

London Waste Planning Forum

Annual Monitoring Report 2018

Final Document

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London Waste Planning Forum Annual Monitoring Report 2018

Executive summary

Meeting Apportionment

Under the current London Plan targets, there is currently a 1.2m tonne shortfall of management capacity for apportioned waste (LACW and C&I) in London. South East London is the only sub-region which has a surplus of this type of capacity. The East London and North London sub-regions have a very small deficit.

Waste planning to meet apportionment targets is at various stages across London.

Twenty boroughs have plans in place to meet their apportionment targets. This covers East London (Barking and Dagenham, Havering, Newham and Redbridge), South London (Croydon, Sutton, Merton and Kingston-upon-Thames), West London (Brent, Hillingdon, Harrow, Ealing, Hounslow and Richmond) and South East London (Bexley, Bromley, Lewisham, Greenwich, Southwark, and City of London).

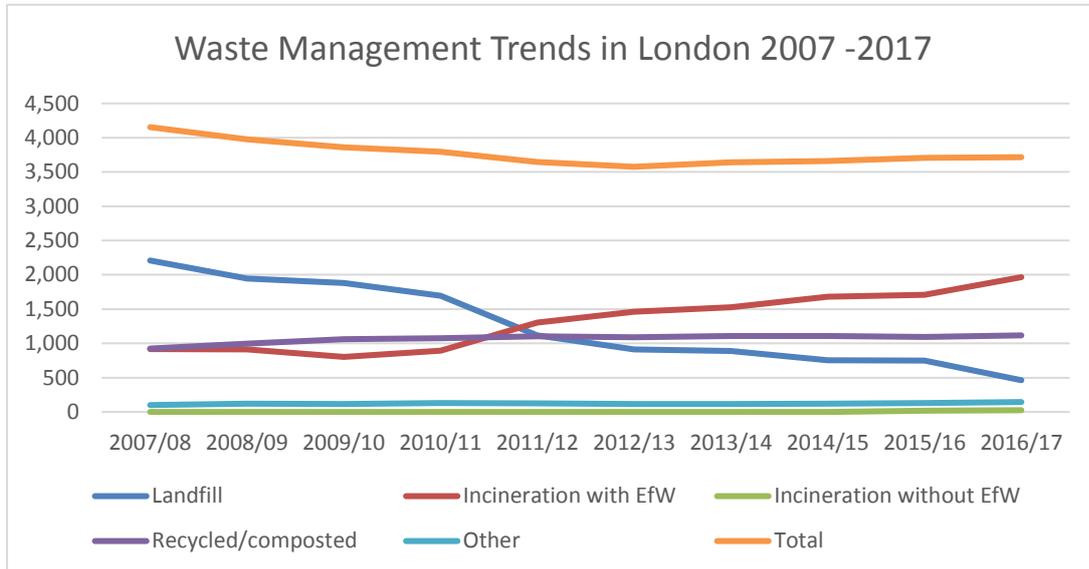
Nine boroughs are developing waste policies to meet apportionment targets. Tower Hamlets has a Local Plan waste policy to meet apportionment targets expected to be adopted in 2018. A waste plan is being prepared for North London (Barnet, Camden, Enfield, Hackney, Haringey, Islington and Waltham Forest) expected to be adopted in 2020. Lambeth is preparing a Local Plan waste policy to meet apportionment targets also expected to be adopted in 2020.

The remaining four boroughs of Kensington and Chelsea, Hammersmith & Fulham, Wandsworth, and City of Westminster currently have no policies either in place or in development to meet their apportionment targets.

LACW

Recent trends in management of LACW in London are shown in the graph below. There has been a pronounced movement away from landfill while incineration rates have increased considerably. Recycling rates have risen from 22% in 2007 to 30% in 2011, but since then have generally flat lined. Overall waste arisings has declined but there is some evidence in the Defra LA Data that there may be a return to annual waste growth, with the overall

arising up from 3.6Mtonnes in 2012/13 to 3.7Mtonnes in 2016/17. It has yet to be established whether there has been any decoupling of economic growth and waste arisings per capita.



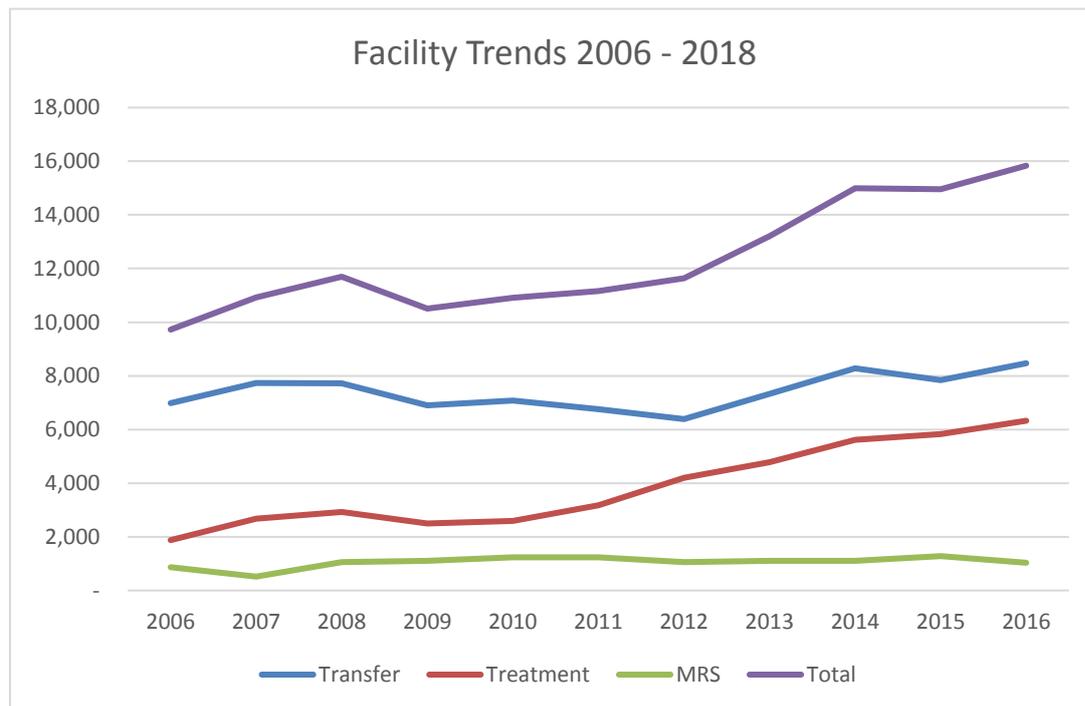
Data for C&I is less robust. There are different approaches to estimating C&I arisings and the results can be compared. The GLA figure is that London generated approximately 4.6m tonnes of C&I waste in 2016 and this is a reasonable fit with estimates made using the Waste Data Interrogator.

CD&E waste arisings in 2016 was around 18m tonnes, of which half was managed or transferred in London and half was exported. Levels of CD&E wastes are expected to remain high for the foreseeable future with major infrastructure projects planned or underway. There will be pressure on available disposal (and usage) sites for C&D wastes, while considerable excavation will still be exported from London to be utilised for landfill restoration. Changes in the regulatory regime mean that materials that were previously sent to habitat creation schemes such as Wallasea Island as ‘recovered’ waste will now need to be permitted under a landfill permit.

London’s hazardous waste arisings were 397,133 tonnes in 2016.

London’s capacity

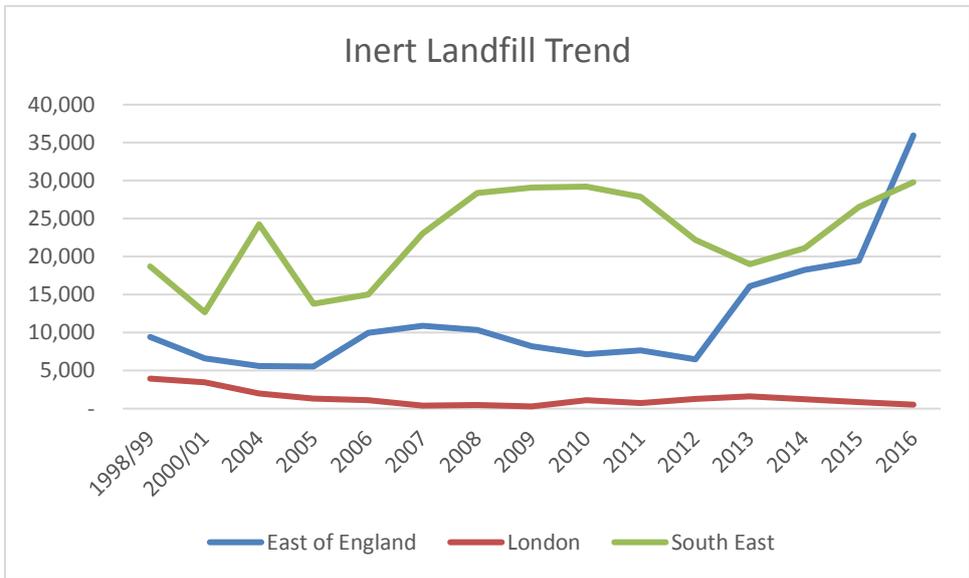
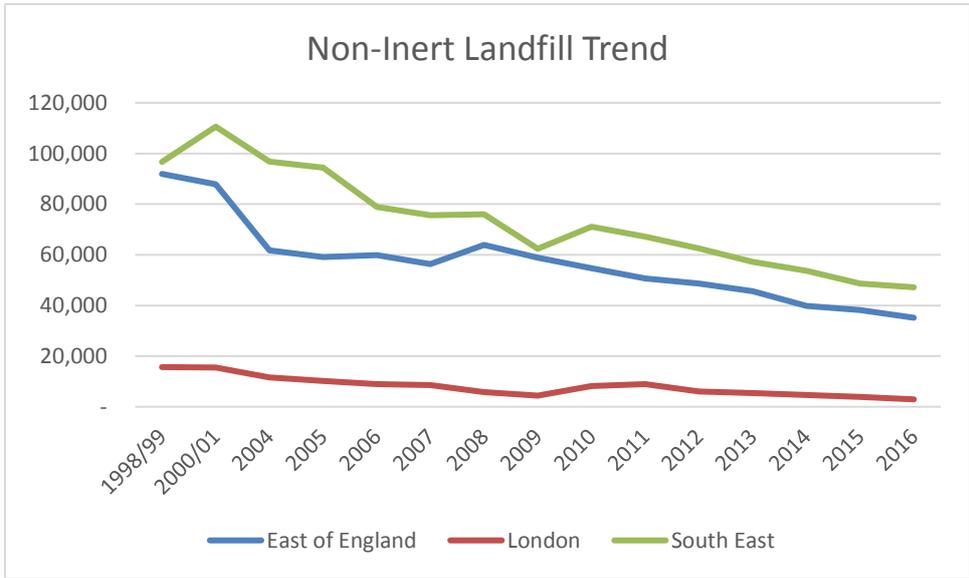
London had 9,334 permitted waste sites in 2016 with 6,382 of these accepting waste. There were also 5,508 sites with registered exemptions in the same year managing an estimated 1.2m tonnes of waste. The overall trends in London’s capacity are show in the graph below. The data shows an overall increase in capacity, due to an increase in the ‘treatment’ capacity. However this is dominated by energy from waste, and the trend for metals recycling shows a downward trend in recent years, with current capacity lower than in 2006.



Landfill capacity in the wider south east

The graphs below show landfill capacity trends in the wider south east for non-inert and inert waste streams. Capacity for non-inert waste is declining across the area, while inert capacity is increasing in the south east and east of England and reducing in London. However the amount of space that is suitable for major tonnages of excavated materials discussed elsewhere is limited by the need for a sustainable transport option such as rail or river transport.

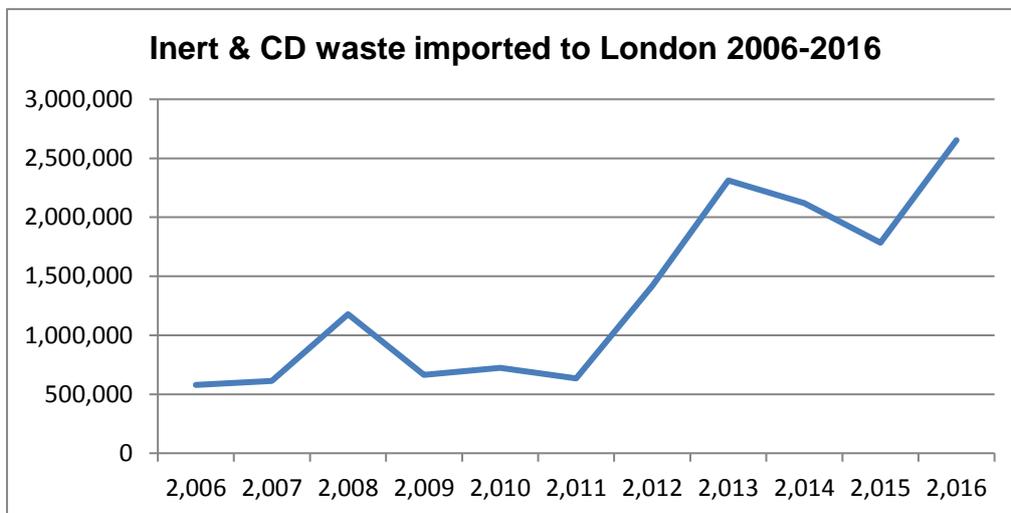
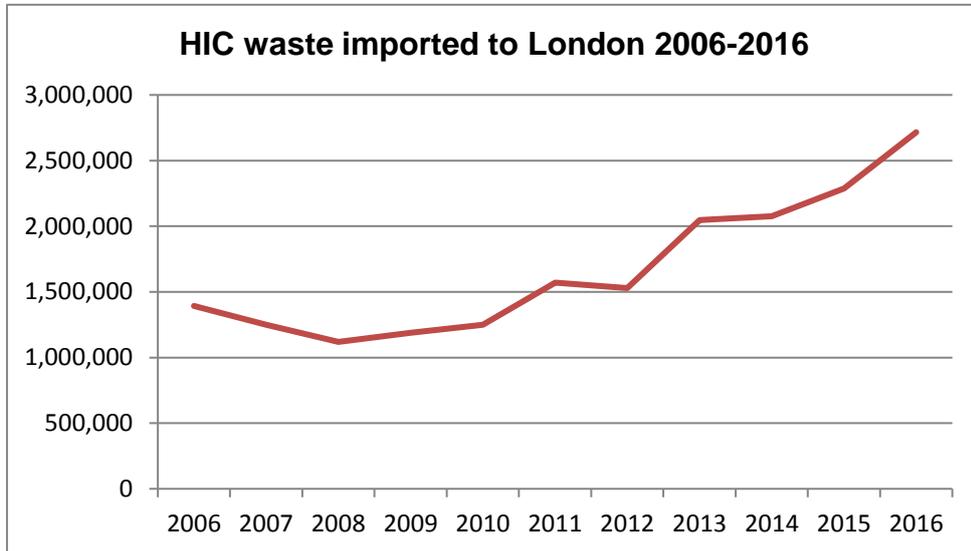
The scale of development planned in the Region as a whole means that this trend may not continue, as some of the increase seen is expansions of operation at existing sites rather than completely new sites coming forwards.



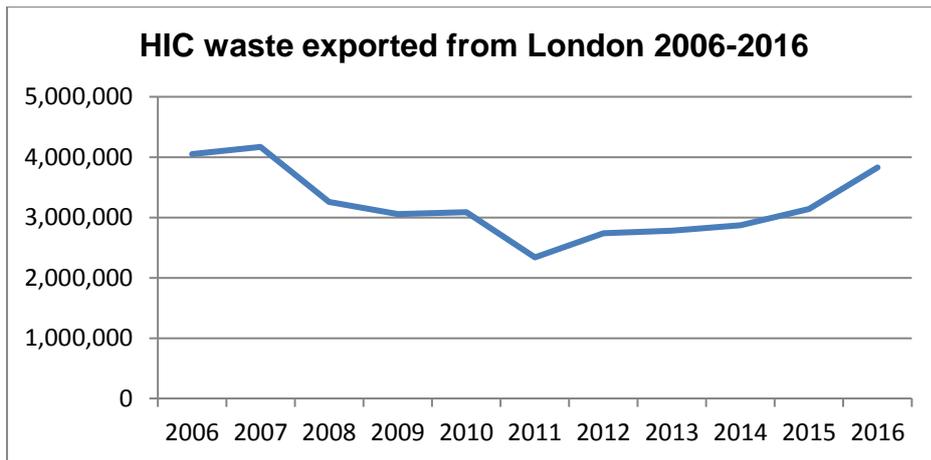
Imports and exports

Both HIC and CD&E waste **imports** to London have increased over recent years as shown in the graphs below. This is due to a number of regionally, and in some cases nationally

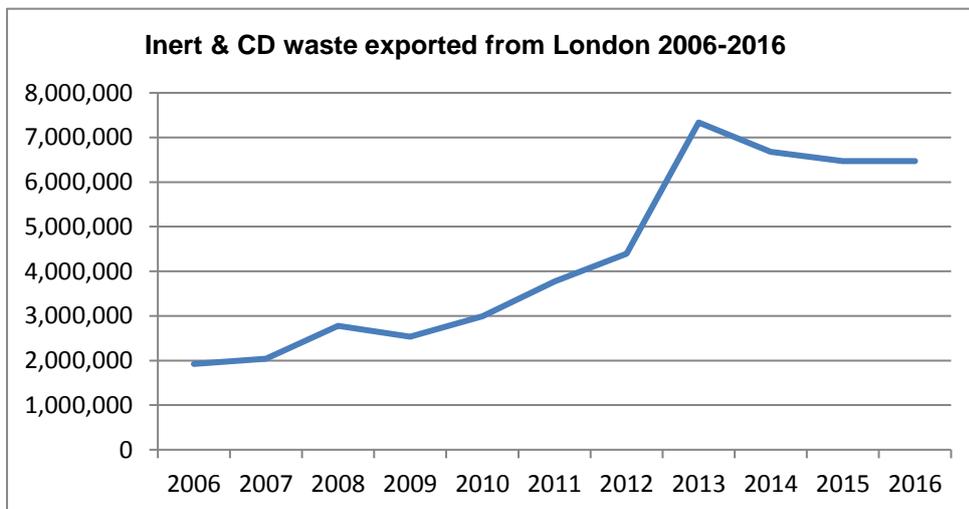
important sites for the treatment and transfer of wastes. The majority is from the South East and the East of England.



After a steady decline to 2011, **HIC** has seen a recent increase in **exports** as shown in the graph below. Some of this trend may be attributed to the increasing amount of waste destined for treatment/ export as a refuse derived fuel. The majority of exports are to South East and East of England. There is a rising trend in materials going outside of the Region to the South West and the Midlands.



Exports of CD&E wastes from London has steadily risen over recent years with a sharp increase in 2012 – 13 show in the graph below. This reflects the overall level of activity in the construction sector, particularly with respect to major projects such as Crossrail. Other major projects are in the pipeline with the Thames Tideway Tunnel project, now in the construction phase, and others such as Crossrail 2 proposed. The majority of exports go to the South East and East of England regions.



London is a net exporter of waste. In 2016 London exported 11.3m tonnes of waste and imported 3.6m tonnes.

1. Introduction

This report summarises the best available data regarding the current position with respect to waste planning policy in London, and follows on from the London RTAB Annual Monitoring report for 2015.

Where practicable the data from the previous report has been updated.

The data sources used include; the Defra waste statistics from the .gov.uk website. This includes data periodically uploaded by Defra, such as the overall performance data for local authorities, together with data on trends in treatment and disposal uploaded by the Environment Agency.

Data studies undertaken in recent years by Defra and the CIWM have also been referenced, together with data projections for waste arisings taken from the GLA's modelling commissioned for the London Plan.

Other sources of data include data requests from the Environment Agency for data relating to imports and exports of materials. All sources are acknowledged in the text.

Where there are knowledge gaps or a need for further studies on the available data this is highlighted in the text.

1.1 The New Draft London Plan

The Further Alterations to the London Plan (FALP) were adopted in March 2015. Since then there has been a consultation on the 'Minor Alterations to the London Plan' (MALP), which focused on housing standards and parking policies mainly.

In December 2017 the new Draft London Plan was produced, this included substantially revised targets for housing, showing an increase of 53% over the FALP figures with an accompanying 22 % increase in the overall waste arising.

Under the London Plan each local authority in London has a quantity of waste apportioned to it that it must plan for, that is provide sufficient safeguarded waste treatment capacity household, commercial and industrial wastes. Construction wastes and excavated materials are excluded from this system.

The apportionments system has been thoroughly revised in the new London Plan. As a part of the overall methodology the current and historic pattern of waste management has been removed from the weighting criteria used, following a workshop run by the GLA and their consultants in the autumn of 2017.

The result of this is that the new apportionment system shows a substantial shift of tonnages with a greater tonnage apportioned to the outer suburban authorities than in the previous system. Correspondingly many of the inner London Boroughs showing a reduced waste apportionment.

The projected waste arisings and waste apportionments data are provided in Appendix A.

1.2 London Plan Apportionments

Table 1 below shows the results of an exercise conducted for the 2016 Annual Monitoring Report designed to assess the performance of the 'current' i.e. FALP apportionments system.

The 'tonnes counted' is the tonnage of waste materials managed in a given area that count towards the apportioned tonnage as specified by the GLA's criteria in the London Plan. This includes materials recycled, those prepared for recycling and fuels that are used within the GLA boundary.

The overall calculation shows that there is an under-performance (a shortfall in capacity) of 1.2 million tonnes in 2015. The performance of the various waste disposal groupings varies considerably. South East London shows a surplus of over 600,000 tonnes due to its large incineration capacity mainly. Conversely, Western Riverside Waste Authority area shows a 483,000 tonne deficit, but supplies a considerable tonnage of materials to the Belvedere facility.

The West London area also shows a considerable deficit, however the apportionment system does not allow for the export of fuels outside of London, of which the West London Waste Authority exports around 350,000 tonnes per annum to a facility near Avonmouth by rail.

South London also shows a deficit, however this dataset pre-dates the completion of the Beddington Lane EfW plant.

The recent announcement of the proposed new facility at Belvedere could reduce the overall deficit by around 500,000 tonnes.

Table 1 Current Apportionments Performance vs 2016 Apportionment Targets

Group	Tonnes Counted	Total Waste Managed	Target	Apportioned Difference
South London Waste Plan	174,782	463,366	579,169	-404,387
North London Waste Plan	1,036,757	1,670,936	1,049,342	-12,585
ELWA	944,810	1,611,644	968,623	-23,813
Central London	18,464	175,014	403,903	-385,439
Western Riverside	199,060	717,686	682,260	-483,200
West London WA	551,876	1,219,879	1,112,163	-560,287
South East London	1,688,546	1,710,765	1,031,802	656,744
Totals	4,614,295	7,569,290	5,827,262	-1,212,967

Table 2 below shows a comparison between the current (FALP) apportionment system and the proposed new system in the Draft London Plan published in November 2017. There is a considerable change compared to the previous system, with notable increases in waste grouping that consist of outer-suburban local authorities predominantly. This mirrors the trends in housing targets.

The biggest change is in the West London area where the overall tonnage has increased by 62% with other significant increases in the South London and East London areas of 33% and 26% respectively.

This shift is mainly due to the overall 22% increase being moved spatially from areas of high population density (and high waste arising) to areas with a lower population density. Notably the Western Riverside area has had a decrease of 7% in apportionment.

The north London area sees a modest increase of 8%, below what may be expected due to population growth if the apportionment were increased on a per capita basis, evidencing the new approach to the apportionments system.

Table 2 New Apportionments Comparison (tonnes x 1000)

Groupings	tonnes DLP (2017)	tonnes FALP (2015)	Difference	% Change
E	1,409	1,119	290	26%
N	1,307	1,211	96	8%
SE	1,321	1,192	129	11%
W	2,084	1,285	799	62%
I	467	451	16	4%
S	887	669	218	33%
WR	733	788	-55	-7%

1.3 London Waste Plans

Table 3 shows the various groupings for waste planning in London together with details of the current situation regarding the relevant plans. Some, but not all, waste planning groupings mirror waste disposal groupings.

Table 3 London Waste Plans

ELWP	East London Waste Plan . Four East London Waste Authority boroughs of Barking and Dagenham, Havering, Newham and Redbridge formally adopted the Joint Waste Development Plan Document in February 2012. These boroughs are also represented on the East London Waste Authority (ELWA) which is the joint waste disposal authority for east London.
London Legacy Development Corporation	The London Legacy DC was formed in 2012, covering parts of Newham, Tower Hamlets, Hackney and Waltham Forest, and is the local planning authority for its area. The LLDC recognises the adopted ELWP within the Newham part of its area. Hackney and Waltham Forest are part of the NLWP, while Tower Hamlets is developing its own waste policies.
NLWP	North London Waste Plan . The seven north London boroughs of Barnet, Camden, Enfield, Hackney, Haringey, Islington and Waltham Forest are working jointly to prepare a waste plan for their area. The NLWP is in the plan preparation stage. These boroughs are also represented on the North London Waste Authority (NLWA) which is the joint waste disposal authority for north London.
Old Oak & Park Royal Development Corporation	The Old Oak & Park Royal DC was formed in April 2015, covering parts of Hammersmith and Fulham, Brent and Ealing, and is the local planning authority for its area. These 3 host boroughs also sit within either the West London Waste Plan or Western Riverside Waste Authority areas (see entries for WLWP and WRWA for more information).
SE London joint waste planning group	This group is formed of six unitary waste planning authorities working together to identify and meet the sub-regional requirements for waste management facilities. The boroughs involved are the London Boroughs of Bexley, Bromley, Lewisham, Greenwich and Southwark. The City of London subsequently joined the group, with Bexley taking responsibility for their waste apportionment. The boroughs have a shared evidence base (South East London Joint Waste Technical Paper and appendix) and separate waste policies. The South East London technical paper was updated in December 2017 with a view to support the proposed approach to waste in the New Southwark Plan: Proposed Submission version.
SLWP	South London Waste Plan . Croydon, Sutton, Merton and Kingston-upon-Thames adopted the SLWP in January 2012. The boroughs also operate a voluntary partnership, the South London Waste Partnership (SLWP), to jointly procure waste treatment and disposal contracts for municipal waste.

Unitary	Twelve unitary authorities (Bexley, Bromley, Lewisham, Greenwich, Southwark, Tower Hamlets, Croydon, Sutton, Merton, Kingston, Westminster, City of London) act as Waste Collection Authorities (WCAs) and Waste Disposal Authorities (WDAs). For waste planning purposes, ten of these authorities are in a grouping - see entries under SE London and SLWP. Tower Hamlets and Westminster are not currently in any waste planning group.
WLWP	West London Waste Plan . Six west London boroughs (Brent, Hillingdon, Harrow, Ealing, Hounslow and Richmond) formally adopted the West London Waste Plan in June and July 2015. These boroughs are also represented on the West London Waste Authority (WLWA) which is the joint waste disposal authority for west London. In July 2015 the Old Oak & Park Royal Development Corporation formally adopted the WLWP as a Development Plan Document and it is part of OPDC's Local Plan.
WRWA	This group is formed of four unitary authorities (Kensington and Chelsea, Hammersmith and Fulham, Lambeth and Wandsworth) who are represented on the Western Riverside Waste Authority (WRWA) which is the waste disposal authority for the west riverside area. In April 2015 the Old Oak and Park Royal Development Corporation (OPDC) was established which took full planning control for the part of Hammersmith & Fulham within the OPDC boundary. The authorities within the WRWA area including OPDC have been working together in respect of waste evidence and have recently prepared a Waste Technical Paper . Each authority is dealing with waste planning matters through their respective Local Plans, while working together as part of the duty to cooperate.

Source: London Waste Planning Forum/North London Waste Plan

1.4 London Waste Plan Links

Table 4 below lists the current plans for the thirty three London Boroughs and two mayoral development corporations, details of the waste policies with links to the documents, and details of any waste planning group the planning authority is in.

Table 4 Borough Local Plan Waste Policies

	Borough	Waste policies	Group
1	Barking and Dagenham	Core Strategy (2010): CR3: Sustainable Waste Management	ELWP
2	Barnet	Core Strategy (2012): Policy CS14: Dealing with our waste	NLWP
3	Bexley	Core Strategy (2012): Policy CS20 Sustainable waste management UDP (2004): E1 and ENV39 – ENV41.	Unitary [SE London group]
4	Brent	WLWP (2015): WLWP policies 1-6	WLWP
5	Bromley	UDP (2006): ER2 waste management facilities	Unitary [SE London group]
6	Camden	Local Plan (2017): Policy CC5 Waste	NLWP
7	City of London	Local Plan (2015): Policy CS17 Waste Monitoring Waste Report	Unitary [SE London group]
8	Croydon	Local Plan (2018) Policy SP6	SLWP
9	Ealing	WLWP (2015): WLWP policies 1-6	WLWP

	Borough	Waste policies	Group
10	Enfield	Core Strategy (2010): Core Policy 22: Delivering Sustainable Waste Management Development Management (2014) DMD 57 Responsible Sourcing of Materials, Waste Minimisation and Green Procurement	NLWP
11	Greenwich	Royal Greenwich Local Plan: Core Strategy with Detailed Policies (2014): Policy IM2 Waste Apportionment	Unitary [SE London group]
12	Hackney	Core Strategy (2010): Core Strategy Policy 32: Waste	NLWP
13	Hammersmith and Fulham	Local Plan (2018) Policy CC6- Strategic Waste Management, Policy CC7- On-site Waste Management	Unitary [WRWA]
14	Haringey	Local Plan (2017) Strategic Policies SP6, Development Management DM30, Site Allocations SA4	NLWP
15	Harrow	Core Strategy (2012): Core Policy CS1 X	WLWP
16	Havering	Core Strategy (2008): CP11 Waste Management	ELWP
17	Hillingdon	Local Plan Part 1 (2012): Policy EM11: Sustainable Waste Management WLWP (2015): WLWP policies 1-6	WLWP
18	Hounslow	WLWP (2015): WLWP policies 1-6	WLWP
19	Islington	Core Strategy (2011): Policy CS 11: Waste	NLWP
20	Kensington and Chelsea	Consolidated Local Plan (2010, as amended 2013, 2014, 2015) chapter 36: Policy CE3 Waste	Unitary [WRWA]
21	Kingston	Core Strategy (2012): CS 9 Waste Reduction and Management	SLWP
22	Lambeth	Lambeth Local Plan 2015 Policy EN7 Sustainable Waste Management	Unitary [WRWA]
23	Lewisham	Core Strategy (2011): Core Strategy Policy 13 Addressing Lewisham's waste management requirements Site Allocations (2013) Section 2.8 Safeguarded waste sites	Unitary [SE London group]
24	LLDC	Local Plan (2015) IN2 Planning for waste	[see entry in table 3]
25	Merton	Core Strategy (2011): CS 17 Waste Management	SLWP
26	Newham	Core Strategy (2012): INF3 Waste and Recycling	ELWP
27	Old Oak & Park Royal Development Corporation	West London Waste Plan (2015) WLWP (2015): WLWP policies 1-6 OPDC (Regulation 19) Revised Draft Local Plan (2017) EU6 Waste, EU7 Circular and sharing economy	[see Hammersmith and Fulham, Brent and Ealing entries]

	Borough	Waste policies	Group
28	Redbridge	Local Plan (2018) LP17 F Delivering community infrastructure	ELWP
29	Richmond	WLWP (2015): WLWP policies 1-6	WLWP
30	Southwark	Core Strategy (2011): Strategic Policy 13 – High environmental standards: 4-6	Unitary [SE London group]
31	Sutton	Local Plan (2018) Policy 14	SLWP
32	Tower Hamlets	Core Strategy (2010): Policy SP05 Managing Development Document (2013) : Policy DM14	Unitary
33	Waltham Forest	Core Strategy (2012): Policy CS6: Promoting Sustainable Waste Management and Recycling Development Management Policies (2013) : DM10 - Resource Efficiency and High Environmental Standards, DM11 - Decentralised and Renewable Energy	NLWP
34	Wandsworth	Local Plan (2016) Core Strategy PL7 Land for Industry and Waste, Development Management DMI 5 Allocated Sites for waste management facilities, DMI 6 Development of waste management facilities on unallocated sites, DMI7 Development criteria for waste sites. Site Specific Allocations Appendix 2 Waste Management Sites	Unitary [WRWA]
35	Westminster	City Plan: Strategic Policies (2013) S44 Sustainable Waste Management	Unitary

Source: London Waste Planning Forum/North London Waste Plan

2. Waste Arisings

The following data gives a breakdown of the latest (2016) available data for the waste arisings in London from Environment Agency and Defra published sources and is compared with forecasts by the GLA and other studies

2.1 Local Authority Collected Waste (LACW previously known as MSW)

The waste collected by local authorities was previously known as MSW or Municipal solid Waste. The definition of MSW has been clarified to encompass “waste collected from households or waste similar to that collected from households”.

MSW therefore includes a significant proportion of waste from commercial and industrial sources. From the point of view of understanding the amount of waste to be managed, LACW is recorded through the WasteDataFlow system of local authority reporting to Defra, the data from which is available online.

The overall waste arisings are captured in the EA ‘Waste Data Interrogator’ and the Hazardous Waste Interrogator’ which are based upon the duty of care system and waste returns data for

licensed sites and the waste consignment note systems respectively. However there are limitations in the accuracy of the data at a local level, mainly concerning the accuracy of data recording, although at a regional and sub-regional level the data is considered to give a good overall picture of waste tonnages and movements.

Another limitation to estimating the overall waste arising comes from the fact that not all waste is handled at permitted waste facilities. A significant tonnage of material flows through plants that licensed under the waste 'exemptions' system. No data for waste arisings is collected by the Environment Agency from these facilities.

A study was produced by Defra in 2014 which looked at the estimated commercial and industrial waste arisings at each category of exempt site¹.

2.1.1 Recent Trends

The latest data available for 2016, published in February 2018 shows the following general trends in the household waste arising² for England overall;

- The 'waste from households' recycling rate (including composting and preparing for reuse), was 44.2 per cent in the 12 months to March 2016, up from 43.9 per cent in the previous 12 month period to March 2015. This was down from the peak of 44.8 in 2014
- The quarterly 'waste from households' recycling rate (including composting and preparing for reuse) was 43.9 per cent in the three month period to March 2016. This compares to 44.7 per cent for the same period in 2015. Allowing for rejects this equated to a recycling rate of 39.5%
- Total waste generated by households over the 12 months to March 2016 was 22.5 million tonnes, an increase of 0.5% per cent compared to the previous 12 months. The tonnage of materials collected to be recycled, composted and prepared for reuse rose to 10.02 million tonnes, a rise of 0.98% compared with the previous 12 months.
- Local authority collected waste going to landfill over the 12 months to December 2014 was down to 4.6 million tonnes from 5.6 million tonnes in the previous year.

2.2 Waste Arisings by Treatment Type

The data in Table 5 below shows the trends in reported MSW/LACW from 2007-2017 and is taken from the data reported on the .gov.uk waste data page. Table 6 shows that there has been a pronounced movement away from landfill, the overall tonnage has declined, and the recycling and incineration rates have increased considerably for non-household waste, with LACW showing a flat-lining in recent years

¹ New Methodology to Estimate Waste Generation by the Commercial and Industrial Sector in England; DEFRA Project Report: Final EV0804 August 2014

²https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/451687/Statistical_release_oct_to_dec_2014.pdf

Table 5 London Waste Arisings by Source (tonnes x1000)

Household waste from:	2007/08	2008/09r	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
Regular household collection	2,013	1,784	1,678	1,657	1,598	1,596	1,623	1,654	1,673	1,677
Other household sources	247	237	252	250	239	207	234	238	276	225
Civic amenity sites	230	190	140	142	133	147	133	143	144	141
Household recycling	851	911	965	980	1,012	1,003	1,021	1,008	986	1,006
Total household	3,342	3,123	3,035	3,029	2,983	2,954	3,012	3,045	3,079	3,049
Non household sources (excl. recycling)	734	749	692	633	544	522	531	514	508	537
Non household recycling	74	83	95	96	93	84	89	98	110	111
Total LA collected waste	4,149	3,955	3,822	3,758	3,619	3,560	3,632	3,658	3,698	3,697

<https://www.gov.uk/government/statistical-data-sets/env18-local-authority-collected-waste-annual-results-tables>

Table 6 Trends in Waste Treatment by Methodology in London (tonnes x1000)

Method	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
Landfill	2,209	1,946	1,882	1,696	1,116	911	889	754	751	463
(percentage)	53.2%	49.0%	48.7%	44.7%	30.6%	25.5%	24.4%	20.6%	20.3%	12.5%
Incineration with EfW	919	912	803	896	1,303	1,462	1,525	1,679	1,708	1,966
(percentage)	22.1%	22.9%	20.8%	23.6%	35.7%	40.9%	41.9%	45.9%	46.1%	52.9%
Incineration without EfW	0	0	1	0	0	0	-	-	20	26
(percentage)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%	0.7%
Recycled/composted	925	994	1,060	1,076	1,105	1,088	1,110	1,107	1,096	1,117
(percentage)	22.3%	25.0%	27.4%	28.3%	30.3%	30.4%	30.5%	30.2%	29.6%	30.1%
Other	101	123	117	130	124	115	116	122	131	145
(percentage)	2.4%	3.1%	3.0%	3.4%	3.4%	3.2%	3.2%	3.3%	3.5%	3.9%
Total	4,154	3,975	3,862	3,797	3,648	3,576	3,640	3,662	3,705	3,716

<https://www.gov.uk/government/statistical-data-sets/env18-local-authority-collected-waste-annual-results-tables>

NB. "Other" includes material which is sent for Mechanical Biological Treatment (MBT), mixed municipal waste sent for Anaerobic Digestion (AD) and that disposed through other treatment processes.

2.3 Recent Trends in Recycling Rates

Figure 1 below shows the trends in waste management in London from 2007 to 2017. It shows that the tonnage of materials destined for recycling has flat-lined over that period. However the amount of materials destined for landfill has dropped steeply, with a corresponding increase in the amount of materials sent for Energy from Waste, either directly or exported as a fuel.

Overall the general trend in recycling 'flat lining' (and the recent slight drop) is one that reflects the position in England as whole. This can be attributed in part to

- down-sizing of packaging plastic and glass in particular which results in a lower tonnage collected
- Changes in behaviour, for instance fewer newspapers are being bought due to the growth of electronic media. However as far as the paper/cardboard fraction of the waste arising is concerned there has also been a growth in on-line shopping which has increased the amount of cardboard in domestic waste.
- A lack of activity by local authorities in recent years in 'behavioural' change projects and waste communications generally

- Changes to the regulations surrounding leaf litter, which can no longer be composted, as it has been deemed unsuitable by the Environment Agency
- There are also latent inflationary pressures such as the upturn in the economy and increase in lower occupancy dwelling stock, which will have an increasing effect as housing numbers increase in London.

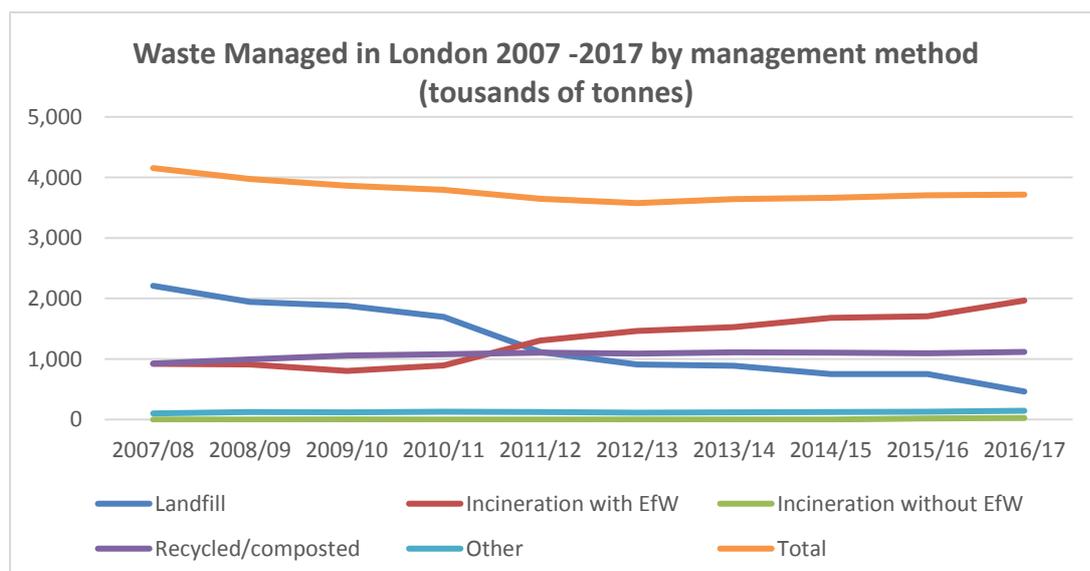
The issue of England’s ‘flat lining’ recycling performance has been much debated by the industry in recent years, highlighting all of these issues, others such as ‘green fatigue’. There has been much debate in the trade and general media about confusion that some residents may have over collection arrangements, and the need for a simpler approach to waste collections generally.

The new waste strategy for England which will be produced in the autumn of 2018 may address some of these issues, together with measures to encourage the movement towards a more circular economy outlined in Defra’s 25 year plan which was published in January. There may be measures aimed at cutting the amount of plastic packaging in circulation such as the take back schemes which have recently been mooted, and will be the subject of a consultation later in the year.

In comparison with other parts of the UK England is falling behind Wales, Scotland and Northern Ireland. A key difference between England and the rest of the UK as far as the overall waste management landscape is concerned lies in the introduction of incentives and drivers that are not available in England.

For instance with respect to organic wastes Wales has adopted source-segregated food waste collection as a compulsory measure for all households, and backed this with an Anaerobic Digestion procurement campaign supported financially by the Welsh Government. Scotland has initiated ambitious targets for adopting ‘zero waste’ and Northern Ireland has ambitious recycling targets above those set as a statutory minimum.

Figure 1 Recent Trends in Waste Management in London



2.4 Waste Growth

The overall picture of waste growth in London is difficult to assess overall; in the previous year ALCO members have reported a slight decline in inner London Boroughs compared with a notable increase in the first half of 2017 in outer suburban boroughs, indicating possibly that an overall return to annual growth in the LACW arisings could be apparent following a period of decline attributed to the economic down-turn. Recent reports and data from other parts of England have indicated that there may be a return to annual waste growth, of the type experienced before the economic downturn of recent years³. The national data indicates that this may be the case at the present time

It has yet to be established whether there has been any decoupling of economic growth and waste arisings per capita. This will be a key factor in achieving Mayoral targets for recycling and waste minimisation, as will the effect of population growth.

Uncertainties over this mean that forecasting London's future waste arising is problematic, with a considerable degree of uncertainty; the results of the latest forecasts by SLR for the GLA are shown below. It is notable that a 'best' and 'worst' case scenario approach is not adopted in this study.

2.5 Household, Industrial and Commercial waste (HIC) Arisings

Table 7 to Table 10 below show the latest data (2016) available for the household, industrial and commercial waste stream using EA data sources⁴.

Table 7 shows the figures for total deposits of HIC wastes at all permitted facilities in London, including imports of materials

Table 7 HIC Arisings estimation from EA Data Sources

Deposited in London	Tonnes
Total deposits in London	10,160,594
Identified as imports	2,653,355
'Non-codeable'	829
London waste deposited in London	7,444,824

Table 8 shows the tonnage of materials deposited in transfer stations in London

Table 8 London HIC Transferred

Deposited in London	Tonnes
Waste deposited at Transfer	4,142,902
Identified as imports	712,070
'Non codeable'	829
London waste deposited at transfer	3,429,863

Table 9 shows the tonnage of materials exported from London, including materials destined for transfer stations

³ <http://www.letsrecycle.com/news/latest-news/english-cities-hit-by-rising-waste-tonnages/>

⁴ Data request

Table 9 Waste Exported from London

Exported from London	Tonnes
Waste from London all sites	3,900,379
Waste from London to transfer	270,955

Table 10 shows the tonnage of materials produced by London and deposited at permitted facilities, including exports

Table 10 London HIC Arising

All London HIC arisings	Tonnes
London arisings all sites	11,345,203
London arisings not inc transfer	7,644,385

Care needs to be taken when comparing datasets. The figures produced for the London Plan modelling studies appear to be an estimation of the actual waste arising. This in effect includes materials originating in London that are treated at all sites.

This would include materials treated at permitted and non-permitted (i.e. exempt) facilities. This means that the figures in Table 7 – Table 10 above will under-estimate the actual waste arising as these figure are for the wastes treated at permitted sites where data is returned to the Environment Agency.

Data is not collected for the tonnages of materials deposited at exempt facilities, and no reliable estimation exists for these, although a study was published by Defra in 2015 which set out a potential methodology for estimating this arising based upon EA data for the type and number of exempt sites in London (see Section 4.5)

Using this it can be estimated that the arisings treated at exempt sites may be in the region of 1.2 million tonnes per annum with 32,000 tonnes of this being WEEE. A comparison between the Figure 2 and in Table 10 above and the calculated, together with the calculated figure for the exempt sites would give a figure of approximately 7.8 million tonnes, which is a close approximation to the Draft London figures in table 11 below.

2.6 London Plan Waste Projections

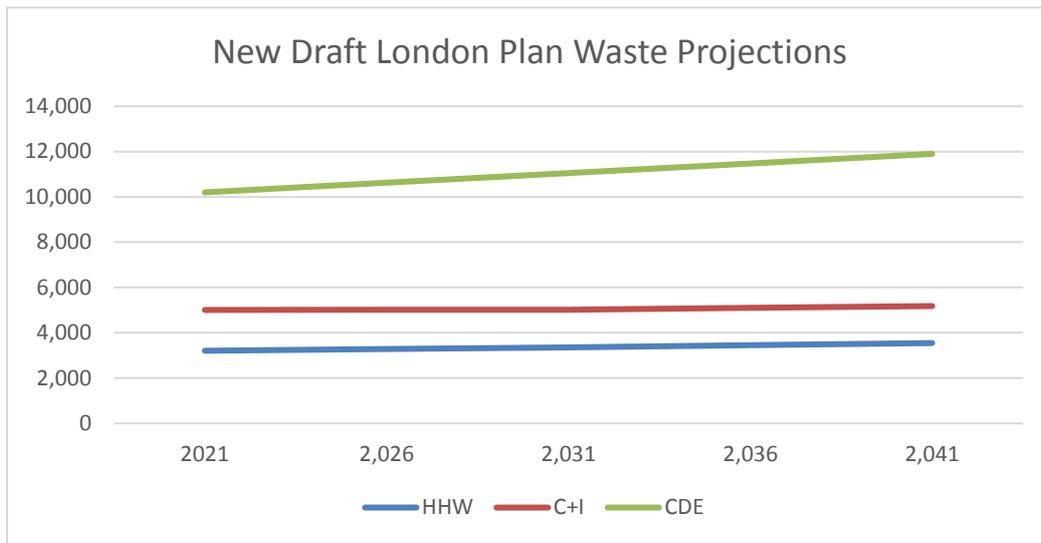
Table 11 and Figure 2 below show the overall totals for Household, C+I and CDE waste in the NDLP document. These are based upon competing projections for population growth and declining waste production per capita for MSW, and a projection based upon the projected level of economic activity (per capita GDP) for each business sector over the plan period for C+I waste.

Table 11 London Plan Projections for Household and C+I Waste

Year	2021	2026	2031	2036	2041
HHW	3,207	3,287	3,348	3,453	3,546
C+I	5,009	5,012	5,021	5,097	5,180
CDE*	10,200	10,625	11,050	11,475	11,900

Source: Waste Forecasts & Apportionments – Task 1 March 2017 and Waste Forecasts & Apportionments – Task 2 May 2017; *CDE waste arising based on the projected 'intermediate' scenario

Figure 2 GLA Waste Arisings Forecast – NDLP



Source: Model Guide and Task 4 Findings (GLA/SLR) – supporting evidence document

2.7 Commercial and Industrial Waste

The commercial and industrial waste stream is a large proportion of the overall waste arising. However the data for this is less robust than for the household waste arisings due to the datasets used and the way the classification of wastes within the data reporting regime causes an overlap with the household stream, together with the mixed codes causing a lack of good data for the composition of C+I waste.

In terms of the overall tonnage, it is considered that at a National and Regional level the data is robust. At the sub-regional level there is less confidence and much less so at the local level and the individual waste streams. There have been comparatively few studies that have addressed this and more work is needed in this field. Overall trends in the waste arisings from the various sector, and the general types of waste can be predicted, some of the most recent studies are highlighted below;

The breakdown of C+I waste arisings when compared with other neighbouring regions in Table 12 shows lower general activity of the industrial sector and the dominance of the retail, food and other service based industries

Table 12 C+I Regional Comparison (Estimation by CIWM/Ricardo)

	Business sector	East of England	London	South East	Total	%
1	Food, drink & tobacco	737,057	388,328	313,034	1,438,418	27.00%
2	Textiles / wood / paper / publishing	293,988	216,282	575,500	1,085,771	19.92%
3	Power & utilities	111,936	91,405	708,342	911,684	10.03%
4	Chemicals / non-metallic minerals manufacture	458,390	122,608	430,241	1,011,239	12.12%
5	Metal manufacturing	362,707	52,939	268,894	684,540	7.73%
6	Machinery & equipment (other manufacture)	199,917	107,515	293,226	600,658	17.90%
7	Retail & wholesale	981,064	1,246,028	1,444,261	3,671,353	33.94%
8	Hotels & catering	249,681	505,909	445,253	1,200,843	42.13%
9	Public administration & social work	258,827	385,967	420,973	1,065,767	36.21%
10	Education	145,552	193,626	219,172	558,350	34.68%
11	Transport & storage	256,865	350,458	331,932	939,255	37.31%
12	Other services	450,674	1,149,608	799,636	2,399,917	47.90%
	Total	4,506,659	4,810,673	6,250,463	15,567,795	30.90%

Source CIWM/AEA

NB. Total for England 47.9M tonnes which equates to approximately 10% of the overall total for England

2.8 Estimated/ Projected C+I Arisings (England)

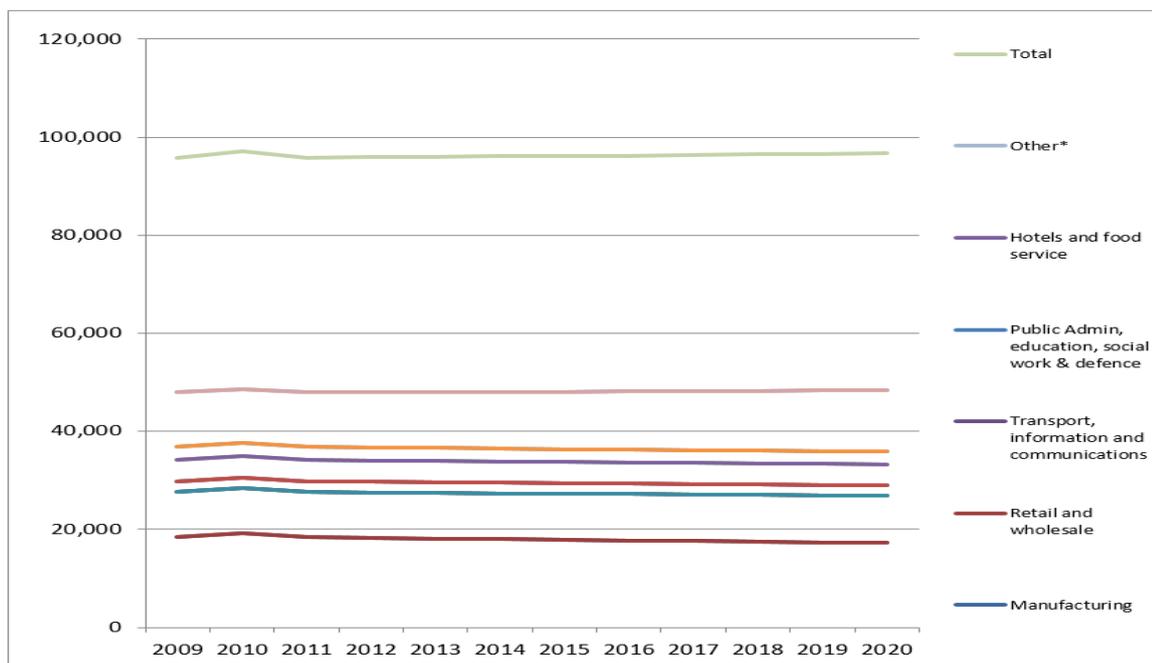
The data below in Table 13 and Figure 3 is taken from the recent CIWM study into C+I waste arisings in the UK and Ireland. In comparison with the GLA dataset (see table 15 and figure 6) it can be seen that overall waste arising is predicted to be on a flat growth curve. This may not be the case in the event of a significant upturn in the economic cycle. Of most significance to the London area is the overall tonnage – generally the London C+I arising is 10% of the overall national ‘England’ figure.

Table 13 Projected C+I Arisings (England)

	2013	2014	2015	2016	2017	2018	2019	2020
Manufacturing	18,107	17,980	17,854	17,729	17,605	17,482	17,360	17,238
Retail and wholesale	9,304	9,351	9,398	9,445	9,492	9,539	9,587	9,635
Transport, information and communications	2,167	2,156	2,146	2,135	2,124	2,114	2,103	2,092
Public Admin, education, social work & defence	4,362	4,358	4,354	4,349	4,345	4,340	4,336	4,332
Hotels and food service	2,644	2,631	2,618	2,605	2,592	2,579	2,566	2,553
Other*[1]	11,413	11,561	11,712	11,864	12,018	12,174	12,333	12,493
Total	47,997	48,037	48,082	48,127	48,176	48,228	48,285	48,343

Units = tonnes x1000 - Source – CIWM/AEA

Figure 3 CIWM/ Ricardo AEA Projected C+I Arisings for England (2013)



Source – CIWM/AEA

It may be expected that the greatest proportion of any C+I waste growth would be in the service and construction sectors due to the relative strength and predicted activities in these sectors. CD+E will tend to increase due to the planned major developments such as Thames Tideway Tunnel, HS2 and the OAPF development areas.

2.8.1 Household and Commercial and Industrial Waste Arisings Comparison

The estimated arisings projected by the GLA's waste model has been compared with the estimations based upon EA 'waste received' data in Table 14 and Table 15 and the estimation of the C+I waste arising at exempt facilities in Table 50.

Table 14 GLA Model Waste Arisings Forecast (2012 – 2018)*⁵

(tonnes)	2012	2013	2014	2015	2016	2017	2018
HH	2,954,018	2,995,561	3,036,563	3,076,469	3,115,267	3,152,869	3,182,306
LACW	3,559,991	3,600,043	3,639,744	3,678,532	3,716,389	3,753,220	3,782,052
CIW	4,691,984	4,680,438	4,670,361	4,661,703	4,654,415	4,648,450	4,643,763
Total	8,251,976	8,280,481	8,310,105	8,340,235	8,370,804	8,401,670	8,425,815

Table 15 2013/15 Data comparison

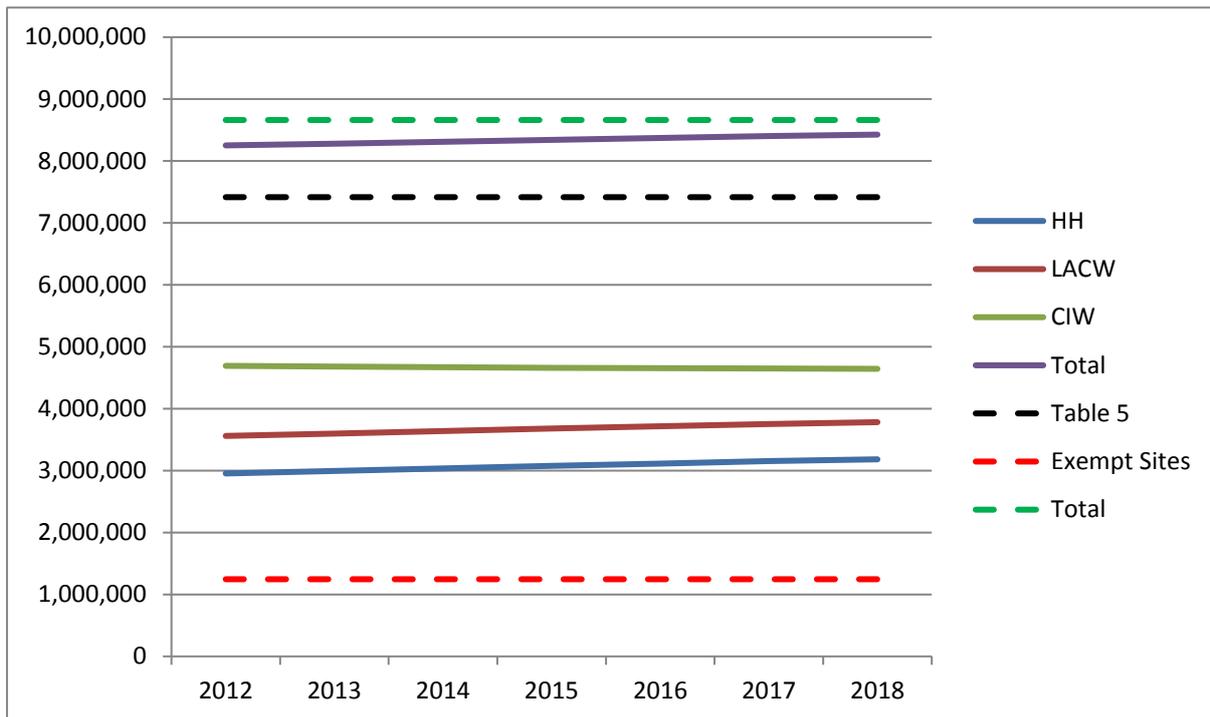
Data	2013 (tonnes)
HH (GLA)	2,995,561
LACW (GLA)	3,600,043
CIW (GLA)	4,680,438
Total	8,280,481
Table 5 'EA Received' Data (2015)	7,415,983
Table 49 Exempt Sites	1,246,040
Total	8,662,023
Difference	381,542

The data comparison is shown in Figure 4, where the GLA data is displayed using solid line and the estimates for 2013 superimposed as dotted lines. It shows that the 'waste received figure' underestimates the overall waste arising compared to the GLA figure. This may be expected as the GLA figure is a theoretical figure estimating all arisings at source rather than just those handled at waste facilities.

When the total for the GLA estimation is compared with a total derived from the EA 'waste received' data and the estimation of the C+I arising handled at exempt facilities, the GLA total is within the range of the 'EA' and 'EA plus exempt' total. The difference between the two totals being 4.4% or 380,000 tonnes approximately.

⁵ Data from the GLA's FALP model to be updated in 2018

Figure 4 Table 15 Arisings Data Comparison



Source: London Waste Planning Forum

2.9 Hazardous Waste

Hazardous waste data, on the whole tends to be more reliable than the data for HIC wastes as this is derived from the system of using consignment notes where the parties both sending and receiving wastes have to submit data to the EA. The data below is the latest available (2016) published on www.gov.uk.

2.9.1 Hazardous Waste Arisings Trends

The main source of data for hazardous waste movements is the Environment Agency's 'Hazardous Waste Data Interrogator' (HWDI). This is similar to the regular waste interrogator (WDI) in terms of nature of the database and the interface.

The regular interrogator utilises data from the waste returns reported by permitted sites – the HWDI utilises data from the hazardous waste consignment note system where each sender and recipient has to report the data from each waste movement. Due to this and the nature of the regulation of this waste stream, the data from HWDI is much more accurate, and more 'granular' than the corresponding WDI. The data in Table 16 and Table 17 shows the main arisings managed in the London Region and broken down by type.

Table 18 shows the deposits of hazardous wastes from London broken down by region together with the waste fates, and shows an overall total of 306,812 tonnes including 56,690 to transfer stations.

Table 16 London - Hazardous waste managed by EWC chapter and former planning sub-region 2016 (tonnes)

EWC Chapter	EWC Chapter Description	Central London	East London Waste Authority	North London Waste Authority	South East London	South London	West London Waste Authority	Western Riverside Waste Authority	Total
01	Mining and Minerals	-	1	-	-	-	-	-	1
02	Agricultural and Food Production	0	7	0	0	-	0	0	8
03	Wood and Paper Production	-	-	-	-	3	-	-	3
04	Leather and Textile Production	-	-	-	-	-	-	-	-
05	Petrol, Gas and Coal Refining/Treatment	5	1	4	-	37	-	-	47
06	Inorganic Chemical Processes	6	138	839	84	11	46	1	1,126
07	Organic Chemical Processes	2	60	4	24	64	13	1	167
08	MFSU Paints, Varnish, Adhesive and Inks	70	605	150	161	401	347	133	1,867
09	Photographic Industry	27	271	57	51	81	1,027	14	1,529
10	Thermal Process Waste (inorganic)	-	12	264	4	2	5	2	289
11	Metal Treatment and Coating Processes	10	82	191	27	131	3,119	26	3,586
12	Shaping/Treatment of Metals and Plastics	2	808	57	34	75	892	18	1,887
13	Oil and Oil/Water Mixtures	1,367	6,176	5,705	11,189	5,565	16,059	2,491	48,552
14	Solvents	82	435	114	102	105	134	26	997
15	Packaging, Cloths, Filter Materials	165	1,381	295	199	431	995	172	3,637
16	Not Otherwise Specified*	1,972	5,214	3,254	2,745	4,231	5,900	1,286	24,601
17	C&D Waste and Asbestos	19,377	24,436	15,983	47,548	10,483	22,582	49,735	190,144
18	Healthcare	3,158	2,692	8,451	4,104	3,310	4,817	7,720	34,251
19	Waste Treatment /Water Treatment and Water Industry	1	7,843	15,336	33,440	35	968	8	57,631
20	Municipal and Similar Commercial Wastes	454	4,893	2,717	3,202	4,185	10,438	921	26,811
Total		26,699	55,054	53,420	102,915	29,151	67,340	62,554	397,133

Table 17 London - Hazardous waste deposited by EWC chapter and former planning sub-region (2016 tonnes)

EWC Chapter	EWC Chapter Description	Central London	East London Waste Authority	North London Waste Authority	South East London	South London	West London Waste Authority	Western Riverside Waste Authority	Total
01	Mining and Minerals	-	0	-	-	-	-	-	0
02	Agricultural and Food Production	-	7	-	-	-	-	-	7
03	Wood and Paper Production	-	-	-	-	0	-	-	0
04	Leather and Textile Production	-	0	-	-	-	-	-	0
05	Petrol, Gas and Coal Refining/Treatment	-	4	-	-	-	-	-	4
06	Inorganic Chemical Processes	-	48	3	-	9	-	-	60
07	Organic Chemical Processes	-	71	1	-	-	-	-	72
08	MFSU Paints, Varnish, Adhesive and Inks	-	542	0	12	155	16	-	725
09	Photographic Industry	-	89	-	16	0	19	-	125
10	Thermal Process Waste (inorganic)	-	9	-	-	-	-	-	9
11	Metal Treatment and Coating Processes	-	4	-	14	66	-	-	84
12	Shaping/Treatment of Metals and Plastics	-	51	-	9	25	3,628	-	3,713
13	Oil and Oil/Water Mixtures	11	4,535	5	7,952	247	9,980	-	22,729
14	Solvents	2	626	11	19	64	32	-	753
15	Packaging, Cloths, Filter Materials	3	1,017	39	463	200	42	-	1,763
16	Not Otherwise Specified*	34	6,235	800	9,346	968	904	99	18,386
17	C&D Waste and Asbestos	184	75,361	-	302	559	0	64	76,471
18	Healthcare	-	7,434	726	5,021	320	7,576	126	21,203
19	Waste Treatment /Water Treatment and Water Industry	-	149	3	0	1	322	-	475
20	Municipal and Similar Commercial Wastes	6	2,417	122	46	47	3,295	17,894	23,829
Total		240	98,598	1,709	23,202	2,661	25,812	18,184	170,408

Source www.gov.uk

NB - The Environment Agency is required to monitor registered hazardous waste movements. The data published here is a summary of these movements. The same waste may be moved between multiple facilities and each separate movement is recorded.

Table 18 London Hazardous Waste Deposits by Fate (2016 tonnes)

Waste Fate	Central London	East London Waste Authority	North London Waste Authority	South East London	South London	West London Waste Authority	Western Riverside Waste Authority	Total
Incineration with energy recovery	-	-	-	-	0	-	-	0
Incineration without energy recovery	-	-	-	4,282	-	5,906	-	10,188
Landfill	-	40	-	-	0	-	-	41
Long term storage	-	-	-	-	-	-	-	-
Other Fate	-	-	-	6	-	0	-	6
Recovery	-	75,441	888	9,131	89	10,955	4,067	100,571
Rejected	-	10	-	-	-	19	-	29
Transfer (D)	185	1,319	750	1,354	1,127	1,757	127	6,618
Transfer (R)	56	9,240	71	8,430	1,222	7,176	13,990	40,185
Treatment	-	12,547	-	-	223	-	-	12,770
Total	240	98,598	1,709	23,202	2,661	25,812	18,184	170,408

Source: HWDI (2014)

2.9.2 Trends in Hazardous waste arisings

Table 19 and the graph in Figure 5 below shows the overall trend in the hazardous waste arising in London from 2008/9 to 2013. It shows that in recent years there was a downward trend from 2009 to 2011 following a spike associated with the financial downturn in 2008. For 2012 to 2013 there has been an increase in hazardous waste, to 128,459 tonnes and an increase in the amount recovered in that period, to 63,461 tonnes.

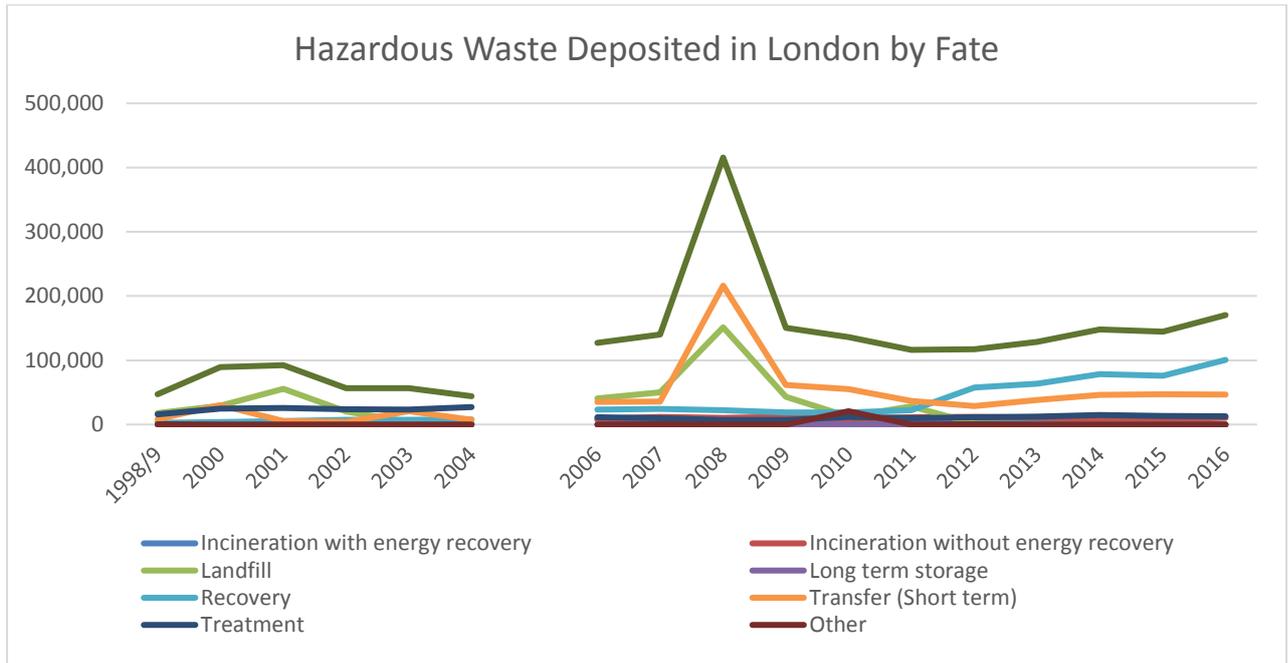
Table 19 Trends in Hazardous waste⁶ (tonnes)

EWC chapter	EWC Chapter Description	2008	2009	2010	2011	2012	2013	2014	2015	2016
01	Mining and Minerals	222	1,558	1,174	1,141	3,483	4,118	1,450	44	1
02	Agricultural and Food Production	84	21	5	3	6	5	7	11	8
03	Wood and Paper Production	0	1	0	3	10	5	3	2	3
04	Leather and Textile Production	1	1	1	1	0	1	1	0	0
05	Petrol, Gas and Coal Refining/Treatment	204	216	139	198	985	33	244	85	47
06	Inorganic Chemical Processes	6,670	7,263	7,048	6,924	9,928	5,128	4,821	1,726	1,126
07	Organic Chemical Processes	7,704	6,686	2,643	399	318	289	189	125	167
08	MFSU Paints, Varnish, Adhesive and Inks	3,381	3,306	3,130	2,387	2,038	1,856	2,047	1,990	1,867
09	Photographic Industry	1,919	1,527	1,695	1,852	2,482	2,133	2,007	1,884	1,529
10	Thermal Process Waste (inorganic)	84	59	49	256	98	16	19	95	289
11	Metal Treatment and Coating Processes	10,076	9,621	7,612	6,721	5,263	1,457	1,457	3,913	3,586
12	Shaping/Treatment of Metals and Plastics	1,678	871	1,165	937	828	1,046	1,283	1,564	1,887
13	Oil and Oil/Water Mixtures	232,416	50,951	49,262	52,161	45,621	52,609	48,773	48,336	48,552
14	Solvents	1,575	916	882	1,823	1,777	1,144	1,229	1,293	997
15	Packaging, Cloths, Filter Materials	3,106	3,306	3,156	2,997	3,913	4,039	3,518	3,461	3,637
16	Not Otherwise Specified*	43,623	44,759	37,123	33,732	30,637	24,136	22,867	27,790	24,601
17	C&D Waste and Asbestos	205,512	72,825	123,643	169,002	154,204	110,454	188,758	157,470	190,144
18	Healthcare	29,635	29,406	26,420	28,126	27,916	30,802	29,904	23,590	34,251
19	Waste/Water Treatment and Water Industry	200,253	64,243	35,080	42,005	54,304	56,594	52,623	49,180	57,631
20	Municipal and Similar Commercial Wastes	17,728	12,401	10,655	9,437	10,874	10,947	19,245	24,746	26,811
99	Unclassified	-	-	-	-	-	-	-	-	-
	Total	765,873	309,937	310,881	360,104	354,685	306,812	380,444	347,303	397,133

Source www.gov.uk

⁶ NB the spike in the hazardous waste arising in 2008 was largely due to contaminated soils from the Olympic Park site

Figure 5 Trends in hazardous waste treatment in London (2006 – 2016)



2.10 Construction, Demolition and Excavated Materials Wastes

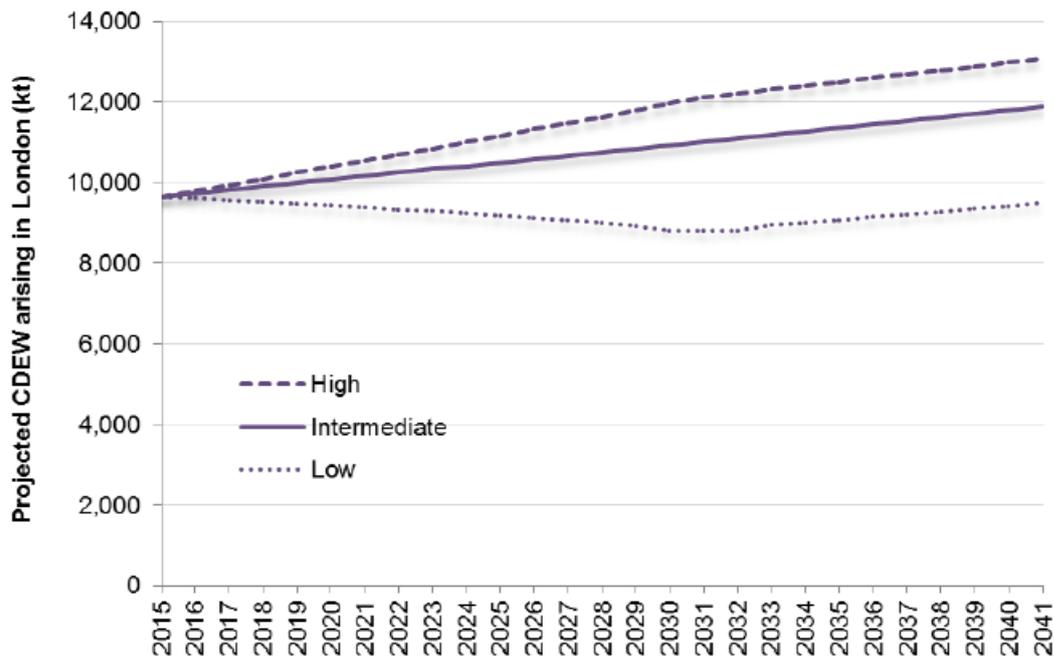
The tonnage of CDE wastes produced in London is an important aspect of its waste management due to the large tonnage involved and the fact much of this material is deposited outside of London. The amount of construction activity proposed in the short to medium term indicates that this waste arising is likely to remain high and tend to increase. Major projects such as HS2 and Cross Rail 2, and the major developments in the Opportunity Areas will make a significant contribution to this.

2.11 New Draft London Plan/SLR Estimations

Construction waste in London has been estimated and forecast by SLR in the document “Task 2 – CDEW and Hazardous Waste Forecasts May 2017” which is part of the supporting documents for the New Draft London Plan.

This builds on the work done by Capita Symonds in 2005 commissioned by the Office of the Deputy Prime Minister, and the Defra CDE waste report from 2010, as part of the reporting requirements for the EU waste Statistics Regulation, 2015 WDI interrogator data and research by Urban Mines to estimate the total arising, which is shown below in Figure 6

Figure 6 London CDE Waste Projections 2016 – 2041 (SLR)



Source: Task 2 – CDEW and Hazardous Waste Forecasts May 2017

The above estimates include the projected tonnages arising from major infrastructure projects, which are outlined below.

2.12 Excavated Materials from Major Projects

The SLR estimations of the arisings from major infrastructure projects in the medium-term is outlined below based upon a notional timescale for delivery.

The management of this waste stream is one that faces issues arising from the changes in the regulatory regime governing the application of wastes to land. These arose from the Methley Quarry judgement, and mean that materials that were previously sent to sites such as Wallasea Island under a waste management license for recovery would now be classified as disposal and the site would need to be permitted under a landfill permit.

As the landfill regime is particularly stringent regarding the protection of water courses, the use of habitat creation schemes such as Wallasea Island is now unlikely. This is due to the application of the ‘substitution test’ to the materials that are applied to land.

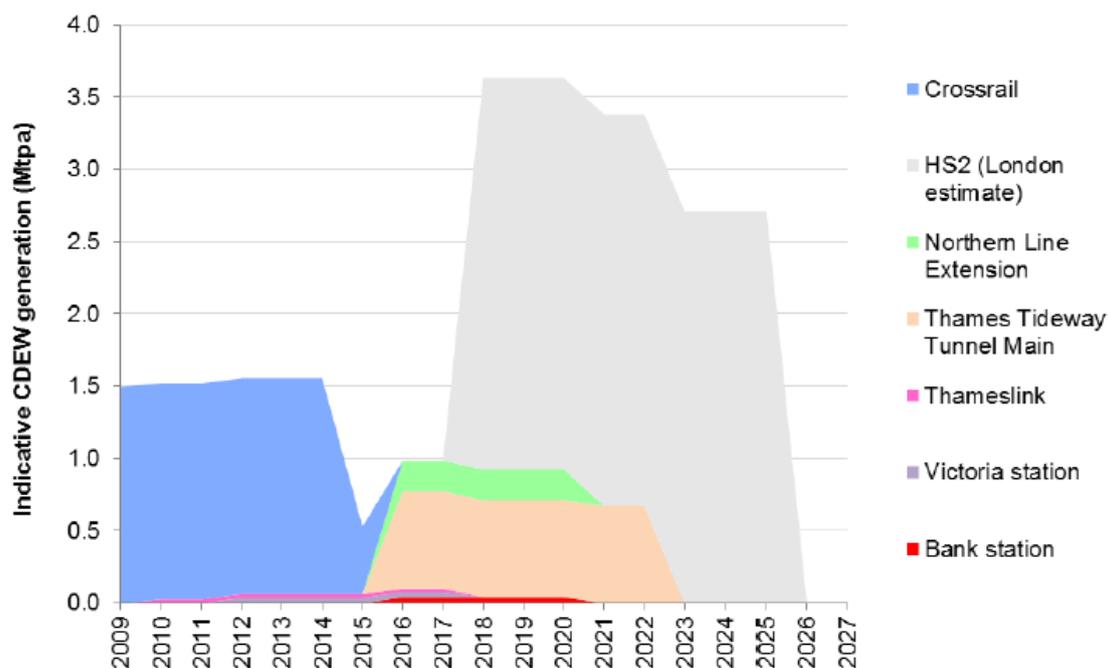
The overriding principle being that a project will only be classified as ‘recovery if were to proceed using a virgin raw material if waste could not be obtained. An example would be if the materials were needed to meet a statutory obligation such as a section 106 agreement.

The London Waste Planning forum has been in discussion with the other RTABS in the south east and the GLA regarding this issue. The outcome is that it has been suggested that the recycling targets for

CDE waste are amended to exclude excavated materials, which would be treated a separate waste stream, with the Mayor taking responsibility for it.

The mayor would liaise with the planning authorities receiving the materials and the project delivery body to ensure that excavated materials were moved as has high up the waste hierarchy as is practicable, using a sustainable transport solution.

Figure 7 Excavated Materials from major Infrastructure Projects



2.13 Environment Agency Data Source Estimation

The data below is taken from EA data sources as part of a data request for this study, and includes materials that are classified as 'use of waste' & 'on/in land' which were previously exempt activities. This results in the tonnages shown below in Table 20 to Table 23.

Table 20 CDE Arisings estimation from EA Data Sources (2016)

Deposited in London	Tonnes
Total deposits in London	10,816,338
Identified as imports	1,673,104
'Non codeable'	34,439
London waste deposited in London	9,143,234

Table 21 shows the tonnage of materials deposited in transfer stations in London

Table 21 London CDE Transferred (2016)

Deposited in London	Tonnes
Waste deposited at Transfer	3,828,938
Identified as imports	395,487
'Non codeable'	624
London waste deposited at transfer	3,328,781

Table 22 shows the tonnage of materials exported from London, including materials destined for transfer stations

Table 22 London CDE Exported (2016)

Exported from London	Tonnes
Waste from London all sites	6,468,003
Waste from London to transfer	418,715

Table 23 shows the tonnage of materials produced by London and deposited at permitted facilities, including exports

Table 23 London CDE Arising (2016)

All London CDE arisings	Tonnes
London arisings all sites	18,252,029
London arisings not inc transfer	14,504,533

2.14 Comparison of Data Estimations

The analysis provides a general overview of the generation of CD+E wastes in London.

The two data studies highlight the difference between the estimation of the waste arising using the data available at the time the two studies were undertaken. It highlights the fact that previous studies may have been based on the data collected for deposits at permitted sites such as inert landfills at a time when considerable tonnages were deposited at exempt sites for which tonnage data was not collected

A change in the permitting regime for these activities by the EA means that these activities now require an environmental permit, meaning that tonnage data is now collected for sites depositing to land and using CDE waste for landscaping/reuse.

The tonnages of materials that will need to be moved may cause additional challenges to the Regional infrastructure. For instance the Thames Tideway Tunnel project has identified River transport as one of the main transport routes with much of the material deposited at the RSPB reserve being created at Wallasea Island, near the Thames estuary.

However, considerable tonnage will still be exported from London and much of which will be utilised for landfill restoration. The scale of development proposed for London in the medium and long-term means that there will be considerable pressure on available disposal (and usage) sites for C+D wastes. The potential sites for this waste stream in the South East has been studied extensively in

the documents supporting the Thames Tideway Tunnel development consent order application, as a part of the 'environmental management options appraisal' (EMOA) studies⁷.

Overall the data related to the CDE fraction nationally and regionally is patchy, and the figures projected for the NLP have been questioned by the RTABs in their response to the NLP. This was due to the basis of the projections being based upon per capita economic growth and did not take into account the additional effect of major infrastructure projects and developments. This particular waste stream may be the subject of further studies/ data analysis in the future.

2.14.1 Future Trends

Levels of C, D and E wastes are expected to remain high for the foreseeable future with the Thames Tideway Tunnel project which started the construction phase in 2015, major works by Network Rail, the development of the Opportunity Area Planning Framework areas, and other projects likely in the medium to long-term such as the Crossrail 2 project.

2.15 Waste Crime

Waste crime is a very broad topic which encompasses minor breaches of the regulations such as errors in reporting of data reporting to major crimes such as the large-scale fly-tipping incidents and mis-coding of wastes for reasons of tax fraud.

Illegal waste sites are a problem throughout the country, although the number in recent years has declined due to a concerted effort to tackle this issue. Further funding for waste crime was announced (£4m) earlier this year by the government. Cases such as these where, for example, the Highways Agency and Transport for London have had to pay for the removal of large tonnages of waste deposited on their land can be the result of the activities of organised crime gangs.

In terms of the emerging trends in waste crime in and around London, in recent years there had been a considerable increase in illegal waste activities as set out below. This is particularly related to waste fuels with the emergence of the Refuse derived Fuel (RdF) export market (and related to this an increase in wood waste related activities), also there has been an increase recently in illegal C+D waste operations, and scrap metals operations as the economy, and particularly the construction sector has picked up.

2.15.1 Abuse of the Exemptions System

Often the operation of an illegal site can be masked by the registration of an exemption for the site – the abuse of the exemptions system is one of the key concerns presently for the Environment Agency. The most commonly abused exemptions tend to be T6 (Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising), T9 (Recovery of scrap metal) and S2 (Storage of waste in a secure place).

⁷ <http://infrastructure.planningportal.gov.uk/projects/london/thames-tideway-tunnel/?document=emoa&ipcsection=search&from=&to=&btnSearch=Search>

2.15.2 Misdescription of waste materials

The misdescription of waste at facilities is an issue that is of concern to the Environment Agency and HMRC, and is one of the top priorities in enforcement currently, along with fire sites and poor performing sites.

In particular the coding of wastes that may be 'active' as 'inert' in order to circumvent the paying of the upper rate of landfill tax. This is an issue particularly with skip wastes and trommel fines, etc. In general, the misdescription of wastes may be due to operator error in some cases or lack of training for operatives. Misdescription can also affect the accuracy at a 'local' level of the waste interrogators, for instance.

2.15.3 Illegal sites

The data for the number of illegal sites in the South East is shown below in Table 24 and is taken from an EA data request in February 2018. It is worth noting that a significant proportion of the waste destined for illegal sites outside of London originates in the capital. The understanding of these waste movements is an issue that would benefit from further work in the future.

Table 24 **Illegal Waste Sites in London**

Illegal Waste Sites End of FY 2015/16*	England	London
Number of Active Illegal Waste Sites	589	67
Number of New Sites Identified	826	49
Number of Sites where we have stopped the Illegal Waste Activity	858	29
Number of Stopped Sites Brought into Regulation	121	5
by Permitting	13	1
by Exemption	53	1
Number of Stopped Sites NOT Brought into Regulation	737	24
Number of sites "dealing with" (stop+active)	710	96

Source – LWPF/EA data request

3. Waste Movements

An important aspect of the management of waste in London is the consideration of waste imports vs. waste exports. London is a net exporter of wastes, with self-sufficiency and aspiration contained in the Mayor’s strategy and the London Plan. However, there are significant tonnages of materials moving into the London area for treatment and recovery.

3.1 Overall Draft London Plan Estimate for Imports/ Exports

The proportion of waste imported/exported⁸ has been estimated and is shown in Table 25 below taken from the ‘Task 3 Report’ supporting the new draft plan. The data used is 2015 data in the study.

Following engagement with LWPF and the EA the GLA have updated their modelling using 2016 data and incorporating a number of data gaps arising from the use of the waste data interrogator. The new figures should align with the datasets produced below which use the same baseline data provided by the Environment Agency.

Table 25 Waste imports/exports: Estimated Geographical Destinations of Waste Generated in London

		Exported from London	Imported to London
Managed in UK	Transfer	750	1,156
	Reuse	55	0
	Recycling	615	1,255
	Anaerobic digestion	22	0
	Composting	55	25
	Mechanical biological treatment	0	0
	Other treatment1	830	447
	Landfill	5,356	452
	Other	1,609	223
	Incineration	785	72
	Subtotal managed in the UK	10,078	3,630
Exported outside UK	Transfer	12	-
	Recovery	597	-
	Treatment	0	-
	Incinerator	487	-
	Landfill	0	-
	Unknown	183	-
	Subtotal exported outside UK	1,279	0
Total	11,357	3,630	

⁸ Source “Task 3 Report: waste Forecasts and Apportionments” (NDLP Supporting Evidence document by SLR)

The data used in the current published version of the Draft London Plan shows a considerable under estimate of waste imports to London from the surrounding Regions. This was in the region of 600,000 tonnes consisting of a) materials destined for sites that are permitted under the PPC regulations and therefore not on the waste data interrogator and b) an increase in the amount of wastes imported into London between 2015 and 2016

3.2 Waste Imports

The data below is based on the 'waste received' data in the waste data interrogator for all facilities in London together with the data from other types of facility such as PPC incinerators via the waste returns data provided by the Environment Agency via the ORATS database. This data can also be obtained via the pollution inventory database data.

The data shows that overall there is a trend for increasing tonnages of household industrial and commercial waste and inert waste to be received in London. This is due to a number of regionally, and in some cases nationally important sites for the treatment and transfer of wastes.

Examples include the cluster of sites in Edmonton, in addition to the incinerator site, that treat around 1.6 million tonnes of waste at the Biffa MRF and other sites such as a WEEE facility that receives white goods from as far as South Wales and the Midlands

3.2.1 Waste Imported into the London by Region of Origin (HIC wastes)

Table 26 and Figure 8 below shows a breakdown of the tonnages of waste received by London from other Regions of England.

Table 26 Household Industrial and Commercial Waste Imported by Region of Origin (tonnes)

Origin RPA	2008	2009	2010	2011	2012	2013	2014	2015	2016
East Midlands	2,547	4,359	18,013	34,123	68,793	105,374	91,395	77,572	55,983
East of England	431,841	382,653	364,553	517,020	401,633	403,296	396,635	300,169	737,401
North East	40	127	113	76	1,208	559	210	1,198	87
North West	139	6,381	4,339	1,301	4,165	11,871	17,357	8,465	22,102
South East	623,551	674,627	719,800	837,965	879,304	1,351,354	1,364,063	1,666,339	1,689,484
South West	4,338	35,447	39,099	35,011	33,889	32,882	45,084	40,732	41,026
West Midlands	53,890	85,163	103,340	143,624	137,188	128,674	126,755	127,481	103,225
Yorks & Humber	2,737	836	495	676	3,188	2,592	3,045	6,847	4,048
Other	4,545	7,326	15,543	12,051	9,831	9,536	30,977	59,456	62,415
Total imports	1,119,083	1,189,593	1,249,752	1,569,797	1,529,370	2,046,139	2,075,521	2,288,259	2,715,770

Source: Environment Agency

Figure 8 Trend in HIC Imports

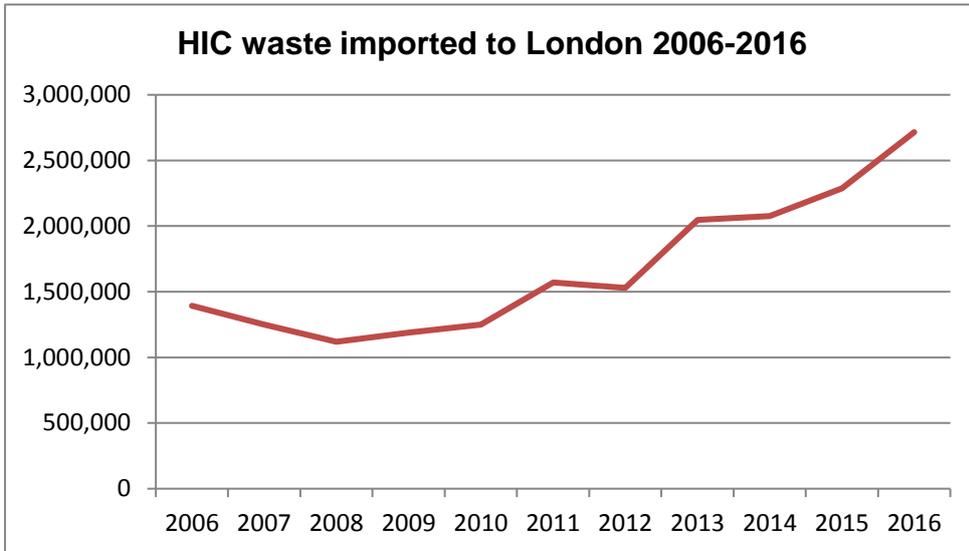
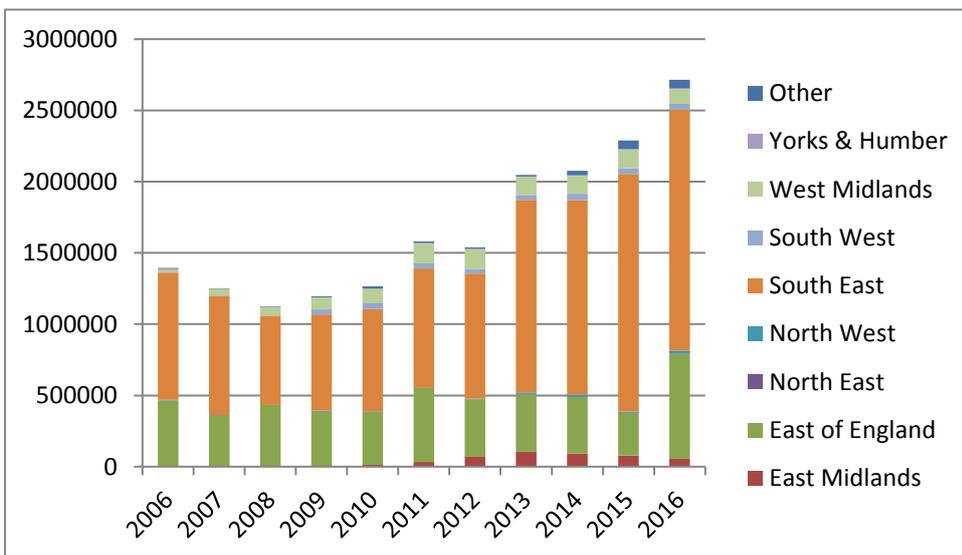


Figure 9 below shows the trends in tonnage and region of origin for HIC waste imports from 2006 to 2016

Figure 9 HIC Imported by Region



The same data is presented for inert and construction and demolition wastes in Table 27 and Figure 10 – Figure 11 below. The data shows that over time this has increased significantly, with the majority coming from the South East and East of England.

Table 27 Inert and C+D Waste Imports (2006 – 2016 tonnes)

Origin RPA	2008	2009	2010	2011	2012	2013	2014	2015	2016
East Midlands	523	830	1,582	355	41,288	88,616	51,118	6,761	55,983
East of England	285,888	268,830	408,426	346,228	471,826	683,679	575,563	381,644	737,401
North East	37	0		76	81	18	521	16	87
North West	863	23	29,922	9,937	1,390	173	6,110	12,618	22,102
South East	889,860	379,661	259,629	232,357	863,032	1,423,122	1,371,151	1,307,350	1,689,484
South West	1,650	1,884	2,210	3,749	10,868	2,959	79,832	40,359	41,026
West Midlands	349	13,316	21,100	40,857	28,667	105,064	28,940	26,281	103,225
Yorks & Humber	18	234		1,169	3,058	4,492	6,521	4,054	4,048
Other	4,394	5,326	4,813	8,620	17,341	2,718	416	5,572	164
Total imports	1,179,187	664,778	722,869	634,728	1,420,211	2,310,841	2,120,173	1,784,653	2,653,519

Figure 10 Trend in Inert and CD Waste Imported to London

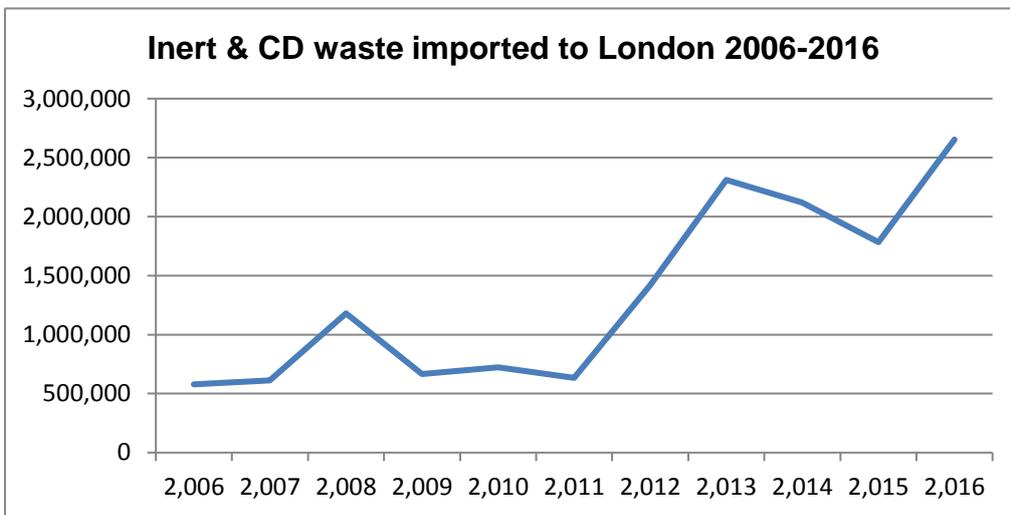


Figure 11 Inert and CD Waste Imported by Origin (tonnes)

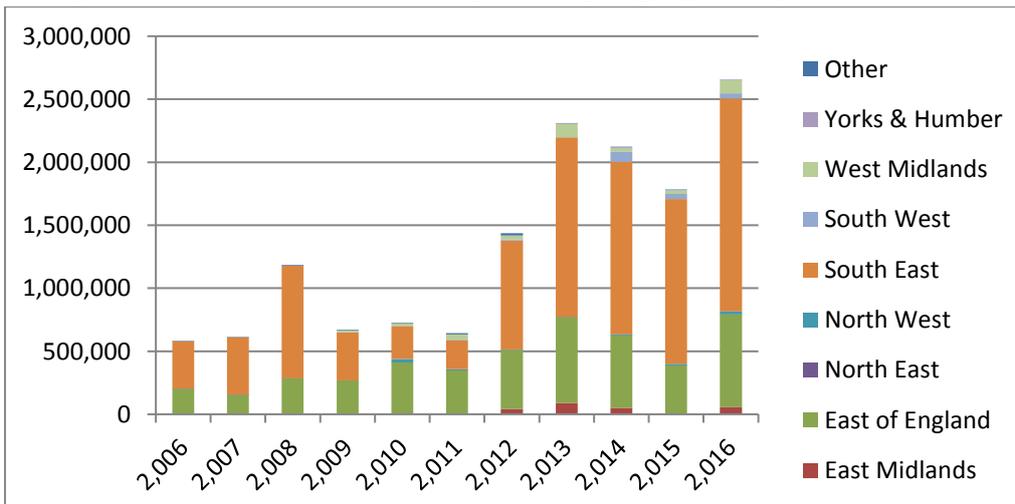


Table 28 and Figure 12 below show the trend in the import of these materials into London between 2008 and 2016, showing a sharp increase in recent years.

Table 28 Combined total of HIC and CDE Imports 2008 - 2016

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
HIC Imported	1,392,929	1,250,006	1,119,083	1,189,593	1,249,752	1,569,797	1,529,370	2,046,139	2,075,521	2,288,259	2,715,770
CDE imported	578,838	612,145	1,179,187	664,778	722,869	634,728	1,420,211	2,310,841	2,120,173	1,784,653	2,653,519
Total Imported	1,971,767	1,862,151	2,298,270	1,854,372	1,972,620	2,204,525	2,949,581	4,356,980	4,195,695	4,072,912	5,369,289

Figure 12 Trend in HIC and CDE Imports 2008 - 2016

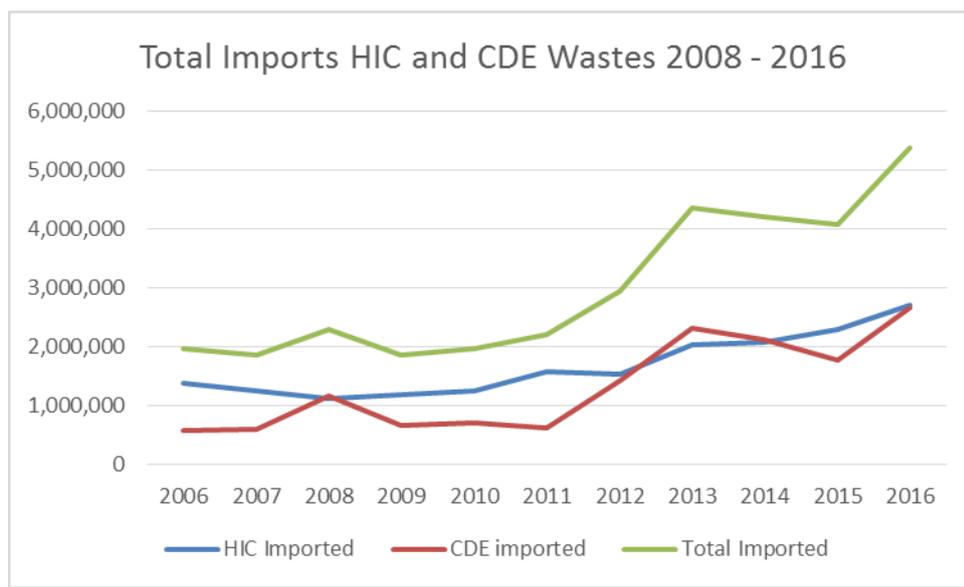


Table 29 below shows the Top 10 sites receiving waste from outside of London, and shows that they are mainly landfill and aggregates sites.

Table 29 Top 10 Sites by Waste Imported from Outside of London

Operator	Site	tonnes
Veolia ES Landfill Limited	Rainham Landfill EPR/EP3136GK	723,141
H. Sivyer Transport Limited	Victoria Deep Water Terminal	401,146
South East London Combined Heat and Power Limited	SELCHP Energy Recovery Facility	400,583
Day Group Limited	Brentford Aggregate Materials Recycling Facility	372,415
L Lynch (Plant Hire & Haulage) Ltd	Willesden Freight Terminal	307,234
Thames Materials Limited	Thames Materials	248,895
Day Group Limited	Murphy's Wharf EPR/DP3490EU	245,021
Viridor Waste Management Ltd	Crayfords Materials Recycling Facility	243,001
Ingrebourne Valley Ltd	Marks Warren Quarry Landfill	223,460
FM Conway Ltd	Heathrow Depot	211,733

3.3 Waste Exports

Table 30 below shows the breakdown of the tonnages of waste sent by London to the rest of the UK and the Regions in England, highlighting the amount of material that is exported to the South East and East of England in particular.

3.3.1 HIC Waste Exports

Table 30 Household Industrial and Commercial Waste Exported (tonnes)

Deposit RPA	2008	2009	2010	2011	2012	2013	2014	2015	2016
East Midlands	136,405	109,264	70,018	39,642	101,378	152,202	120,960	66,418	54,067
East of England	1,522,319	1,417,727	1,282,835	732,563	860,053	877,751	897,141	1,158,084	1,593,890
North East	1,819	287	401	5,456	13,772	8,505	9,747	12,950	11,788
North West	1,265	113,887	19,873	16,926	22,217	21,632	25,981	11,772	17,951
South East	1,530,823	1,344,295	1,650,728	1,493,153	1,664,946	1,613,299	1,436,950	1,450,515	1,726,002
South West	4,042	4,469	6,539	11,280	39,297	48,940	61,156	48,920	145,724
West Midlands	16,987	19,043	20,359	21,213	31,746	47,628	56,226	65,277	117,704
Yorks & Humber	42,897	44,143	37,401	18,155	7,108	8,092	260,855	325,679	158,659
Total exports	3,256,555	3,053,115	3,088,153	2,338,387	2,740,516	2,778,049	2,869,017	3,139,615	3,825,785

Table 31 Top 20 Sites Receiving HIC Waste from London (South East Region)

	Site Name	Tonnes
1	BLETCHLEY LANDFILL SITE	335,343
2	Stanwell 111 Aggregate Recycling Facility	174,334
3	Home Farm Extension Landfill Site	167,743
4	Stone Pit 2 Inert Landfill	166,223
5	Hithermoor Recycling and Recovery Facility	136,175
6	Stone Pit 1	116,805
7	Redhill Landfill (NEQ) EPR/BU81261Y	99,121
8	New Denham Quarry	93,279
9	Borough Green Landfill	88,511
10	Gerrards Cross Landfill	78,600
11	Addlestone Quarry	66,118
12	Denham Park Farm	62,574
13	SUTTON COURTENAY LANDFILL EPR/BV7001IK	59,805
14	COLNBROOK LANDFILL	56,640
15	Springfield Farm Landfill	52,113
16	Swanscombe Glass Recovery Facility	50,523
17	West Hove Golf Club	37,650
18	Hythe End Farm (83329)	35,938
19	Hythe End Farm (400152)	32,504
20	Weylands Treatment Wks, Molesey Rd, Kt12	30,678

Table 32 Top 20 Sites Receiving London HIC Waste (East of England)

	Site	Tonnes
	Pitsea Landfill	485,182
1	Barrington Works Landfill EPR/BV1461IV	451,290
2	East Tilbury Quarry	432,196
3	Bluelands Quarry	404,558
4	Little Belhus Restoration	246,276
5	Highwood Quarry Inert Landfill	208,272
6	Goshems Farm	206,135
7	MUCKING LANDFILL	143,533
8	S R 2008 No 27	138,000
9	MUCKING LANDFILL	137,206
10	Stewartby Landfill EPR/BV4576IK	115,927
11	Great Westwood Landfill	115,243
12	Stone Lane Quarry	100,200
13	WESTMILL II WASTE MANAGEMENT FACILITY	99,949
14	Sr2008 No27	93,308
15	Moor Hall Paddocks	88,200
16	Chadwell Springs Golf Club	72,250
17	Elsenham Landfill EPR/MP3435KP	70,466
18	Reach Lane Quarry Landfill	66,987
19	The Priors Course	41,568
20	Buckden North Landfill EPR/RP3732SZ	41,060

3.3.2 Trend in HIC Waste Exports

The trend in HIC exports in Figure 13 shows a downward trend overall in recent years with a slight rise between 2011 and 2012 and flattening off between 2012 and 2013. There is a trend in recent years of increasing exports, some of this trend may be attributed to the increasing amount of waste destined for treatment/ export as a refuse derived fuel.

Figure 14 shows the trend in waste exported by Region, and shows a rising trend in materials going outside of the Region to the South West and the Midlands.

Table 33 and Figure 15 show the combined totals for HIC and CDE wastes

Figure 13 HIC waste exported from London 2006-2016 (tonnes)

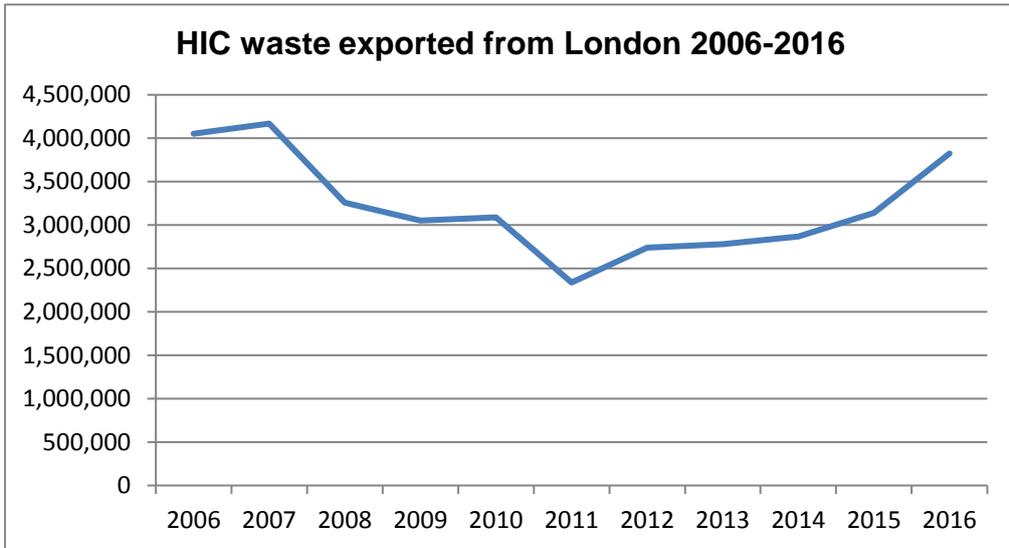


Figure 14 HIC Exported by Region Receiving Waste

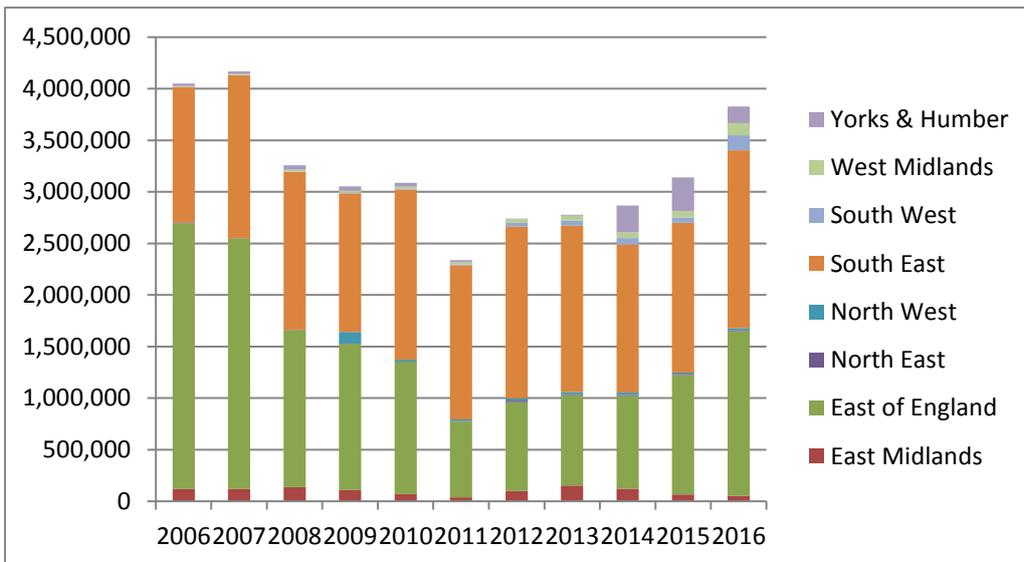
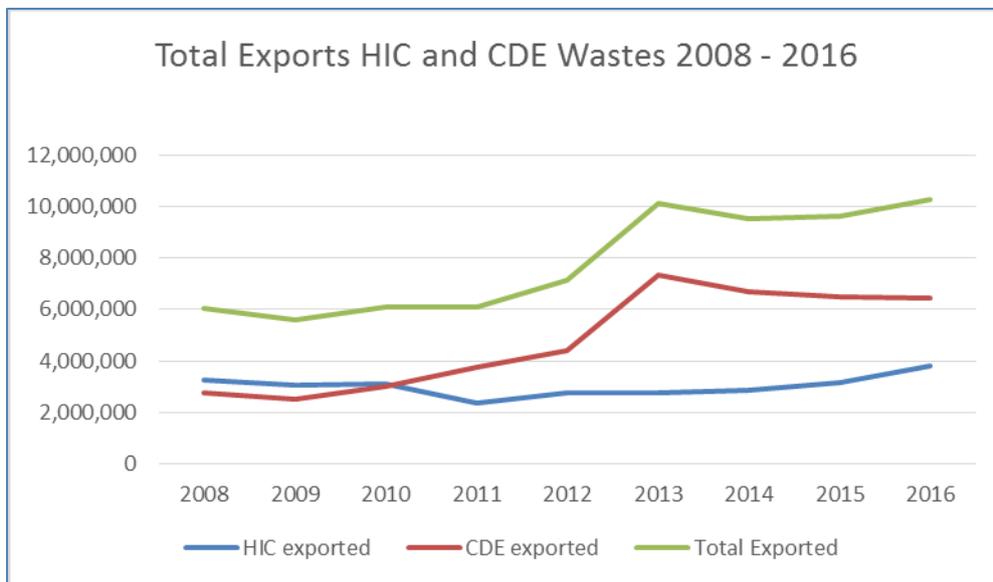


Table 33 Combined Total of HIC and CDE Wastes Exported from London

	2008	2009	2010	2011	2012	2013	2014	2015	2016
HIC exported	3,256,555	3,053,115	3,088,153	2,338,387	2,740,516	2,778,049	2,869,017	3,139,615	3,825,785
CDE exported	2,780,697	2,530,907	2,989,373	3,771,490	4,392,246	7,335,954	6,674,143	6,469,918	6,468,003
Total Exported	6,037,253	5,584,022	6,077,526	6,109,877	7,132,762	10,114,003	9,543,159	9,609,533	10,293,788

Figure 15 Total Exports of HIC and CDE Waste 2008 - 2016



3.3.3 Inert Waste Exports Trends

The annual trends in inert and CDE wastes being exported are shown in Table 34 to Table 36, showing the Top 20 sites receiving materials from London in the South East and the East of England. Since 2006 there has been a sharp upward trend in materials being exported from London. This set to continue, due to the number of major infrastructure projects planned in the medium-term.

Table 34 Inert and C+D Waste Exported (tonnes)

Deposit RPA	2008	2009	2010	2011	2012	2013	2014	2015	2016
East Midlands		15,807	5,011	2,147	15,175	17,634	57,779	15,178	4,294
East of England	899,415	1,286,193	1,286,643	1,862,085	2,141,541	4,084,807	4,163,657	3,751,199	3,971,831
North East	910	364		54	267	376	991	1,394	242
North West			14,040	2,695	118	108	308	377	208
South East	1,877,061	1,225,376	1,653,375	1,860,301	2,171,514	3,081,657	2,258,367	2,518,661	2,448,600
South West	27	3,129	3,131	383	530	77,299	37,946	179	1,411
West Midlands	8	38	14,122	35	298	5,649	17,435	85,421	3,053
Yorks & Humber	3,276		13,051	43,789	62,803	68,425	137,660	97,508	38,365
Total exports	2,780,697	2,530,907	2,989,373	3,771,490	4,392,246	7,335,954	6,674,143	6,469,918	6,468,003

Table 35 Top 20 Sites Receiving London Inert Waste (South East)

	Site Name	Tonnes
1	BLETCHLEY LANDFILL SITE	335,343
2	Stanwell 111 Aggregate Recycling Facility	174,334
3	Home Farm Extension Landfill Site	167,743
4	Stone Pit 2 Inert Landfill	166,223
5	Hithermoor Recycling and Recovery Facility	136,175
6	Stone Pit 1	116,805
7	Redhill Landfill (NEQ) EPR/BU8126IY	99,121
8	New Denham Quarry	93,279
9	Borough Green Landfill	88,511
10	Gerrards Cross Landfill	78,600
11	Addlestone Quarry	66,118
12	Denham Park Farm	62,574
13	SUTTON COURTENAY LANDFILL EPR/BV7001IK	59,805
14	COLNBROOK LANDFILL	56,640
15	Springfield Farm Landfill	52,113
16	Swanscombe Glass Recovery Facility	50,523
17	West Hove Golf Club	37,650
18	Hythe End Farm (83329)	35,938
19	Hythe End Farm (400152)	32,504
20	Weylands Treatment Wks, Molesey Rd, Kt12	30,678

Table 36 Top 20 Sites Receiving London Inert Waste (East of England)

	Site	Tonnes
	Pitsea Landfill	485,182
1	Barrington Works Landfill EPR/BV1461IV	451,290
2	East Tilbury Quarry	432,196
3	Bluelands Quarry	404,558
4	Little Belhus Restoration	246,276
5	Highwood Quarry Inert Landfill	208,272
6	Goshems Farm	206,135
7	MUCKING LANDFILL	143,533
8	S R 2008 No 27	138,000
9	MUCKING LANDFILL	137,206
10	Stewartby Landfill EPR/BV4576IK	115,927
11	Great Westwood Landfill	115,243
12	Stone Lane Quarry	100,200
13	WESTMILL II WASTE MANAGEMENT FACILITY	99,949
14	Sr2008 No27	93,308
15	Moor Hall Paddocks	88,200
16	Chadwell Springs Golf Club	72,250
17	Elsenham Landfill EPR/MP3435KP	70,466
18	Reach Lane Quarry Landfill	66,987
19	The Priors Course	41,568
20	Buckden North Landfill EPR/RP3732SZ	41,060

The trend for the export of inert and C+D wastes from London in Figure 16 and Figure 17 shows overall increasing trend with a sharp increase in 2012 – 13. This reflects the overall level of activity in the construction sector, particularly with respect to major projects such as Crossrail. Other major projects are in the pipeline with the Thames Tideway Tunnel project, now in the construction phase, and others such as Crossrail 2 proposed.

Figure 16 Inert & CD Waste Exported From London

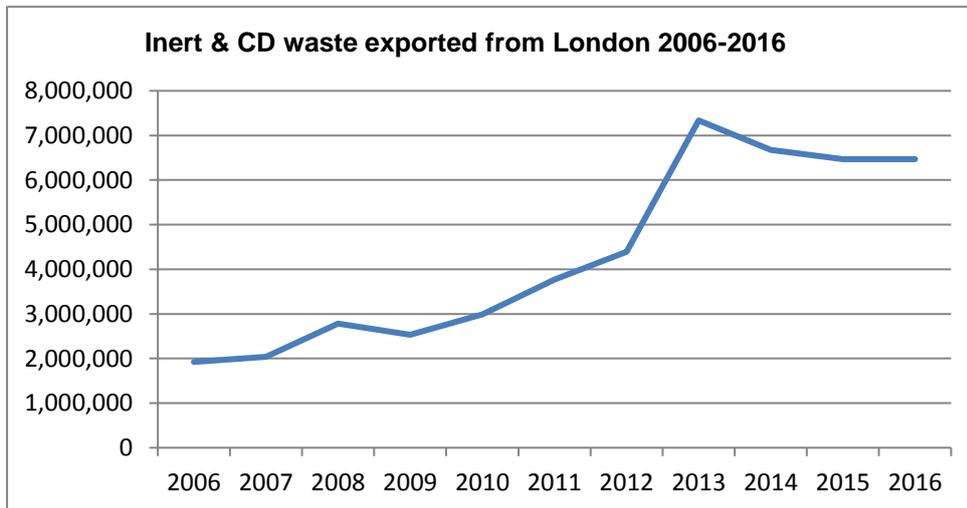
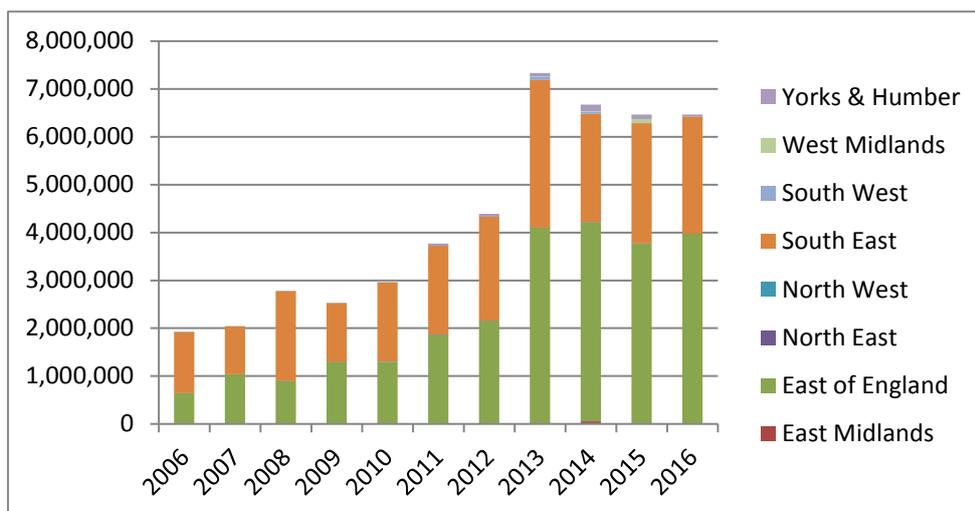


Figure 17 Inert and CD Waste Exported by Region (tonnes)



3.3.4 Hazardous Waste Exports

In terms of hazardous waste treatment London exports the majority of its hazardous wastes, with the number of facilities in London that receive hazardous wastes diminishing especially waste streams other than contaminated soils. The main receivers of hazardous wastes in the wider region are outlined below. The top 20 sites receiving hazardous waste from London are listed in Table 37 and Table 38.

Table 37 Top 20 Sites Receiving London Hazardous Waste (South East)

Site	Total
1 BAM Nuttall (West Thames, Surrey Heath) Mobile Plant	10,000
2 Sweep Kuusakoski Ltd	9,823
3 Camberley Treatment Plant	4,802
4 Rochester Clinical Waste Treatment Facility	4,493
5 CSG Aylesford Treatment Plant EPR/UP3033UX/V007	4,347
6 Star Works Treatment Plant	3,592
7 Ace Car Breakers	2,408
8 Four Dells Waste Facility EPR/JP3890VC	2,243
9 Hoo Waste Oil Facility	1,438
10 H Ripley & Co	1,193
11 Ewelme Hazardous Waste Transfer Station EA/EPR/WP3231SX/V002	1,102
12 Kingsnorth Oil TP EPR/QP3138AA	994
13 Greystone Quarry	955
14 Larkfield Clinical Waste Facility	878
15 Oakwood Yard Hazardous Waste Transfer Station	625
16 GRUNDON INCINERATOR COLNBROOK	426
17 Fawley HT Incinerator EPR/FP3935KL	414
18 The Daniels Corporation International Ltd	389
19 Wraysbury Car Spares	330
20 CSG Botley Treatment Plant	279

Table 38 Top 20 Sites Receiving Hazardous Waste from London (East of England)

	Site	Tonnes
1	John F Hunt Remediation Limited (SR No.27)	57,793
2	Thornhaugh Landfill Site	24,656
3	Redbournbury Treatment Plant	7,440
4	Cohart Asbestos Disposal Ltd	1,714
5	TES oil and Water Plant	874
6	S M H Products Ltd (London Branch)	732
7	Basildon Waste Treatment Centre	626
8	Welwyn Garden City Hazardous Waste Treatment and Transfer Facility	495
9	Eye North Eastern Landfill	463
10	Vetspeed, Thriplow	442
11	Vauxhall & Ford Spares	419
12	Asbestos Waste Solutions	415
13	Stewartby Waste Management Facility EPR/QP3237SC	395
14	Hazardous Waste Transfer Station	370
15	Building 18, Twinwoods Business Park	334
16	Frost & Wood Limited	329
17	G J Bowmer	215
18	Asbestos Transfer Services Ltd	213
19	Asbestos Collection Services	182
20	Safetykleen Uk	118

4. Waste Management

4.1 Waste Capacity

Table 39 and Table 40 below shows the tonnage of materials treated at the different types of facility located in London, and gives an indication of the capacity for each type of facility. The actual capacity for different facilities can be difficult to assess, particularly waste transfer stations where the actual throughput can be much lower than the permitted maximum.

Table 39 Waste Management ‘Capacity’ by Treatment type, (2016)

Site Type	Sub-Region							LONDON
	Central London	East London Waste Authority	North London Waste Authority	South East London	South London	West London Waste Authority	Western Riverside Waste Authority	
Hazardous waste	0	220	-	0	15	214	220	669
HIC	165	1,089	1,538	423	659	1,606	379	5,860
Clinical	-	0	1	2	1	6	0	10
Civic amenity site	4	73	136	63	140	95	2	513
Non Biodegradable	38	326	235	20	63	667	67	1,416
Transfer Total	206	1,709	1,911	508	877	2,588	669	8,469
Material recovery	66	242	21	391	28	494	456	1,698
Physical	5	859	454	928	373	641	36	3,296
Physico-chemical	-	159	-	271	-	85	-	515
Chemical	-	-	-	-	-	-	-	-
Composting	4	-	34	0	44	53	-	135
Biological	-	538	-	-	45	100	-	683
Treatment Total	75	1,798	509	1,590	490	1,373	492	6,327
Vehicle depollution	-	12	47	59	7	17	95	238
Metal recycling site	-	315	4	120	64	140	157	800
Metal Recycling Sector Total	-	327	51	180	72	157	251	1,038

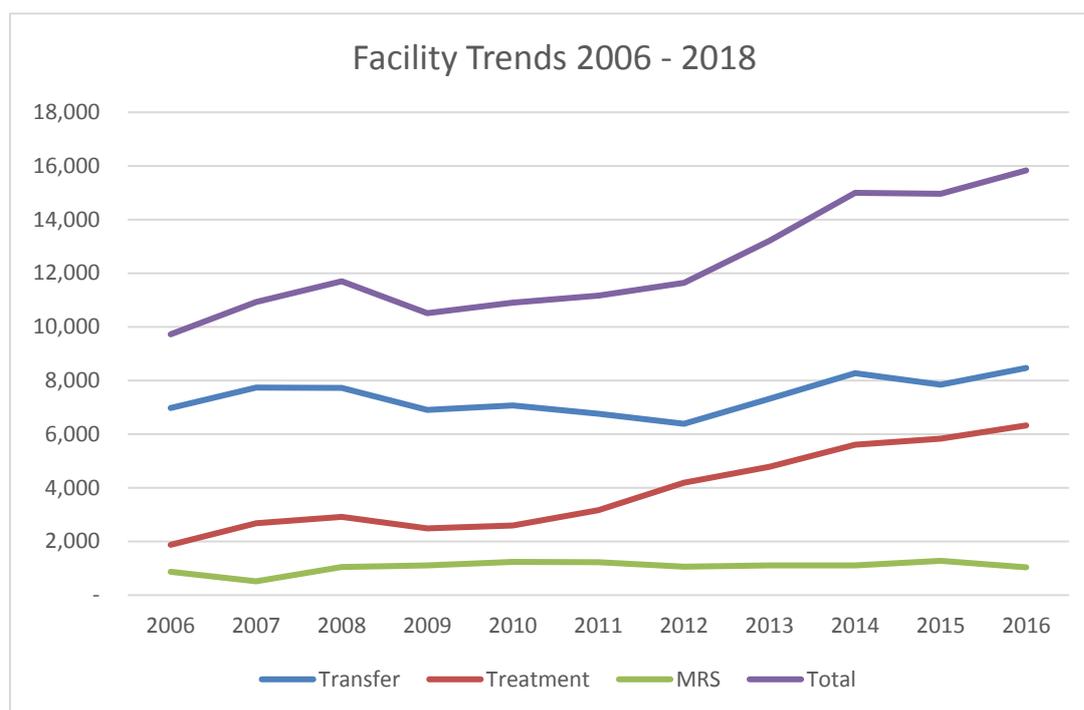
Source – EA/ www.gov.uk/wastedata

Table 40 Overall Waste Management Capacity Trends

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Transfer	6,978	7,735	7,722	6,905	7,077	6,762	6,388	7,326	8,279	7,845	8,469
Treatment	1,877	2,674	2,921	2,492	2,591	3,171	4,192	4,783	5,613	5,834	6,327
MRS	869	515	1,054	1,109	1,240	1,229	1,057	1,103	1,106	1,279	1,038
Total	9,724	10,925	11,697	10,507	10,909	11,162	11,637	13,212	14,999	14,958	15,833

The overall trends in treatment capacity in London are shown in Figure 18, below. The data shows an overall increase in capacity, due to an increase in the ‘treatment’ capacity. However this is dominated by energy from waste, and the trend for metals recovery shows a downward trend in recent years.

Figure 18 Trends in Overall Capacity by Type



4.2 Incineration

Table 41 below lists the incineration plants currently operational in London, together with the permitted capacities and throughputs in recent years.

Table 41 Major Incinerators/ Capacity in London (2016)

Original Permit Number	Operator Name	Site Name	Type	Permitted Capacity (tonnage)	Tonnage Incinerated in 2016
YP3033BE	London Waste Ltd	Edmonton EFW, Edmonton	Clinical	75,000	664
LP3037UU	SRCL Ltd	Hillingdon Hospital Clinical Waste Incinerator, London	Clinical	8,000	7,266
YP3033BE	London Waste Ltd	Edmonton	Municipal and/or Industrial & Commercial	675,000	547,721
BK0825IU	Riverside Resource Recovery Limited	Belvedere	Municipal and/or Industrial & Commercial	785,000	752,839
NP3738SY	South East London Combined Heat and Power Limited	Lewisham	Municipal and/or Industrial & Commercial	488,000	448,235
ZP3833BK	Thames Water Utilities Ltd	Beckton Sludge Powered Generator, London	Sewage Sludge	90,500	49,250
UP3737PQ	Thames Water Utilities Ltd	Crossness Sludge Powered Generator, London	Sewage Sludge	53,500	24,284

4.2.1 London Incineration Capacity (2016)

The data below in Table 42 to Table 44 is the latest data set available at the time of writing for incineration in London.

Table 42 London Incineration Capacity by Type

Incineration Type	Sub-Region							LONDON
	Central London	East London Waste Authority	North London Waste Authority	South East London	South London	West London Waste Authority	Western Riverside Waste Authority	
Animal By-Product	-	-	-	-	-	-	-	-
Animal Carcasses	-	-	-	-	-	-	-	-
Clinical	-	-	75	-	-	8	-	83
Co-Incineration of Hazardous Waste	-	-	-	-	-	-	-	-
Co-Incineration of Non Hazardous Waste	-	-	-	-	-	-	-	-
Hazardous	-	-	-	-	-	-	-	-
Municipal and/or Industrial & Commercial	-	-	675	1,273	-	-	-	1,948
Sewage Sludge	-	91	-	54	-	-	-	144
Total	-	91	750	1,327	-	8	-	2,175

Units = x1000 tonnes per annum: Source: Environment Agency – 2016 data

Table 43 Top 20 Origins for Hazardous Waste Imported into London for Incineration (2016)

	Waste Origin	Tonnes
1	Watford	243
2	Aylesbury Vale	60
3	Wycombe	54
4	Cherwell	48
5	Bracknell Forest	36
6	Hertsmere	33
7	Woking	32
8	Tonbridge and Malling	28
9	South Oxfordshire	22
10	Wokingham	20
11	Bedford	20
12	Reading	19
13	East Hertfordshire	19
14	Vale of White Horse	17
15	South East	15
16	Mole Valley	14
17	Elmbridge	12
18	Welwyn Hatfield	10
19	Chiltern	8
20	Milton Keynes	8

Source: Environment Agency – 2016 Data

Table 44 Top 20 Origins for Hazardous Waste Imported into London for Incineration (2016)

	Waste Origin	Tonnes
1	Herefordshire, The County of	60,014
2	Medway	38,712
3	Medway	13,277
4	Dover	4,028
5	West Sussex	2,560
6	Canterbury	2,038
7	Lewes	1,992
8	Bristol, City of	298
9	Essex	239
10	Kent	157
11	Vale of White Horse	117
12	Dacorum	92
13	Bedfordshire	70
14	Southampton	67
15	Aylesbury Vale	47
16	Watford	42
17	Thurrock	42
18	South Oxfordshire	37
19	Cherwell	32
20	Wokingham	32

4.2.2 Refuse Derived Fuel⁹ Exports from the Region

The data in Table 44 below captures the tonnages of refuse derived fuels exported from facilities in the two Environment Agency areas that cover greater London i.e. Kent and South London and Hertfordshire and North London areas, which are some of the most likely candidates to be making fuels from wastes originating in London.

The overall national tonnage was approximately 2.7 million tonnes for the year

⁹ The datasets include Solid Recovered Fuels in addition to RdF

Table 45 Rf Exports from the Kent and South London/ Hertfordshire and North London Environment Agency areas. (2017)

Port	Tonnes Exported
Felixstowe	444,032
Dover	432,641
Tilbury	355,015
Purfleet	272,571
Gillingham	36,272
Sheerness	29,576
Southampton	27,169
London Gateway	17,448
Folkestone	8,868
Portsmouth	4,242
Chatham	2,566
Stanford le Hope	1,828
Total	1,632,227

Source: Environment Agency (2017 data)

4.3 Landfill Void

The landfill void data for the London, the South East of England and East Anglia in Table 46 below and Figure 19 shows that the amount available for hazardous landfill is most severely restricted. The amount available for inert and non-hazardous landfill is considerable, although there are issues with respect to cross boundary movements of waste and the duty to cooperate, with the overall capacity declining.

Table 46 Landfill Capacity Trend in London and the South East

Year	East of England	London	South East	Total
1998/99	101,821	20,710	122,279	244,810
2000/01	94,683	19,804	127,845	242,332
2004	68,260	13,613	121,426	203,299
2005	65,170	11,568	109,980	186,718
2006	70,327	10,055	96,005	176,387
2007	67,429	8,986	100,517	176,932
2008	74,425	6,286	106,306	187,018
2009	67,424	4,684	93,249	165,357
2010	62,350	9,331	102,043	173,724
2011	58,824	9,741	96,033	164,598
2012	55,161	7,361	85,112	147,634
2013	62,223	7,080	76,692	145,995
2014	58,502	5,931	75,189	139,623
2015	58,194	4,711	75,198	138,103
2016	71,584	3,450	76,979	152,012

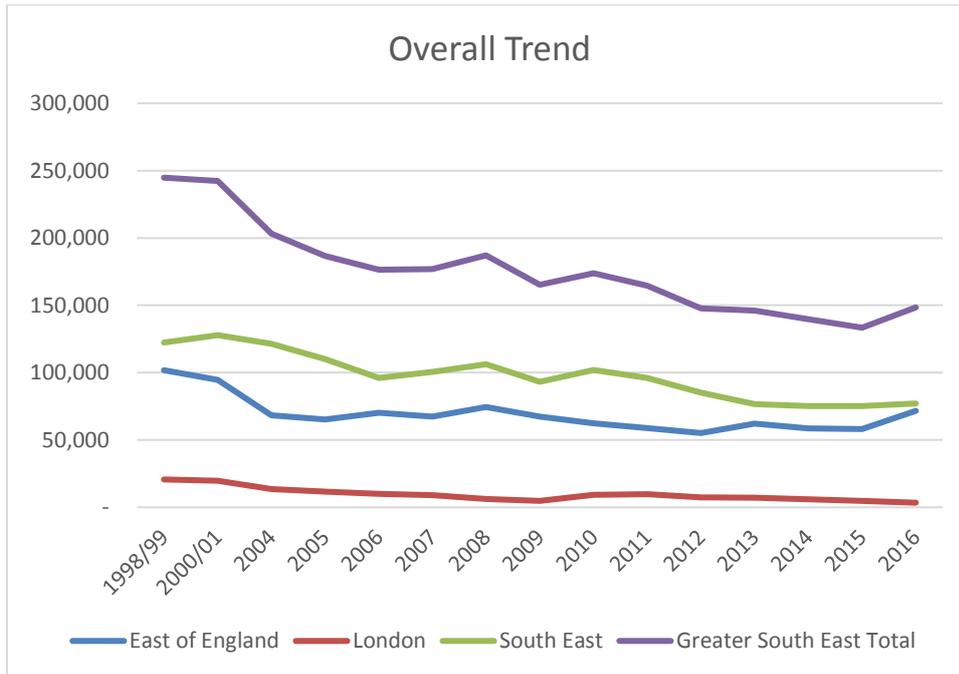
Units = x 1000s cubic metres

Table Notes:

Landfill site classifications were changed in 2005. The categories above include:

Inert ; Inert landfill only: Non -Inert; Non hazardous landfill sites, non-hazardous landfill sites with a Stable Non Reactive Hazardous Waste Cell(SNHRW), merchant hazardous landfill sites: Restricted User; Non-hazardous and hazardous restricted landfill sites

Figure 19 Overall Trend in Landfill Void



4.3.1 Inert Landfill Void Trends

The trends in inert landfill void space is shown in Table 47 and Figure 20 below. The data suggests that there is a rising trend in void space. However the amount of space that is suitable for major tonnages of excavated materials discussed elsewhere is limited by the need for a sustainable transport option such as rail or river transport.

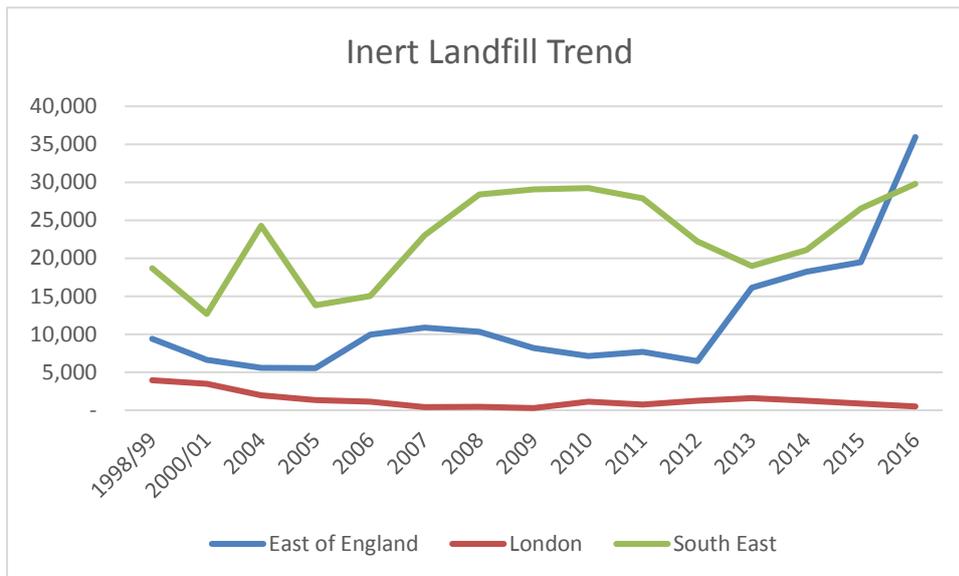
The scale of development planned in the Region as a whole means that this trend may not continue, as some of the increase seen is expansions of operation at existing sites rather than completely new sites coming forwards.

Table 47 Inert Landfill Void Trend (1998-2016)

Year	East of England	London	South East	England
1998/99	9,412	3,949	18,706	83,748
2000/01	6,628	3,462	12,676	62,153
2004	5,586	1,986	24,275	96,772
2005	5,542	1,322	13,812	79,445
2006	9,954	1,125	15,026	95,730
2007	10,879	403	23,034	119,512
2008	10,342	471	28,378	109,069
2009	8,204	289	29,077	123,700
2010	7,155	1,109	29,228	117,828
2011	7,670	749	27,888	121,316
2012	6,482	1,267	22,200	111,412
2013	16,107	1,609	19,002	131,060
2014	18,231	1,255	21,097	126,666
2015	19,488	867	26,531	132,579
2016	35,952	518	29,795	147,775

Units = x 1000m³

Figure 20 Inert Landfill Void Trend



4.3.2 Non inert Landfill Void Trend

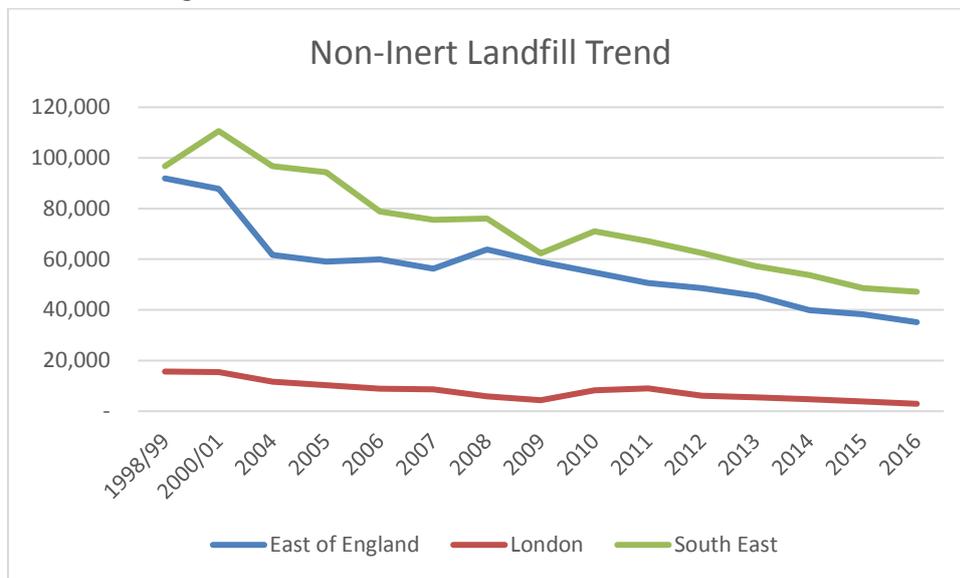
The data in Table 48 and Figure 21 show that the available void space for non-inert landfill is diminishing, following a trend that has been evident for some time, with London void space almost exhausted.

Table 48 Non inert Landfill Void Trend

Year	East of England	London	South East	England
1998/99	91,918	15,661	96,723	554,334
2000/01	87,820	15,490	110,601	567,801
2004	61,734	11,627	96,787	528,956
2005	59,117	10,246	94,387	533,882
2006	59,922	8,930	78,887	528,640
2007	56,311	8,583	75,577	482,353
2008	63,853	5,815	76,052	473,120
2009	58,870	4,395	62,355	410,607
2010	54,750	8,221	71,031	404,712
2011	50,666	8,992	67,145	390,046
2012	48,604	6,094	62,446	368,347
2013	45,614	5,471	57,263	350,650
2014	39,845	4,676	53,734	329,482
2015	38,222	3,844	48,637	310,671
2016	35,148	2,931	47,174	291,178

Units = x 1000m³

Figure 21 Non- Inert Landfill trend



4.4 Permitted Sites

There are a large number of permitted waste sites in the London area. Table 49 shows the overall number and the breakdown by category.

Table 49 No. of Permitted Waste Sites (breakdown by category)

Site Type		London	ENGLAND
Landfill	Number of sites with an environmental permit at end 2016	8	507
	Number of sites that accepted waste in 2016	5	340
Land Disposal	Number of sites with an environmental permit at end 2016	10	317
	Number of sites that accepted waste in 2016	9	212
Incineration	Number of sites with an environmental permit at end 2016	11	146
	Number of sites that accepted waste in 2016	7	81
Transfer	Number of sites with an environmental permit at end 2016	211	2,987
	Number of sites that accepted waste in 2016	164	2,340
Treatment	Number of sites with an environmental permit at end 2016	137	2,782
	Number of sites that accepted waste in 2016	103	2,075
Metal Recovery	Number of sites with an environmental permit at end 2016	101	2,420
	Number of sites that accepted waste in 2016	52	1,244
Use of Waste	Number of sites with an environmental permit at end 2016	3	175
	Number of sites that accepted waste in 2016	1	90
Total	Number of sites with an environmental permit at end 2016	481	9,334
	Number of sites that accepted waste in 2016	341	6,382

Source: <https://www.gov.uk/government/publications/waste-management-for-england-2016>

<https://www.gov.uk/government/statistics/waste-management-for-england-2013>

4.5 Exempt Sites

In addition to the permitted sites there are a large number of sites with registered exemptions in London is currently 5,508 (Source: Environment Agency)

A considerable number of these are small waste producers such as doctor's surgeries/ clinics, etc that may produce a small quantity of particular waste types. There are, however, exemptions for activities such as the treatment and storage of materials such as C+D waste and wood which can produce considerable tonnages of materials.

The key difference between the permitted and exempt sites in a waste planning context is that it is not a statutory requirement to collect data from exempt sites, so there is no reliable data source for the tonnage of waste arising from these sites.

4.5.1 Tonnage of waste treated through exempt sites

However, a recent study by Defra¹⁰ attempted to estimate the amount of material produced by each type of exemption, by applying this methodology to the number of each type of site in the London area a total of 1,246,040 tonnes based upon the Defra assumptions for each exemption type. Table 50 below shows the number of each type of exempt site in London, and the associated tonnage of commercial and industrial waste. (Note that storage is assumed to be zero to avoid double-counting).

Table 50 Registered Exempt Sites in London and Theoretical Tonnages of C+I Waste (June 2015)

Exemption Type	Number	tonnes
WEEE Treatment	65	32,000
Use	593	103,680
Treatment	1,721	1,109,990
Storage	637	0
Disposal	90	370
Total	3,106	1,246,040

SOURCE: London Waste Planning Forum

¹⁰ 'New Methodology to Estimate Waste Generation by the Commercial and Industrial Sector in England' - DEFRA Project Report Final EV0804 August 2014

5. Data Sources

The following is a list of data sources used in compiling this report. The list is also available as an Excel spreadsheet together with other sources of information intended for general use by waste managers. This will be kept as a live document available via the LWPF knowledge hub

5.1 Defra and Environment Agency data

The data used below is the most up-to-date data available at the time of writing, generally these are 2016 datasets for the databases with some 2017 data for more general data.

Table 51 Data Sources

Waste Data Interrogator + Incinerators Data	https://data.gov.uk/dataset/waste-data-interrogator-2016
Hazardous Waste Interrogator	https://data.gov.uk/dataset/hazardous-waste-interrogator-2016
Remaining Landfill Capacity	https://data.gov.uk/dataset/remaining-landfill-capacity
DEFRA Digest of waste and resource stats.	https://www.gov.uk/government/collections/digest-of-waste-and-resource-statistics
DEFRA Waste and recycling Statistics	https://www.gov.uk/government/collections/waste-and-recycling-statistics
Wastedataflow	www.wastedataflow.org
Waste Management England 2016	https://www.gov.uk/government/publications/waste-management-for-england-2016
DEFRA ENV23 UK Statistic on waste (Feb 2018)	https://www.gov.uk/government/statistical-data-sets/env23-uk-waste-data-and-management
Links to the documents associated with the above data	https://www.gov.uk/government/statistics/uk-waste-data
GLA Datastore	https://data.london.gov.uk/
International Waste Shipments	https://data.gov.uk/dataset/international-waste-shipments-exported-from-england
OPRA data	https://data.gov.uk/dataset/opra
Pollution Inventory	https://data.gov.uk/dataset/pollution-inventory
Exemptions Data	https://data.gov.uk/dataset/waste-management-licence-current-exemptions1
Fly-Tipping Data	https://www.gov.uk/government/statistical-data-sets/env24-fly-tipping-incidents-and-actions-taken-in-england
National Packaging Waste Database	http://npwd.environment-agency.gov.uk/PublicRegister.aspx?ReturnUrl=%2fPackagingPublicRegisterLinks.aspx%3fReturnUrl%3d%252fdefault.aspx
Permitted Waste Sites	https://data.gov.uk/dataset/environmental-permitting-regulations-waste-sites
Permitted Industrial Sites	https://data.gov.uk/dataset/environmental-permitting-regulations-industrial-sites

5.1.1 Data Quality

Generally the quality of the data is good down to a local level, and is the best available source for municipal solid waste. There can, however, be issues with the accuracy of recording the end destination of wastes accurately as the database for waste treatment plants is not always updated as accurately as the datasets held by the Environment Agency. This means that multiple permit numbers for a particular site or incorrect permit numbers can be apparent when undertaking detailed studies of waste movements.

Also for smaller tonnage waste streams such as reused materials and WEEE a certain amount of generic 'cut and paste' data can be encountered, so care should be taken when undertaking detailed studies on these waste streams.

5.1.2 Waste Data Interrogators

The waste data interrogators are databases that are produced by the Environment Agency and are available via the EA geostore site.

There are two; the 'waste data interrogator' and the 'hazardous waste interrogator'. The waste data interrogator is based on the quarterly waste data returns for permitted waste sites licensed under the Environmental Permitting Regulations (EPR).

The data consists of tonnages of waste received and removed from sites, with waste classified under the EWC coding system. The dataset covers; household industrial and commercial waste (HIC), construction, demolition and excavated materials (CDE) and hazardous waste (Haz).

Data searches can be built up using a graphical user interface, so that the output can be tailored for specific geographical/planning areas or waste and facility types.

As the data is based upon the returns data from sites the quality is generally regarded as good at a regional and national level. Issues can be encountered with more localised data studies. There are several main causes of this.

Firstly the recording of the origin and destination of the wastes is dependent upon the operator, and errors can occur simply from the 'human error' standpoint, or an origin may not be specific to a locality such as 'London' instead of 'Hackney' for example.

As the data can be returned to the EA in paper form errors may occur due to misreading and typos such the waste destination 'Barrow' instead of 'Harrow' for example, but this is rare as the database is extensively checked and tested before release.

Also as the database has evolved over time changes in the planning system have meant that some planning entities such as the waste disposal authorities (for example) cannot be coded as either a local authority or unitary authority and therefore the data is 'uncodeable'. Where this may be the case the waste origin or destination is estimated.

It should also be borne in mind that misdescription of waste can also be done for criminal reasons, such as to conceal the movement of biodegradable materials to inert landfill, or hazardous wastes to conventional disposal.

There are pitfalls in using the WDI, and the EA recommend that users are trained by them where possible (this is available on request at low or zero cost). For instance it is not obvious to new users

that wastes directly removed from a site and deposited to a permitted site would not show up in the quantity of wastes removed from a specific area. It is therefore recommended that waste flow studies for imports and exports of data are based upon 'waste received' data.

5.1.3 Hazardous Waste interrogator

The hazardous waste interrogator operates similarly to the WDI, but in this database the data is based upon the hazardous waste consignment system. This requires that both parties sending and receiving waste record the movement of wastes which is submitted to the environment agency. This database is therefore accurate at a local level for waste movements and is much more accurate for hazardous waste arisings than the WDI

5.1.4 Other Important Data

When using the interrogators for strategic waste studies it important to note that interrogators cannot provide a complete picture of waste arisings.

This is due to the fact that the WDI is based upon the quarterly returns from permitted waste facilities.

These are not the only type of facility that can treat wastes – the other main type are industrial installations. This is a category of facility that is regulated by the EA, and which may or may not treat wastes. Data on these is held in the pollution inventory, and sites may be required to submit waste returns as a condition of their permit.

This category includes the larger waste incinerators together with some larger MRFs, etc. This means that substantial tonnages of waste can be received in a particular area but not appear in the WDI.

The data for these facilities is available on request from the environment agency, and is published periodically on the .gov.uk website

Similarly the data for materials exported such as RdF/SRF exports are not recorded in the interrogators, but is also available from the same sources.

5.1.5 Unrecorded Arisings

There are two main sources of waste that are unrecorded on the Environment Agency data sources. The most significant of these is the tonnages treated at exempt facilities. This is a broad range of sites that are deemed to be of low environmental risk, and therefore outside the scope of the conventional permitting system. As such waste data is not collected from these sites.

Large quantities of CDE wastes have been treated at sites under exemption, which has led to problems with interpreting this particular dataset. Recent changes to permitting policies mean that many sites with this type of arising are now permitted using a standard (or bespoke) permit. These tonnages will be picked up by the interrogators.

Of the other types of materials attempts have been made to estimate the arisings from exempt sites. A study was published by Defra in September 2014, and the amount estimated using this methodology is presented above in this document.

The other main arising that is unrecorded officially is the tonnage treated at illegal sites, which is difficult to assess, and no studies are available at the present time. A complicating factor with this is

fact there are many different degrees and types of illegal sites, and some may be operating under a permit (wrongly) or an exemption as a cover for illegal activities.

5.2 Other Sources of Information and Resources

5.2.1 London Local Authority Waste Management Contracts

A database of current local authority disposal and collection contracts/contractors which was formerly on LWARB's website is now help and updated by Resource London, information from which is only available on request directly.¹¹

5.2.2 London Waste Map

The London waste map website is a resource compiled by the GLA;

<https://maps.london.gov.uk/waste/>

- And contains spatial mapping of London's waste infrastructure. The site is sponsored by LWARB and uses data gather from the Local Authorities, the GLA and the Environment agency.

The GLA have updated the map since the last AMR was produced and it now includes data relating to permitted waste facilities, and relevant industrial facilities, showing these in relation to the opportunity area planning framework areas and other key planning areas.

The aim of this project is that it will enable all of the key spatial data relating to waste management planning to be in one readily available place on the GLA's website.

¹¹ Contact for enquiries; Beverley Simonson - beverley.simonson@resourcelondon.org

Appendices

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Appendix A: New Draft London Plan and FALP Apportionments Comparison

Waste Group	Borough	New proposed annual housing target	Existing annual target in 2015 FALP	Difference	% housing increase	2017 DLP tonnes for 2021 (x1000)	FALP tonnes for 2021 (x1000)*	Difference tonnes (x1000)	% Waste Increase
E	Barking and Dagenham	2,264	1,236	1,028	83%	505	404	101	25.05%
N	Barnet	3,134	2,349	785	33%	215	179	36	20.20%
SE	Bexley	1,245	446	799	179%	456	364	92	25.22%
W	Brent	2,915	1,525	1,390	91%	412	225	187	82.96%
SE	Bromley	1,424	641	783	122%	192	199	-7	-3.38%
N	Camden	1,086	889	197	22%	133	152	-19	-12.73%
I	City of London	146	141	5	4%	84	100	-16	-16.00%
S	Croydon	2,949	1,435	1,514	106%	252	199	53	26.81%
W	Ealing	2,807	1,297	1,510	116%	543	291	252	86.37%
N	Enfield	1,876	798	1,078	135%	356	245	111	45.28%
SE	Greenwich	3,204	2,685	519	19%	338	265	73	27.60%
N	Hackney	1,330	1,599	-269	-17%	110	166	-56	-33.59%
WR	Hammersmith and Fulham	1,648	1,031	617	60%	210	199	11	5.68%
N	Haringey	1,958	1,502	456	30%	192	152	40	25.98%
W	Harrow	1,392	593	799	135%	151	146	5	3.58%
E	Havering	1,875	1,170	705	60%	369	265	104	39.30%
W	Hillingdon	1,553	559	994	178%	423	245	178	72.62%
W	Hounslow	2,182	822	1,360	165%	407	232	175	75.58%
N	Islington	775	1,264	-489	-39%	102	158	-56	-35.86%
WR	Kensington and Chelsea	488	733	-245	-33%	116	159	-43	-27.05%
S	Kingston upon Thames	1,364	643	721	112%	187	119	68	56.73%
WR	Lambeth	1,589	1,559	30	2%	143	179	-36	-20.05%
SE	Lewisham	2,117	1,385	732	53%	184	166	18	11.09%
-	LLDC	2,161	1,471	690	47%			0	
S	Merton	1,328	411	917	223%	238	192	46	23.89%
E	Newham	3,850	1,994	1,856	93%	384	324	60	18.36%
-	OPDC	1,367	N/A	N/A	N/A				
E	Redbridge	1,979	1,123	856	76%	151	126	25	19.91%
W	Richmond upon Thames	811	315	496	157%	148	146	2	1.52%
SE	Southwark	2,554	2,736	-182	-7%	151	199	-48	-24.01%
S	Sutton	939	363	576	159%	210	159	51	32.06%
I	Tower Hamlets	3,511	3,931	-420	-11%	195	252	-57	-22.51%
N	Waltham Forest	1,794	862	932	108%	199	159	40	25.14%
WR	Wandsworth	2,310	1,812	498	27%	264	252	12	4.90%
I	Westminster	1,010	1,068	-58	-5%	188	99	89	89.01%
	Total	64,935	42,389	22,546	53%	8,208	6,717	1,491	

* these numbers taken from a copy of the GLA's waste model, hence discrepancies in 2nd decimal place caused by rounding errors

Appendix B: FALP Projections

Table 5.2 Municipal and commercial/industrial waste projections at borough level at key milestones through to 2036 (thousand tonnes pa)

Borough	2016			2021			2026			2031			2036		
	MSW	C&I	Total												
Barking & Dagenham	91	113	204	99	112	211	105	113	218	111	114	225	116	115	231
Barnet	154	143	297	163	143	306	171	143	314	177	144	321	183	146	329
Bexley	98	118	216	101	118	219	104	118	222	107	119	226	110	120	230
Brent	100	145	245	106	144	250	110	145	255	114	146	260	117	147	264
Bromley	125	114	239	130	113	243	134	114	248	137	114	251	140	116	256
Camden	74	256	330	76	255	331	78	256	334	80	258	338	82	261	343
City	4	210	214	4	209	213	4	209	213	4	211	215	4	213	217
Croydon	137	136	273	143	135	278	148	135	283	152	136	288	155	138	293
Ealing	104	177	281	109	177	286	112	177	289	115	178	293	118	180	298
Enfield	127	160	287	134	160	294	140	160	300	145	161	306	150	161	311
Greenwich	102	90	192	107	89	196	111	90	201	114	90	204	117	91	208
Hackney	88	82	170	93	82	175	97	82	179	100	83	183	104	84	188
Hammersmith and Fulham	58	117	175	59	117	176	59	117	176	60	118	178	61	119	180
Haringey	96	89	185	100	89	189	103	89	192	106	90	196	109	91	200
Harrow	97	75	172	101	74	175	105	75	180	108	75	183	111	76	187
Havering	103	116	219	108	115	223	113	116	229	117	117	234	122	118	240
Hillingdon	113	225	338	119	224	343	124	224	348	129	226	355	133	229	362
Hounslow	103	148	251	109	147	256	114	148	262	117	149	266	120	150	270
Islington	68	164	232	72	163	235	74	164	238	76	165	241	79	167	246
Kensington and Chelsea	54	133	187	54	132	186	55	132	187	55	133	188	55	135	190
Kingston Upon Thames	62	81	143	65	81	146	67	81	148	69	82	151	70	83	153
Lambeth	100	106	206	104	106	210	107	106	213	110	107	217	112	108	220
Lewisham	116	76	192	122	76	198	127	76	203	131	77	208	134	78	212
Merton	71	90	161	74	90	164	77	90	167	79	91	170	81	92	173
Newham	115	111	226	123	111	234	130	111	241	135	112	247	140	113	253
Redbridge	107	77	184	114	76	190	120	76	196	126	77	203	130	78	208
Richmond Upon Thames	83	91	174	86	90	176	88	91	179	90	91	181	91	92	183
Southwark	112	162	274	117	161	278	121	162	283	124	163	287	127	165	292
Sutton	78	77	155	82	77	159	85	77	162	87	78	165	90	79	169
Tower Hamlets	73	169	242	79	169	248	83	169	252	86	170	256	89	172	261
Waltham Forest	105	86	191	112	85	197	117	86	203	121	86	207	125	87	212
Wandsworth	103	134	237	106	134	240	108	134	242	110	135	245	112	136	248
Westminster	93	582	675	95	580	675	97	581	678	100	586	686	102	593	695
London total	3,115	4,654	7769	3,226	4,637	7863	3,387	4,647	8034	3,492	4,681	8173	3,589	4,734	8323

Table 5.3: Waste to be managed in London apportioned by borough (thousand tonnes per annum)

			2016 apportionment (kt)			2021 apportionment (kt)			2026 apportionment (kt)			2031 apportionment (kt)			2036 apportionment (kt)			
			75%			85%			100%			100%			100%			
			Year	2016	2016	2016	2021	2021	2021	2026	2026	2026	2031	2031	2031	2036	2036	2036
			Waste stream	Household	C&IW	Total	Household	C&IW	Total									
Total waste			3,115	4,654	7,770	3,266	4,637	7,902	3,387	4,647	8,034	3,492	4,681	8,173	3,589	4,734	8,323	
Borough	Apportionment factor (%)	Apportionment factor, normalised (%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
City of London	n/a	n/a	50	50	100	50	50	100	50	50	100	50	50	100	50	50	100	
Barking & Dagenham	6.1	6.1	140	210	350	166	237	404	204	281	484	210	283	493	216	286	502	
Barnet	2.7	2.7	62	93	155	74	105	179	90	124	214	93	125	218	96	127	222	
Bexley	5.5	5.5	126	189	315	150	214	364	184	253	437	189	255	444	195	258	453	
Brent	3.4	3.4	78	117	195	93	132	225	114	156	270	117	158	275	120	159	280	
Bromley	3.0	3.0	69	103	172	82	117	199	100	138	238	103	139	242	106	141	247	
Camden	2.3	2.3	53	79	132	63	90	152	77	106	183	79	107	186	82	108	189	
Croydon	3.0	3.0	69	103	172	82	117	199	100	138	238	103	139	242	106	141	247	
Ealing	4.4	4.4	101	152	252	120	171	291	147	202	349	152	204	355	156	206	362	
Enfield	3.7	3.7	85	127	212	101	144	245	124	170	294	127	171	299	131	173	305	
Greenwich	4.0	4.0	92	138	229	109	156	265	134	184	318	138	185	323	142	187	329	
Hackney	2.5	2.5	57	86	143	68	97	166	84	115	199	86	116	202	89	117	206	
Hammersmith & Fulham	3.0	3.0	69	103	172	82	117	199	100	138	238	103	139	242	106	141	247	
Haringey	2.3	2.3	53	79	132	63	90	152	77	106	183	79	107	186	82	108	189	
Harrow	2.2	2.2	50	76	126	60	86	146	74	101	175	76	102	178	78	103	181	
Havering	4.0	4.0	92	138	229	109	156	265	134	184	318	138	185	323	142	187	329	
Hillingdon	3.7	3.7	85	127	212	101	144	245	124	170	294	127	171	299	131	173	305	
Hounslow	3.5	3.5	80	121	201	95	136	232	117	161	278	121	162	283	124	164	288	
Islington	2.4	2.4	55	83	138	66	94	159	80	110	191	83	111	194	85	113	198	
Kensington & Chelsea	2.4	2.4	55	83	138	66	94	159	80	110	191	83	111	194	85	113	198	
Kingston Upon Thames	1.8	1.8	41	62	103	49	70	119	60	83	143	62	83	146	64	84	148	
Lambeth	2.7	2.7	62	93	155	74	105	179	90	124	214	93	125	218	96	127	222	
Lewisham	2.5	2.5	57	86	143	68	97	166	84	115	199	86	116	202	89	117	206	
Merton	2.9	2.9	66	100	166	79	113	192	97	133	230	100	134	234	103	136	239	
Newham	4.9	4.9	112	169	281	134	191	324	164	225	389	169	227	396	174	230	403	
Redbridge	1.9	1.9	44	65	109	52	74	126	64	87	151	66	88	154	67	89	156	
Richmond Upon Thames	2.2	2.2	50	76	126	60	86	146	74	101	175	76	102	178	78	103	181	
Southwark	3.0	3.0	69	103	172	82	117	199	100	138	238	103	139	242	106	141	247	
Sutton	2.4	2.4	55	83	138	66	94	159	80	110	191	83	111	194	85	113	198	
Tower Hamlets	3.8	3.8	87	131	218	104	148	252	127	175	302	131	176	307	135	178	313	
Waltham Forest	2.4	2.4	55	83	138	66	94	159	80	110	191	83	111	194	85	113	198	
Wandsworth	3.8	3.8	87	131	218	104	148	252	127	175	302	131	176	307	135	178	313	
Westminster	1.5	1.5	34	52	86	41	58	99	50	69	119	52	70	121	53	70	124	
Total apportionment	99.9	100.0	2,336	3,491	5,827	2,776	3,941	6,717	3,387	4,647	8,034	3,492	4,681	8,173	3,589	4,734	8,323	

Note 0.1% discrepancy due to rounding

