach for calculating waste capacity that will be used in the updated Waste Management Evidence Base
- 3) Outline next steps

AGENDA

Topic

1. Introductions and apologies
2. GLA representations

GLA representation	Discussion
Release of safeguarded waste sites – GLA did not comment.	<p>Where safeguarded waste sites are released for other uses, London Plan 5.17(H) still applies and compensatory capacity is required within London. This will fall to LBTH to ensure at the planning application stage.</p> <p>McGrath / Hepscoth Road – re-provision of capacity is being made within London which satisfies the GLA. Any agreement of transfer of apportionment target capacity would have to be agreed between the two boroughs which are losing/gaining the capacity.</p> <p>In a differing approach from the existing waste evidence base, McGrath / Hepscoth Road has been estimated to contribute approx. 10,500 tonnes per year towards the apportionment. This was calculated reviewing WDI input and output data, and assigning an average of household and C&I waste tonnages attributed as going for</p>

<p>London Plan Policy 5.16 sets out targets for Household, Commercial and Construction waste streams. ES 8 should be amended to show what progress LBTH is making on its own recycling targets for these waste streams, as part of London’s overall drive to boost recycling.</p>	<p>onward recovery. This approach was agreed by the GLA.</p> <p>This is in the context of waste planning, i.e. LBTH should consider how in their planning policies they can contribute to the drive to boost recycling.</p> <p>The GLA do not monitor this policy and so do not have any baseline figures for recycling. The latest information of current recycling rates for C&I waste is in the 2009 Defra study. The SLR report is updating this information and baseline recycling figures for C&I and CD&E will be provided to LBTH by the GLA when available.</p>
<p>In relation to clarity of tables 8, 9 and 10 in policy ES8</p>	<p>Tables have now been merged and made clearer as to what they refer.</p>

Capacity of existing waste sites:

- GLA confirmed that the potential capacity of an existing waste site could be counted towards meeting the apportionment (i.e. using an average throughput assumption such as 80,000 tph), rather than its existing capacity, providing this can be justified and there are no planning issues which mean the capacity would be restricted.
- GLA agreed to respond to any further queries by LBTH or Anthesis on issues of waste.

3. EA representations

EA to confirm whether the capacities provided by the EA in their response, are licensed capacities rather than operational capacities.

4. Methodology and assumptions for waste evidence base

80,000tph assumption

- Anthesis’ outline approach to identifying an appropriate average tonnes per hectare assumption to determine land-take:
 - Plan to calculate an average throughput using a weighted average based on facility type and the target recycling rates in London’s waste strategies i.e. planning for allocation of more material recovery facilities and organic treatment, instead of residual waste treatment facilities.
 - The throughput for each type of facility will primarily rely on evidence from London based waste facilities (where possible) to accurately reflect London specific conditions.
 - Initial figures show an average of around 80,000tph.
- GLA and EA agreed with this overall approach (which has also been used elsewhere e.g. West London Waste Plan), however they considered it unlikely that 80,000 tonnes per hectare figure was justifiable (as per consultation responses) due to limiting factors on sites which would restrict the sites specifically allocated to be able to achieve those throughputs e.g. highly residential areas with limited access.

- EA advised using archetypal sites as examples and agreed that identifying the type of facilities required (e.g. recycling) would be an appropriate approach.
- EA also advised that allowance for waste plants higher up the hierarchy which tend to be less efficient with regards to tonnes per hectare should be made e.g. reprocessing plants and plants that dismantle/remanufacture goods, as they are planned for in the London Plan as part of the circular economy drive and regional net self-sufficiency.
- Anthesis and EA agreed to liaise throughout process to reach consensus with regards to final throughput assumption to be used.

5. London Plan review

- Consultation is due to commence in November 2017.
- Some indication of apportionment figures for individual local authorities may be available from June onwards, but it largely depends on results of current consultation exercise with boroughs (ending 12th April 2017).
- EIP of the plan will be summer/autumn 2018, with publication in autumn 2019.
- SLR has done the forecasting of waste streams which is available in the consultation documents. These are unlikely to change substantially.
- CD&E waste – it is unlikely that the GLA will apportion excavation waste, but there are ongoing discussions about whether C&D waste is apportioned. However it is appreciated that there will be a need to provide data on future exports of CD&E waste. This will be made publicly available.
- GLA are considering how they accelerate the change towards a circular economy, and how they can accommodate for it in the strategic planning system.
- The Mayor's Environment Strategy is due at the end of May / beginning of June.

6. Next steps

LBTH are hoping to go to Cabinet in June/July but it may be delayed until September. Regulation 19 consultation will either be over the summer or in autumn.

Anthesis/LBTH will continue to engage with GLA and EA throughout the development of the waste evidence base.

7. AOB

For further discussions, notes on availability:

- David away for end of first week of May
- GLA – very busy for next few months with waste plan but send through queries on email.

Actions

- Andrew Richmond to send through the SLR modelling work showing recycling figures for C&I and CD&E and the SLR study when it is available.
- EA to confirm whether the capacities provided by the EA in their response, are licensed capacities rather than operational capacities.

Appendix 4 Permitted waste sites

Name	Licence holder	TH / LLDC	Area (ha)	Grid Reference	Permit Number	Permit type	Type of site	Waste type(s)	Permitted capacity	Operational capacity ³⁰
Clifford House, Towcester Road, E3 3ND	Clifford Devlin Ltd	TH	0.46	TQ3794982142	PP3191NJ/A001	A9 : Haz Waste Transfer Station	Transfer station	Hazardous	1,250	418
Northumberland Wharf, Yabsley Street, E14 9RG	Cory Environmental Ltd	TH	0.88	TQ3845980294	GB3332AD/T001	A11 : Household, Commercial & Industrial Waste T Stn	Transfer station	Hhold/Ind/Com	195,000	107,500
Northumberland Wharf, Yabsley Street, E14 9RG	Veolia ES (UK) Ltd	TH		TQ3848880341	NP3395VV/T002	A13 : Household Waste Amenity Site	CA site	Hhold/Ind/Com & Hazardous	24,999	3,743
McGrath House, Hepscott Road, E9 5HH	McGrath Bros (Waste Control) Ltd	LLDC	2.8	TQ3708784330	EP3697NT/A001	A15 : Material Recycling Treatment Facility	Material Recycling treatment facility	Hhold/Ind/Com, Inert/C&D & Hazardous	605,900	73,064
455 Wick Lane, E3 2TB	J B Riney & Co Ltd	LLDC	0.47	TQ3742583573	BP3091NX/V003	A14 : Transfer Station taking Non-Biodegradable Wastes	Transfer station	Inert/C+D	49,999	36,985

³⁰ Based on EA's WDI data from the last three years (2013-2015 inclusive).

Name	Licence holder	TH / LLDC	Area (ha)	Grid Reference	Permit Number	Permit type	Type of site	Waste type(s)	Permitted capacity	Operational capacity ³⁰
Blackwall Marine Diesel Ltd, Unit 2 Ailsa Street, E14 OLE	Blackwall Marine Diesel Limited		0.04	TQ3826381816	FB3738AE/A001	S0820 No 20: 75kte Vehicle Depollution Facility	Vehicle depollution facility		No data	No data
D R Plant Solutions, Unit 3 Ailsa Street, E14 OLE	Quick Skips London Limited		0.1	TQ3831681841	FB3000GC/T001	S0803 No 3: 75kte HCl Waste TS + treatment	Transfer and treatment	Inert/C+D	74,999	4,155

Source: WDI 2015

Table 28: Inputs & Outputs of permitted waste sites

Name		Inputs 2015	Landfill	Transfer	Recovery	Unknown	Incinerator	Inputs 2014	Landfill	Transfer	Recovery	Unknown	Inputs 2013	Landfill	Transfer	Recovery	Unknown
Clifford House, Towcester Road, E3 3ND	Hazardous	312	312					418	413				370	364			
Northumberland Wharf, Yabsley Street, E14 9RG	Hhold/Ind/Com	106,425				106,425		98,045				98,045	107,500				104,208
Northumberland Wharf, Yabsley Street, E14 9RG	Hhold/Ind/Com	3,323	1,022	33	2,408		194	3,743		526	3,247		-	968	549	1,767	20
McGrath House, Hepscott Road, E9 5HH	Hazardous	0						27					71				2
	Hhold/Ind/Com	22,766				56,263		13,998	2,455	1,494	19,111	13,075	7,569		4,705	28,865	
	Inert/C&D	50,227				6,159		32,246		11	2,008	1,802	46,120			3,155	
455 Wick Lane,	Inert/	36,680	385		36,295			27,720	435		27,285		36,985	820			36,165

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Name		Inputs 2015	Landfill	Transfer	Recovery	Unknown	Incinerator	Inputs 2014	Landfill	Transfer	Recovery	Unknown	Inputs 2013	Landfill	Transfer	Recovery	Unknown
E3 2TB	C&D																
Blackwall Marine Diesel Ltd, Unit 2 Ailsa Street, E14 0LE	No data for this site																
D R Plant Solutions, Unit 3 Ailsa Street, E14 0LE	Inert/ C&D	4,155				4,796		2,199	1,114	773							

Source: WDI 2015

Appendix 5 Duty to Cooperate with regards to specific sites

Site name	Status	Designation	Correspondence & Notes	Conclusions
Existing waste sites within LBTH				
Clifford House, Towcester Road	LBTH safeguarded waste site	Strategic Industrial Location (Empson Street)	Owners objected to safeguarding of this site, as it is a demolition business and does not specifically operate as a waste facility. There is a Licensed Asbestos Division which provides removal, disposal and management planning services to assist dutyholders with their responsibilities under the Control of Asbestos Regulations 2012 and for this they hold an environmental permit. A site visit was undertaken to establish the proportion of the site which deals with waste (20/07/17).	This site is currently safeguarded for waste use in the adopted MDD. However, given recent information, proposed to only safeguard the portion of the site involved in waste management i.e. asbestos (0.0144 ha).
Northumberland Wharf, Yabsley Street	LBTH safeguarded waste site. Two waste sites operational: Waste transfer station operated by Cory Environmental Ltd HWRC operated by Veolia	Safeguarded wharf	Council owned.	Will continue to operate under the safeguarded wharf and waste sites designations.
Blackwall Marine Diesel Ltd, Unit 2 Ailsa Street	Existing waste site	N/A	There is a live planning application for housing and therefore it is very likely these sites will be lost.	Do not include in the policies.
DR Plant Solutions, Unit 3, Ailsa Street	Existing waste site	N/A		
Ailsa Street (40 Gillender Street)	Former waste site (LBTH safeguarded waste site)	Ailsa Street Site allocation. Within the Poplar Riverside Housing Zone.	Owners objected to continuing to safeguard this site for waste use. They say it has not been used as a waste site for over 10 years and is currently used as a vehicle depot by Veolia. However, WDI shows that in 2012, 32,160 tonnes were received at the site, and in 2011, 34,418 tonnes were accepted.	No longer has an environmental permit and not operating as a waste site. However, Veolia suggest that they may wish to bring it back into use as a transfer station and that was an operational

Site name	Status	Designation	Correspondence & Notes	Conclusions
				waste facility in recent past (2012). Continue to safeguard.
Existing waste sites within LLDC				
McGrath House, Hepscott Road*	Safeguarded waste site within the LLDC Boundary	LLDC Site Allocation: Hepscott Road	This site is being redeveloped into mixed use development including employment, residential, creative and cultural uses and a linear park. The McGrath waste business is going to relocate to another London borough.	LBTH are unable to safeguard the site itself, but will liaise with LLDC to ensure this site remains safeguarded until the planning application has been accepted and it has been demonstrated that replacement capacity will be provided. LBTH will lobby GLA to take account of this loss of waste capacity within LBTH either through a reduction in apportionment or brokering a deal with LBTH and other LB.
455 Wick Lane*	LBTH safeguarded waste site within the LLDC Boundary	Preferred Industrial Location	J B Riney who lease the site until 2027 support the continued use of the site. Site visit has been arranged to assess the portion of the site which is being used for waste.	LBTH are unable to safeguard the site itself but will list this site in the policy as an existing waste site which should be safeguarded by LLDC.
Unit 6, Stour Road	Former waste site within the LLDC Boundary	n/a	Correspondence with the LLDC has identified conflicts with it being safeguarded for waste use. This is an exceptionally small site which is within an area outside of SIL that is earmarked in LLDC policies as an area for mixed use development; it borders a conservation area and is surrounded by development sites that are being developed for mixed use and residential usage. It is unclear as to when this site might have been a waste site and the buildings are a row of industrial units and would not appear to lend themselves easily to this usage, due to their	Do not include in the policies.

Site name	Status	Designation	Correspondence & Notes	Conclusions
			size, uniformity and character. Surrounding units are fish suppliers and a brewery which may conflict with the site being used for waste operations.	
Areas of search within TH				
The Highway	N/A	LBTH - Local Industrial Location	N/A	Identify as an area of search within LBTH
Empson Street	N/A	LBTH - SIL	N/A	Identify as an area of search within LBTH
Areas of search within LLDC				
Iceland Wharf	Existing waste site operates under an exemption	LLDC - OIL	Consultation with the LLDC has suggested it is not acceptable to identify as an area of search.	Do not include in the policy as area of search for waste management sites.
Fish Island	N/A	LLDC – SIL	Consultation with the LLDC has suggested it is acceptable to identify as an area of search.	Include in policy as potential area for waste management sites.
Land at Wick Lane Fish Island		LLDC – SIL	<i>Recent court action to prevent unlawful waste uses. Used to be waste transfer station during the construction of the Olympic Park.</i>	<i>Specific site within Fish Land area of search. Will not include separately, particularly due to recent issues, but recognised that waste management is acceptable use of land within SILs.</i>
Bow Midlands West Rail Site		LLDC – SIL	<i>Correspondence with LLDC has identified potential conflict with aggregates of use on site already. Any new waste facility would need to be complementary to the existing aggregates use.</i>	<i>Specific site within Fish Land area of search. Will not include separately.</i>

Appendix 6 Exempt waste sites contributing to apportionment

Operator	Site address	Exemption type	Assumed Capacity (tpa)
City Metals Recycling Ltd	Iceland Wharf, Iceland Road, London, E3 2JP	T9: recovery of scrap metal	2,500
Low Brothers Contract Management Ltd	1 Ailsa Street, London, E14 OLE	T4: preparatory treatments, such as, baling, sorting, shredding T9: recovery of scrap metal T10: sorting mixed waste	T4: 5,000 T9: 2,500 T10: 520
Low Brothers Contract Management Ltd	Access house, Imperial Street, London, E3 3EA	T4: preparatory treatments, such as, baling, sorting, shredding T9: recovery of scrap metal T10: sorting mixed waste	T4: 5,000 T9: 2,500 T10: 520
Purplex 2000 Ltd	120 Bow Common Lane, London, E3 4BH	T9: recovery of scrap metal	2,500
RBS London Waste Papers Ltd	St Leonard's Wharf, Ailsa Street, Poplar, London, E14 OLE	T4: preparatory treatments, such as, baling, sorting, shredding	15,000
Saojay Ventures Ltd	Block 3 Ailsa Street, London, E14 OLE	T8: mechanical treatment of end of life tyres	60
Shred-It Ltd	5 St. Andrews Way, London, E3 3PA	2 x T4: preparatory treatments, such as, baling, sorting, shredding	30,000
The Doctor's Laboratory Ltd	Pathology Laboratory BMI, The London Independent Hospital, Tower Hamlets, E1 4NL	T1: cleaning, washing, spraying or coating relevant waste	1,200
UK Industrial London Ltd	120 Bow Common Lane, London, E3 4BH	T9: recovery of scrap metal	2,500
York Metals Ltd	Railway Arches 356-357 Yorkshire Road, London, E14 7LR	T9: recovery of scrap metal	2,500

Source: EA Register of waste exemptions

Appendix 7 Applied Waste Management Land Take Factors (as t/ha)

For land take calculations presented in this report, a range has been used of 45,000 tonnes throughput per hectare (t/ha – low estimate) to 65,000 t/ha (high estimate). This range has been based upon a number of data sources and conversion factors used for other adopted waste plans. The rationale behind selecting these estimates is explained in this appendix.

Evidence Review

Producing a robust generic figure for the amount of waste which can be processed on a given area of development land is not straight forward. A number of factors can have a significant impact on this figure, such as the type of waste management facility employed and the type of waste being processed. Similarly the range of technologies used for particular waste management process types can impact on the amount of land required to establish that technology.

Land take estimates for waste facilities used in the London Plan were based upon the “Babtie Formula”. This formula is 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. In this document (para 4.30) it is stated that “following an evaluation of data in “Planning for Waste Management Facilities” an ODPM 2004 research report and data provided by the GLA, Jacobs has determined a factor of 80,000 tonnes per hectare (t/ha) to convert hectares available into potential capacity”. Although this figure has been the basis of land take calculations in London for some time, this estimate has been considered by various stakeholders to be an over-estimate (for instance 60-65,000 t/ha has been concluded in other evidence base studies, and the Environment Agency is known to favour figures as low as 45,000t/ha), and it been revised in the development and adoption of more recent London Borough and Planning Partnership waste plans.

For instance, the South London Waste Plan adopted in March 2012, converted capacity gap to a land take using an average throughput per hectare rate of around 60,000 t/ha. The “South London Waste Plan DPD Evidence Base Study 4: Technical Report” (October 2010) explains the source of this assumption. In paras 3.22 to 3.29 “Typical Footprints for modern waste management facilities” including evidence cited in Table 3.7, a number of data sources were used to produce updated average throughput per hectare for recycling facilities (MRF, IVC, AD, MBT/MHT/MPT) of 59,245 t/ha and average throughput across all waste facilities (i.e. including gasification, pyrolysis and modern EfW) of 61,951 t/ha.

The resultant Planning Inspectors report, October 2011, recognised that “in the submitted version (the capacity gap) is expressed as land required and that figure is derived by applying an average throughput per hectare for the particular development required” (para 25) and “the assumptions underlying the average figures used (although not the approach itself) were challenged. However, in response to other representations made, particularly by the Mayor, the Partnership Councils now propose to express the capacity gap in both tonnages and hectares required. It is though the tonnage which is of importance for the monitoring framework now proposed with the land requirement being little more than a broad guideline for the site allocation policies. The capacity gap expressed as the Partnership Councils now propose represents a robust basis on which to plan for the MSW and C+IW capacity needed.” (para 26). For this work for the London Borough of Tower Hamlets, both capacity gap and calculated required land take are presented.

Similarly the West London Waste Plan (adopted July 2015), paragraph 4.2.4 states that “to determine what area of land will be required to provide this additional capacity, an average capacity of 65,000 tonnes per annum per hectare was used to calculate the amount based on the range of possible processes and their processing intensity.” This revised figure was based upon “Table 4A.7 - throughput and land take of different types of facilities’ from the London Plan (2008) and further discussions and agreement with the GLA in 2013.” Table 4A.7, using data sourced from the GLA, uses land take per facility type ranging from 15,200 tonnes per hectare for composting facilities to 71,429 t/ha for MBT. The figure used is noted in the Planning Inspectorate examination report (March 2015) without comment.

Updated Estimates

It would appear that previous estimates of land take requirement placed less emphasis on:

- The particular land take requirements of waste management facilities in London, where land availability is severely restricted and therefore sites are likely to be more productive in terms of tonnes throughput per hectare than in other parts of the UK;
- Balancing land take requirements with the proportionate need for dry recycling, organic recycling and residual waste facilities needed to achieve the London Plan targets.

In an updated review we have addressed both these issues.

A variety of published data sources were collated and reviewed on specific London based waste management facilities, noting in particular site capacity and area occupied. Data sources included the Environment Agency, various London Borough planning portals and operator websites. In cases where published site sizes were not available, these were estimated using Google Maps.

Tonnage throughput per hectare occupied factors were generated, as summarised in Table 29 following, giving ranges of land take factors as tonnes per hectare based upon the London based sites reviewed:

Table 29: Land take factors (as tonnes per hectare) for selected waste management facility types, listing reviewed facilities

Waste facility Type	High (t/ha)	Low (t/ha)	Facilities Reviewed plus other data sources
Average MRF	63,324	50,567	Smugglers Way, Bywater Bow, Crayford, Edmonton, Southwark, Suez Barking, Holloway Lane
Average EfW	132,945	129,872	Belvedere, Edmonton, SELCHP, Beddington, Lakeside
Average Organic	32,300	16,667	“Planning for Waste Management Facilities” an ODPM 2004, Cookham Road Swanley, Biogen Westwood, Biogen Twinwoods, Riverside Bio (Merton), Biffa Wanlip
Average MBT	48,489	48,489	Shanks Jenkins Lane, Shanks Frog Island, North Manchester, Biffa Brookhurst Wood, NES Avonmouth

In calculating overall land take requirements, some facility types have more of an impact than others. For instance, with the focus on increased recycling of both dry recyclates and organic waste, facilities required to

achieve London Plan recycling targets will potentially have more impact upon overall land requirements than those required for residual waste treatment and disposal. Therefore, rather than take direct averages upon which to base land take factors as has been used in previous studies, two methods of weighting land take requirements to London Plan targets were modelled, as summarised in Table 30 below:

Table 30: Land take requirements based upon achieving London Plan targets

t/ha averages applied	Relative Level of Dry Recycling ³¹	T/ha Weighted Average ³²	T/ha Total Area Based Average ³³
High	Low DR	64,350	49,724
	High DR	82,167	65,462
Low	Low DR	54,277	31,690
	High DR	72,247	46,011
Average		68,260	48,222

This modelling gave a high end land take factor of 68kt per hectare, low end of 48kt/ha.

Conclusions

Based upon the review of available data, land take estimates used in other adopted waste plans and the views of stakeholders such as the GLA and EA, for the purpose of delivering this evidence base, land take requirements were based upon:

- High level: 65,000 tonne per hectare; and
- Low Level: 45,000 tonne per hectare.

Capacity gaps and resultant land take requirements are presenting in the evidence base using both the high level and low level factors. Where applicable, sensitivities in this high to low range, and their implications, are highlighted in the report text.

³¹ Assumed proportions of waste arisings required by each waste management route to achieve London Waste Targets (as % of total waste arising):

Waste Type	DR Scenario	Dry Recycling (range)	Organic Recycling (range)	Residual waste	Residual Waste to MBT	Residual Waste to Incineration
Household	Low DR	31%	35%	34%	14%	20%
C&I	High DR	51%	15%	34%	0%	34%

³² Weighted Average as t/ha = (%DR x Factor DR)+ (%Org x Factor Org)+ (%Residual x Factor Residual) where % is proportion of total waste required to achieve London Plan Targets, Factor is t/ha average per relevant waste facility type.

³³ Total Area based average as t/ha = Total London Plan tonnage/(ha DR + ha Org + ha Residual) where ha is the area required to accommodate facilities to achieve the relevant London Plan target (i.e. for DR, Org, Residual)

Appendix 8 Duty to Co-operate

Workstream 4 Waste Flows & Duty to Co-operate of the 2016 Waste Evidence base describes the Duty to Co-operate (DtC) process which has been undertaken prior to this updated report. As part of this update, this process was reviewed and additional correspondence was carried out where considered relevant. The following WPAs were written to in May 2017 (as identified in Table 27), as they received quantities of waste from LBTH above the agreed thresholds³⁴:

- Bexley;
- Derbyshire;
- East Sussex;
- WPAs of the East London Waste Authority (specifically Havering, Newham);
- Essex;
- Greenwich;
- Kent;
- North London Waste Plan (Waltham Forest);
- Thurrock;
- Staffordshire;
- Surrey;
- Walsall; and
- WPAs of the West London Waste Authority (specifically Brent).

The letters sent in May 2017 acknowledged the responses provided in the previous year's DtC exercise (where relevant), and also identified any additional facilities which had not previously been identified, to allow the WPA to provide a response as to whether there were any planning reasons those facilities could not continue to receive wastes from LBTH.

Although Lewisham was identified as receiving greater than 1,000 tonnes of LACW, the last correspondence (2015) did not highlight any issues with the facilities being used, and no additional facilities were identified, and therefore they were not contacted.

Table 31 shows sites which were identified by authorities that may not be available throughout the whole of the plan. This is in addition to those identified in Table 7 of the Workstream 4 Waste Flows & Duty to Co-operate of the 2016 Waste Evidence base.

³⁴ Above 5,000 tpa of CD&E waste, 1,000 tpa of apportioned waste or over 100 tpa of hazardous wastes.

Table 31: Sites identified as potentially not available for the whole of the plan

Site	WPA	Types & quantity of waste received from LBTH (tonnes, 2015)	Comments
Highwood Quarry Inert Landfill	Essex	CD&E: 12,933	Highwood Quarry has planning permission to accept inert waste as a means of restoration until 25 March 2026, after which time an alternative destination for inert materials would need to be sought.
Greenwich Integrated Waste Management And Recycling Facility	Greenwich	Household / C&I: 51	This facility is no longer operational, so this particular pattern of waste movement will not be able to continue.
Pinden Quarry	Kent	C&D Waste and Asbestos: 382	Pinden Quarry is a specialist hazardous landfill site currently receiving asbestos. The site will continue to operate in the future although its time is limited (due to Interim Development Order consent) and subsequent planning permission extension until 2042. Then the site must be fully restored. However this does not mean that the operator will not secure further extensions.
Blue Lands Quarry	Thurrock	CD&E: 17,871	The site is a former chalk quarry on the edge of the urban area that has been identified in successive local plans as an employment proposal site. Due to the nature of the site there is an expectation of part-fill prior to development commencing. An existing hybrid application has been implemented to part fill the quarry with inert material to reclaim the site for mixed use development comprising storage and distribution and hotel. Although the site has been recently receiving inert material it is expected that this situation would only continue for a couple of years as the site is developed and would only therefore receive such waste in the short term.

Thurrock also provided some additional feedback, the most pertinent of which is copied directly below:

“The adopted Thurrock Core Strategy in common with other waste plans in the East of England has not planned for an apportionment of C,D&E waste from London. There is no such apportionment in the former RSS for the East of England or the adopted London Plan and its alterations.

It is recognised that C,D&E wastes have been a significant amount of waste exported from London boroughs and other authorities in recent years to Thurrock.

However it cannot be assumed that current or previous tonnage quantities of C,D&E waste can be received from the LB Tower Hamlets or any other London waste authorities to Thurrock during the remainder of the current plan period or beyond (in any proposed local plans) for the following reasons:

1. Unless subject to contract the existing inert landfill capacity identified in the Thurrock plan is not specifically apportioned for London authorities.

2. The Thurrock adopted Core Strategy identifies specific Inert landfill capacity for meeting equivalent to local requirements and does not plan for additional capacity or London apportionment of C,D&E waste during the plan period to 2026 or beyond.
3. Most landfill sites operating and receiving C,D&E waste in Thurrock are planned to close by 2020 with only one operational site at present planned to continue during the plan period to 2026.
4. There remains uncertainty over two mothballed mineral sites and the future availability of consented and potential void capacity at these sites.
5. Uncertainty regarding the levels of capacity or confirmation regarding data.
6. Unless contracted any waste export from the LB Tower Hamlets will be potentially competing for sites to receive such waste within the wider south east; from major construction and excavation projects in London and wider south east areas; waste arisings for export in other waste plans in London as well as other waste requirements of the authorities in Thurrock and the East of England themselves.

For the above reasons Thurrock would wish to continue in discussion via the Duty to Cooperate process regarding any assumptions about the role and capacity of Thurrock landfill sites to receive C,D&E waste in particular from London Boroughs.”