NORTH LONDON WASTE AUTHORITY

NORTH LONDON HEAT AND POWER PROJECT

NEED ASSESSMENT

The Planning Act 2008 The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 Regulation 5 (2) (q)

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north london waste authority

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1 Introduction

1.1.1 This Need Case has been prepared to support North London Waste Authority's (the Applicant's) application (the Application) to the Secretary of State for Energy and Climate Change for a Development Consent Order (DCO) pursuant to Section 37 of the Planning Act 2008 (as amended).

1.1.2 The Application is for the North London Heat and Power Project (the Project) comprising the construction, operation and maintenance of an Energy Recovery Facility (ERF) capable of an electrical output of around 70 megawatts (MW_e) at the Edmonton EcoPark in north London with associated development, including a Resource Recovery Facility (RRF). The proposed ERF would replace the existing Energy from Waste (EfW) facility at the Edmonton EcoPark.

1.1.3 The Project is a Nationally Significant Infrastructure Project for the purposes of Section 14(1)(a) and section 15 in Part 3 of the Planning Act 2008 (as amended) because it involves the construction of a generating station that would have a capacity of more than 50MW_e.

1.2 Purpose of this document

1.2.1 This document provides an assessment of the need for the Project and in particular the reasons why the proposed ERF is required. The Need Assessment also places the development within the context of current planning policy, in particular policies relating to the generation of renewable and low carbon energy and the sustainable management of waste.

1.2.2 This Assessment forms part of a suite of documents accompanying the Application submitted in accordance with the requirements set out in section 55 of the Planning Act and Regulations 5, 6 and 7 of the Infrastructure Planning (Applications: Prescribed Forms and Procedures) Regulations 2009 (APFP Regulations 2009), and should be read alongside those documents (see Project Navigation Document AD01.02).

1.3 Document structure

1.3.1 This report provides the strategic background against which the need for the ERF has been assessed, with regard to both energy and climate change strategies, and waste strategies. It provides an assessment of the need in three separate strands: (i) energy, (ii) climate change and (iii) waste.

1.3.2 This document is structured as follows:

a. Section 2.1: Provides an assessment of the energy generation policy context and need;

b. Section 2.2: Assesses the climate change policy context and relationship of this scheme to achieving its objectives;

c. Section 2.3: Provides an assessment of the waste management policy context and need,

d. Section 2.4: Assesses conformity with the waste hierarchy;

e. Section 3.1 and 3.2: Provides an overview of the energy infrastructure requirements and the level of need;

f. Section 3.3: Provides an assessment of the need for residual waste treatment infrastructure and sets out the estimates for residual waste requiring management; and

g. Section 3.4: Provides an assessment of the capacity of the proposed ERF

1.4 The Applicant

1.4.1 Established in 1986, the Applicant is a statutory authority whose principal responsibility is the disposal of waste collected by the seven north London boroughs of Barnet, Camden, Enfield, Hackney, Haringey, Islington and Waltham Forest (the Constituent Boroughs).

1.4.2 The Applicant is the UK's second largest waste disposal authority, handling approximately 3 per cent of the total national Local Authority Collected Waste (LACW) stream. Since 1994 the Applicant has managed its waste arisings predominantly through its waste management contract with LondonWaste Limited (LWL) and the use of the EfW facility at the existing Edmonton EcoPark and landfill outside of London.

1.4.3 LWL is a private waste management company wholly owned by the Applicant, and is the freeholder of the Edmonton EcoPark and the operator of the existing EfW facility. LWL has a current contract with the Applicant for management of its waste which expires in December 2025 with flexibility for termination sooner. The contract includes:

a. the reception, treatment and disposal of residual wastes;

b. the operation of Reuse and Recycling Centres (RRC), including the recycling of wastes and the transfer of residual wastes to a disposal point;

c. the reception and treatment of separately collected organic wastes;

d. the reception and transportation of other separately collected wastes for recycling by third parties; and

e. the reception and transportation of other separately collected clinical and offensive wastes for treatment by third parties.

1.5 The Application Site

1.5.1 The Application Site, as shown on the Site Location Plans (A_0001 and A_0002) in the Book of Plans (AD02.01), extends to approximately 22 hectares and is located wholly within the London Borough of Enfield (LB Enfield). The Application Site comprises the existing waste management site known as the Edmonton EcoPark where the permanent facilities would be located, part of Ardra Road, land around the existing water

pumping station at Ardra Road, Deephams Farm Road, part of Lee Park Way and land to the west of the River Lee Navigation, and land to the north of Advent Way and east of the River Lee Navigation (part of which would form the Temporary Laydown Area and new Lee Park Way access road). The post code for the Edmonton EcoPark is N18 3AG and the grid reference is TQ 35750 92860.

1.5.2 The Application Site includes all land required to deliver the Project. This includes land that would be required temporarily to facilitate the development.

1.5.3 Both the Application Site and the Edmonton EcoPark (existing and proposed) are shown on Plan A_0003 and A_0004 contained within the Book of Plans (AD02.01). Throughout this report references to the Application Site refer to the proposed extent of the Project works, and Edmonton EcoPark refers to the operational site. Upon completion of the Project the operational site would consist of the Edmonton EcoPark and additional land required to provide new access arrangements and for a water pumping station adjacent to the Deephams Sewage Treatment Works outflow channel.

Edmonton EcoPark

1.5.4 The Edmonton EcoPark is an existing waste management complex of around 16 hectares.

1.5.5 Current use of the Edmonton EcoPark comprises:

a. an EfW facility which treats circa 540,000 tonnes per annum (tpa) of residual waste and generates around 40MW_e (gross) of electricity;

b. an In-Vessel Composting (IVC) facility which processes food, landscaping and other green waste from kerbside collections and Reuse and Recycling Centres (RRCs) as well as local parks departments. The facility currently manages around 30,000tpa, and has a permitted capacity of 45,000tpa;

c. a Bulky Waste Recycling Facility (BWRF) and Fuel Preparation Plant (FPP) which receive bulky waste from RRCs and direct deliveries. These facilities respectively recycle wood, metal, plastic, paper, card and construction waste; and separate oversized items and shred waste suitable for combustion. These integrated facilities manage over 200,000tpa;

d. an Incinerator Bottom Ash (IBA) Recycling Facility which processes ash from the existing EfW facility;

e. a fleet management and maintenance facility which provides parking and maintenance facilities for the Edmonton EcoPark fleet of operational vehicles;

f. associated offices, car parking and plant required to operate the facility; and

g. a former wharf and single storey building utilised by the Edmonton Sea Cadets under a lease.

1.5.6 In order to construct the proposed ERF, the existing BWRF and FPP activities would be relocated within the Application Site; the IVC facility would be decommissioned and the IBA recycling would take place off-site.

Temporary Laydown Area and eastern access

1.5.7 The proposed Temporary Laydown Area is an area of open scrubland located to the east of the River Lee Navigation and north of Advent Way. There is no public access to this area. The Temporary Laydown Area would be reinstated after construction and would not form part of the ongoing operational site.

1.5.8 In addition to the Temporary Laydown Area the Application Site includes land to the east of the existing Edmonton EcoPark which would be used for the new Lee Park Way entrance and landscaping along the eastern boundary.

Northern access

1.5.9 The Application Site also includes Deephams Farm Road and part of Ardra Road with land currently occupied by the EfW facility water pumping station between the junction of A1005 Meridian Way and Deephams Farm Road.

1.6 Surrounding area

1.6.1 The Application Site is located to the north of the A406 North Circular Road in an area that is predominantly industrial. The Lee Valley Regional Park (LVRP) is located to the east of the Edmonton EcoPark.

1.6.2 Land to the north and west of the Application Site is predominantly industrial in nature. Immediately to the north of the Edmonton EcoPark is an existing Materials Recovery Facility (MRF) which is operated by a commercial waste management company, alongside other industrial buildings. Further north is Deephams Sewage Treatment Works. Beyond the industrial area to the north-west is a residential area with Badma Close being the nearest residential street to the Application Site (approximately 60m from the nearest part of the boundary) and Zambezie Drive the nearest to the Edmonton EcoPark at approximately 125m west.

1.6.3 Eley Industrial Estate located to the west of the Application Site comprises a mixture of retail, industrial and warehouse units.

1.6.4 Advent Way is located to the south of the Application Site adjacent to the A406 North Circular Road. Beyond the A406 North Circular Road are retail and trading estates; this area is identified for future redevelopment to provide a housing-led mixed use development known as Meridian Water.

1.6.5 The LVRP and River Lee Navigation are immediately adjacent to the eastern boundary of the Edmonton EcoPark, and Lee Park Way, a private road which also forms National Cycle Network (NCN) Route 1, runs alongside the River Lee Navigation. To the east of the River Lee Navigation is the William Girling Reservoir along with an area currently

occupied by Camden Plant Ltd. which is used for the crushing, screening and stockpiling of waste concrete, soil and other recyclable materials from construction and demolition. The nearest residential areas to the east of the Application Site and LVRP are located at Lower Hall Lane, approximately 550m from the Edmonton EcoPark and 150m from the eastern edge of the Application Site.

1.7 The Project

1.7.1 The Project would replace the existing EfW facility at Edmonton EcoPark, which is expected to cease operations in around 2025, with a new and more efficient ERF which would produce energy from residual waste, and associated development, including temporary works required to facilitate construction, demolition and commissioning. The proposed ERF would surpass the requirement under the Waste Framework Directive (Directive 2008/98/EC) to achieve an efficiency rating in excess of the prescribed level, and would therefore be classified as a waste recovery operation rather than disposal.

1.7.2 The main features of the Project once the proposed ERF and permanent associated works are constructed and the existing EfW facility is demolished comprise:

a. a northern area of the Edmonton EcoPark accommodating the proposed ERF;

b. a southern area of the Edmonton EcoPark accommodating the RRF and a visitor, community and education centre with offices and a base for the Edmonton Sea Cadets ('EcoPark House');

c. a central space, where the existing EfW facility is currently located, which would be available for future waste-related development;

d. a new landscape area along the edge with the River Lee Navigation; and

e. new northern and eastern access points to the Edmonton EcoPark.

1.7.3 During construction there is a need to accommodate a Temporary Laydown Area outside of the future operational site because of space constraints. This would be used to provide parking and accommodation for temporary staff (offices, staff welfare facilities), storage and fabrication areas, and associated access and utilities.

1.7.4 There are some aspects of the Project design that require flexibility and have therefore yet to be fixed, for example, the precise location and scale of the buildings associated with the Project. It would not be possible to fix these elements in advance of the detailed design and construction which would be undertaken following appointment of a contractor should the DCO be granted. In order to accommodate this and ensure a robust assessment of the likely significant environmental effects of the Project, the Application is based on the limits of deviation set out in the Book of Plans (AD02.01), which identifies:

a. works zones for each work or group of works (to establish the area in which the development can be located); and

b. maximum building envelopes (to establish the maximum building length, width, height and footprint).

1.7.5 The Book of Plans (AD02.01) is supplemented by Illustrative Plans (included in the Design Code Principles, AD02.02) that set out the indicative form and location of buildings, structures, plant and equipment, in line with the limits of deviation established by the draft DCO (AD03.01).

1.7.6 A separate Environmental Permit would need to be obtained from the Environment Agency (EA) for the operation of the waste facility under the Environmental Permitting (England and Wales) Regulations 2010. The existing EfW facility at the Edmonton EcoPark is subject to an Environmental Permit issued by the EA. The Applicant is currently in discussions with the EA regarding an application for the new Environmental Permit(s) associated with the proposed ERF with a view to submitting an application in parallel with the DCO process.

Principal development (Works No.1a)

1.7.7 The principal development comprises the construction of an ERF located at the Edmonton EcoPark, fuelled by residual waste and capable of an electrical output of around 70MW_e (gross) of electricity. The principal development consists of the following development, located within the limits of deviation shown on Drawing C_0002 and within the building envelopes shown on Drawing C_0003 (in the Book of Plans (AD02.01)):

(i) a main building housing:

(a) a tipping hall;

(b) waste bunker and waste handling equipment;

(c) two process lines (with each line having a capacity of 350,000 tonnes of waste per annum), consisting of a moving grate, furnace, boiler and a flue gas treatment plant;

(d) facilities for the recovery of incinerator bottom ash and air pollution control residue;

(e) steam turbine(s) for electricity generation including equipment for heat off-take; and

(f) control room containing the operational and environmental control and monitoring systems, and offices.

(ii) entry and exit ramps to the ERF;

(iii) a stack containing flues for flue gas exhaust;

(iv) cooling equipment; and

(v) an observation platform enclosure.

Associated development (Works No. 1b – 7)

1.7.8 Associated development within the meaning of section 115(2) of the Planning 2008 Act (as amended) in connection with the Nationally Significant Infrastructure Project referred to in Works No.1a, comprising:

(a) Works No.1b – works required to provide buildings, structures, plant and equipment needed for the operation of the ERF as shown on Drawing C_0002 (AD02.01) comprising:

(i) a wastewater treatment facility;

(ii) a water pre-treatment plant;

(iii) external stores and workshops;

(iv) a fuelling area and fuel storage, vehicle wash, transport offices and staff facilities, toilets, natural gas intake and management compound, and fire control water tank(s); and

(v) electrical substation(s).

(b) Works No.2 – the construction of a resource recovery facility comprising the following building, structures and plant, as shown on Drawing C_0004 and within the building envelope shown on Drawing C_0005 (AD02.01):

(i) a Recycling and Fuel Preparation Facility (RFPF);

(ii) a RRC;

(iii) offices, and staff and visitor welfare facilities;

(iv) odour abatement and dust suppression plant and equipment; and

(v) fire control water tank(s) and pump house and equipment.

(c) Works No.3 – the construction of a building to provide visitor, community and education facilities, office accommodation, and a boat canopy, as shown on Drawing C_0006 and within the building envelope shown on Drawing C_0007 (AD02.01).

(d) Works No.4 – utilities and infrastructure work, landscaping, access, security and lighting, and weighbridges, as shown on Drawing C_0008 (AD02.01), comprising:

(i) With regard to the following

(a) potable water;

(b) waste water;

(c) surface water;

(d) foul water;

(e) raw water;

(f) electricity;

(g) gas; and

(h) CCTV, telecoms and data,

works could include:

- the diversion, repositioning, decommissioning, removal, replacement, modification or upgrading of existing pipes, cables, systems and associated apparatus;
- the laying or installation of new pipes, cables, systems and associated apparatus; and
- the creation of connections to existing or new pipes, cables, systems and associated apparatus.

(ii) the erection of a raw water pumping station;

(iii) stabilisation works to the eastern bank of Salmon's Brook;

(iv) the construction of surface water pumps, pipework and attenuation tanks;

(v) landscaping works;

(vi) the installation of areas of green roof and/or brown roof;

(vii) the widening of the existing entrance into the Edmonton EcoPark from Advent Way, including modification or replacement of the bridge over Enfield Ditch;

(viii) construction within the Edmonton EcoPark of vehicle and cycle parking, vehicle, cycle and pedestrian routes, and weighbridges;

(ix) construction of an access into the Edmonton EcoPark from Lee Park Way, including bridging over Enfield Ditch;

(x) improvements to Lee Park Way including vehicle barriers and the creation of segregated pedestrian and cycle paths;

(xi) improvements to Deephams Farm Road and use of Deephams Farm Road as an access to the Edmonton EcoPark;

(xii) the resurfacing of Ardra Road (if required);

(xiii) security, fencing, and lighting works and equipment;

(xiv) the erection of security facilities and equipment and gatehouses within the operational site at access points from Advent Way, Ardra Road, and Lee Park Way;

(xv) the upgrade and maintenance of the existing bridge over the River Lee Navigation; and

(xvi) the installation of photovoltaic panels at roof level of the ERF and RRF.

(e) Works No.5 – works for the creation of the Temporary Laydown Area and its temporary use, as shown on Drawing C_0009 (AD02.01), as follows:

(i) areas of hardstanding;

(ii) the erection of fencing, hoarding or any other means of enclosure;

(iii) the erection of security facilities and equipment and gatehouses;

(iv) vehicle parking;

(v) office and staff welfare accommodation;

(vi) storage, fabrication, laydown area;

(vii) foul water storage and pumps and surface water attenuation storage and pumps;

(viii) utility works including electricity, water, CCTV, telecoms and data;

(ix) the creation of vehicular, cycle and pedestrian access from Lee Park Way to the Temporary Laydown Area; and

(x) restoration of the Temporary Laydown Area.

(f) Works No.6 – site preparation and demolition works within the area as shown on Drawing C_0010 (AD02.01), comprising:

(i) demolition of existing buildings, structures and plant excluding demolition of the existing EfW facility;

(ii) construction of a temporary ash storage building;

(iii) realignment of the exit ramp from the existing EfW facility; and

(iv) works to prepare the land shown on Drawing C_0008 (AD02.01) for the construction of works numbers 1a, 1b, 2, 3, 4 and 5.

(g) Works No.7 – as shown on Drawing C_0011 (AD02.01), comprising decommissioning and demolition of the existing EfW facility and removal of:

(i) the existing stack;

(ii) demolition of the existing water pumping station on Ardra Road; and

(iii) making good the cleared areas.

1.7.9 The draft DCO also identifies such other works as may be necessary or expedient for the purposes of or in connection with the construction, operation and maintenance of the authorised development which do not give rise to any materially new or materially different environmental effects from those assessed and set out in the Environmental Statement (ES) (AD06.02).

1.8 Stages of development

1.8.1 The proposed ERF is intended to be operational before the end of 2025, but with the precise timing of the replacement to be determined. In order to do this, the following key steps are required:

a. obtain a DCO for the new facility and associated developments;

b. obtain relevant environmental permit(s) and other licences, consents and permits needed;

c. identify a suitable technology supplier;

d. agree and arrange source(s) of funding;

e. enter into contract(s) for design, build and operation of new facility and associated development;

f. move to operation of new facility; and

g. decommission and demolish the existing EfW facility.

1.8.2 Site preparation and construction would be undertaken over a number of years and it is expected that the earliest construction would commence is 2019/20, although this may be later. Construction would be implemented in stages to ensure that essential waste management operations remain functioning throughout. This is especially relevant for the existing EfW facility and associated support facilities.

1.8.3 The stages of the Project are as follows:

a. Stage 1a: site preparation and enabling works;
b. Stage 1b: construction of RRF, EcoPark House and commencement of use of Temporary Laydown Area;
c. Stage 1c: operation of RRF, EcoPark House and demolition/clearance of northern area;
d. Stage 1d: construction of ERF;
e. Stage 2: commissioning of ERF alongside operation of EfW facility, i.e. transition period;
f. Stage 3: operation of ERF, RRF and EcoPark House, demolition of EfW facility; and
g. Stage 4: operation of ERF, RRF and EcoPark House, i.e. final operational situation.

Stage 1a

1.8.4 Stage 1a involves a series of site preparation and enabling works required for the Project. The works would include:

a. enabling works along Deephams Farm Road to create the Deephams Farm Road access;
b. demolition of clinical waste building and maintenance workshop building;
c. infill of artificial pond and clearance of landscaped area to form temporary storage and parking area;
d. layout of replacement fleet parking areas and temporary support buildings on the site of the maintenance workshop;
e. establishment of hoarded demolition work sites with safe pedestrian and vehicular access to the existing EfW facility main entrance and staff car parks. Access to the existing EfW facility would continue to be from the existing Edmonton EcoPark access;
f. relocation of Edmonton Sea Cadets to existing EfW facility meeting rooms with safe pedestrian and vehicular access via the existing Edmonton EcoPark access at Advent Way to the main entrance and staff car parks; storage of Edmonton Sea Cadets equipment in a container located at front of the existing EfW facility and relocate their boats to an off-site location provided by the Edmonton Sea Cadets;
g. diversion of utilities and services affected by demolition and clearance works including diversion of the sewer trunk main owned by Thames

Water Utilities Limited (TWUL) which runs under the proposed location of the RRF;

h. demolition and clearance of EcoPark House and RRF construction zones;

i. creation of new Lee Park Way access and temporary diversion of footpaths and cycleways; and

j. establishment of the Temporary Laydown Area to the north of Advent Way and east of the River Lee Navigation to provide for site offices; storage of construction materials, plant and machinery; fabrication/sub-assembly; and construction staff/contractor vehicle parking. Temporary diversion of footpaths and cycleways at the Temporary Laydown Area access points.

1.8.5 The existing EfW facility would continue to operate at current capacity. The existing IBA recycling facility would continue to process ash from the existing EfW facility. The existing BWRF, FPP and IVC would continue to operate in this period.

1.8.6 Operational vehicles would continue to access the Edmonton EcoPark via the access at Advent Way. This accounts for approximately 1,063 one way vehicle movements per day.

1.8.7 Traffic associated with the Stage 1a demolition and enabling works would arrive at the Edmonton EcoPark via the existing access on Advent Way.

Stage 1b

1.8.8 During Stage 1b, the RRF and EcoPark House buildings would be constructed in the southern part of the Edmonton EcoPark. It would be necessary to construct these buildings prior to the construction of the proposed ERF and demolition of the operations north of the existing EfW facility. The works required during this stage of construction would include:

a. commencement of use of Temporary Laydown Area;

b. relocation of LWL vehicle fleet to the north of existing EfW facility;

c. construction of EcoPark House;

d. construction of RRF and its weighbridges;

e. erection of temporary ash storage building;

f. layout of staff and visitor parking area immediately adjacent to EcoPark House;

g. commencement of use by staff and visitor vehicles of the new Lee Park Way access;

h. construction of the attenuation tank and associated drainage of the RRF sub-catchment; and

i. existing EfW facility exit ramp arrangements aligned with RRF construction area and required RRF operational vehicles routes.

1.8.9 The existing EfW facility would continue to operate at current capacity. The Edmonton Sea Cadets would continue to occupy space in the existing EfW facility.

1.8.10 The existing BWRF, FPP and IVC would continue to operate in this period, until the RRF is completed (see Stage 1c). The IBA recycling facility would continue to process ash from the existing EfW facility.

1.8.11 Operational vehicles would continue to access the Edmonton EcoPark via the existing Edmonton EcoPark access from Advent Way. The new Lee Park Way access would become available and be used by some staff and Edmonton Sea Cadets traffic.

1.8.12 Traffic associated with the construction of the RRF and EcoPark House would arrive at the Edmonton EcoPark via the existing access on Advent Way. Some traffic may arrive at the Temporary Laydown Area, travelling from the Temporary Laydown Area to the Edmonton EcoPark via Walthamstow Avenue and the existing access. Some light vehicles including construction staff shuttle buses may travel to the Edmonton EcoPark via the new Lee Park Way access.

Stage 1c

1.8.13 During this stage of construction the facilities to the north of the existing EfW facility would be demolished to make way for the proposed ERF. The works required involve:

a. completion of RRF and transfer of FPP/BWRF operations;
b. completion of EcoPark House and occupation by the Edmonton Sea Cadets;
c. relocation of Edmonton EcoPark stores;
d. disconnection of obsolete services and utilities within demolition zones;
e. demolition and clearance of existing FPP area;
f. demolition and clearance of existing BWRF area;
g. demolition and clearance of existing IBA area; and
h. demolition and clearance of existing IVC facility – composting activities to be relocated off-site and bulking facilities provided within the RRF to enable transport to third party treatment sites.

1.8.14 The existing EfW facility would continue to operate at current capacity, with a temporary ash storage building provided to replace the existing IBA area and allow the transfer of ash off-site for recycling.

1.8.15 The Recycling and Fuel Preparation Facility (RFPF) operations would commence within the RRF, with capacity to treat around 390,000 tpa. The RRC element of the RRF building would be open to members of the public and small businesses with access via the new Lee Park Way access. On completion of EcoPark House this would be available for community and education activities, the Edmonton Sea Cadets and for office accommodation associated with operation of the Edmonton EcoPark.

1.8.16 Operational vehicles would continue to access the Edmonton EcoPark via the existing access on Advent Way to serve both the existing EfW facility and proposed RRF. Members of the public and small business vehicles visiting the RRC element of the RRF, users of EcoPark House and staff would access the Edmonton EcoPark via the new Lee Park Way access.

1.8.17 Traffic associated with the northern Application Site clearance would use the new Deephams Farm Road access.

Stage 1d

1.8.18 During Stage 1d, the main build for the proposed ERF would occur within a defined work zone at the northern area of the Edmonton EcoPark. The works involve:

a. construction of ERF including piling and excavation works, civil and structural works, establishment of new utilities connections;

b. construction of the surface water attenuation tank(s) and associated drainage of the ERF sub-catchment;

c. erection of a new pumping station and associated pipework to provide raw water from Deephams Sewage Treatment Works outflow channel; and

d. partial landscaping.

1.8.19 The majority of heavy goods vehicles associated with the construction of the proposed ERF would arrive at the Edmonton EcoPark via the Deephams Farm Road access. Vehicle movements associated with the delivery of concrete would be undertaken directly to the Edmonton EcoPark while approximately 50 per cent of all other construction vehicle movements would be to the Temporary Laydown Area, with onward movement to the Edmonton EcoPark when required. The majority of these vehicles would travel via the A406 North Circular Road and A1055 Meridian Way to the Deephams Farm Road access. However, any abnormal loads may travel between the Temporary Laydown Area and the Edmonton EcoPark via the existing access. This would be undertaken at a time that minimises any conflict with Edmonton EcoPark operational vehicles.

1.8.20 The existing EfW facility would continue to operate at current capacity and the proposed RRF and EcoPark House would be operational.

1.8.21 Operational vehicles would continue to access the Edmonton EcoPark via the existing access on Advent Way to serve both the existing EfW facility and RRF. Members of the public and small businesses visiting the RRC element of the RRF, users of EcoPark House and staff would access the Edmonton EcoPark via the new Lee Park Way access.

Stage 2

1.8.22 This stage marks the completion of the proposed ERF, commissioning of the facility and start of operations. The existing EfW facility would then be ready for decommissioning and demolition. The works required involve:

a. commissioning of proposed ERF;

b. installation of ERF weighbridges;

c. relocation of operations contractors compound from adjacent to the existing EfW facility to adjacent to the southern side of the ERF;

d. relocation of operational stores adjacent to the ERF;

e. relocation of operational fleet depot to adjacent to ERF; and

f. completion of landscaping works that are not linked to or affected by the EfW facility demolition.

1.8.23 The commissioning stage of the proposed ERF is estimated to take between six and twelve months. The commissioning stage is necessary in order to test all of the equipment and processes before the proposed ERF is fully operational. During this stage both the existing EfW facility and the proposed ERF would be operational as waste inputs are gradually transferred from the existing EfW facility to the proposed ERF.

1.8.24 Landscaping and relocation of support facilities would take place during the ERF commissioning stage with use of the Deephams Farm Road access remaining in place for the operations contractor's use, alongside staff shuttle buses from Lee Park Way as required.

1.8.25 The existing EfW facility would continue operation at a reduced capacity as incoming waste is transferred to the proposed ERF to allow its commissioning. The proposed ERF would increase the proportion of the waste that it takes as its commissioning progresses and both treatment lines are brought online.

1.8.26 The proposed RRF and EcoPark House would be operational.

1.8.27 Operational vehicles would continue to access the Edmonton EcoPark via Advent Way as before to serve both the existing EfW facility and proposed ERF and RRF. Some operational vehicles travelling to the ERF would use the Deephams Farm Road access. Members of the public and local businesses visiting the RRC element of the RRF would access the Edmonton EcoPark via the new Lee Park Way access.

Stage 3

1.8.28 Decommissioning, stripping out and demolition of the existing EfW facility would commence after the proposed ERF is fully commissioned and tests including the reliability period have been successfully completed. The works required would involve:

a. hoarding of the demolition work zone;

b. clearance of northern half of existing EfW facility site – once cleared the northern area of the EfW facility site would be used as a laydown for demolition equipment which is required before the demolition of the main EfW facility building can proceed;

c. completion of fleet parking and facilities area;

d. construction of widened southern entrance and new security gatehouse;

e. demolition and decommissioning of water pumping station;

f. demolition of main EfW facility building;

g. excavation of bunker and infilling with suitable material;

h. levelling of site and make good;

i. completion of Edmonton EcoPark landscaping works;

j. completion of staff car parks and surface water attenuation tanks on removal of EfW facility exit ramp; and

k. restoration of the Temporary Laydown Area.

1.8.29 The proposed ERF would operate at the capacity required with each process line capable of 350,000 tonnes per annum with a total capacity of the facility at 700,000 tonnes per annum. The proposed RRF and EcoPark House would also be operational.

1.8.30 Operational vehicles would continue to access the Edmonton EcoPark via the existing access on Advent Way as existing to serve both the ERF and RRF. Members of the public and small businesses visiting the RRC element of the RRF, users of EcoPark House and staff would access the Edmonton EcoPark via the new Lee Park Way access.

1.8.31 Traffic associated with the decommissioning and demolition of the existing EfW facility would travel to and from the Edmonton EcoPark via the existing Edmonton EcoPark access on Advent Way to minimise any conflicts with the operational ERF. Some vehicles associated with the removal of materials may be marshalled at the Temporary Laydown Area, waiting there until required on the Edmonton EcoPark. The new Deephams Farm Road access may also be used, if necessary.

Stage 4

1.8.32 Stage 4 would see the full operation of all new facilities. The proposed ERF would operate at full required capacity with each process line capable of processing 350,000 tonnes per annum with a total capacity of the facility at 700,000 tonnes per annum. The RRF would operate with a capacity of around 390,000tpa.

1.8.33 EcoPark House would be occupied by the site operator and the Edmonton Sea Cadets, and would also be available for other community and education activities.

1.8.34 Operational vehicles would continue to access the Edmonton EcoPark via the existing access on Advent Way to serve both the ERF and RRF while some movements would be undertaken using the Deephams Farm Road access. Members of the public and small businesses visiting the RRC element of the RRF, users of EcoPark House and staff would access the Edmonton EcoPark via the new Lee Park Way access.

2 Policy context

2.1 Energy generation

2.1.1 This section of the report addresses the specific policy context in relation to the need for energy generation and the contribution that the Project would make to meet this need.

National policy

2.1.2 Government policy on energy is set out in its National Policy Statement (NPS) for Energy, which takes the form of six separate documents covering different aspects or types of energy infrastructure. The two documents of relevance to the Project are:

- Overarching National Policy Statement for Energy (NPS EN-1)[1]; and
- National Policy Statement for Renewable Energy Infrastructure (NPS EN-3)[2].

2.1.3 To accommodate growing demand, forecast power station closures and in order to decarbonise the energy sector, significant amounts of new large scale energy infrastructure are required. The Overarching National Policy Statement for Energy (NPS EN-1) sets out the Government's policy on energy to ensure that the energy supplies we need are secured.

2.1.4 The NPSs recognise that there is a pressing national need for a transition to low carbon and renewable energy generation. It is for these reasons that NPS EN-1 emphasises that because the UK has a: *"…need to diversify and decarbonise electricity generation, the Government is committed to increasing dramatically the amount of renewable generation capacity…*" (Paragraph 3.3.10). Indeed, the guidance confirms that: "*Government would like industry to bring forward many new low carbon developments (renewables, nuclear and fossil fuel generation with CCS) within the next 10 to 15 years to meet the twin challenge of energy security and climate change…*"(Paragraph 3.3.5).

2.1.5 With regard to the matter of energy security, NPS EN-1 states that "*It is critical that the UK continues to have secure and reliable supplies of energy as we make the transition to a low carbon economy*" (Paragraph 2.2.20) since "*energy is vital to economic prosperity and social well-being*" (Paragraph 2.2.1).

2.1.6 NPS EN-1 identifies Energy from Waste (EfW) as a future large-scale energy generation source. It notes that EfW can generate "*dispatchable*" power, providing peak load and base load electricity on demand. Furthermore it is valued as a predictable electricity source as opposed to other renewable intermittent electricity sources:

[1] Department of Energy and Climate Change (2011) Overarching National Policy Statement for Energy (EN-1), July 2011.
[2] Department of Energy and Climate Change (2011) National Policy Statement for Renewable Energy Infrastructure (EN-3), July 2011.

> *"As more intermittent renewable electricity comes onto the UK grid, the ability of biomass and EfW to deliver predictable, controllable electricity is increasingly important in ensuring the security of UK supplies"* (Paragraph 3.4.4).

2.1.7 It is confirmed in Paragraph 3.3.10 and subsequently 3.4.3 of NPS EN-1 that generation from the combustion of biomass and waste are included as components of the energy diversification sought by Government. Paragraphs 3.3.10 refers to the requirement to "*increase dramatically the amount of renewable generation capacity*" whilst the latter refers explicitly to EfW as one of the future large-scale energy generation sources, where waste that would otherwise go to landfill should be used for energy recovery.

2.1.8 Policy makes clear that there is not an express preference for specific technology types and that it is for the market to decide how and where to build the new infrastructure that is required.

> "*It is for industry to propose new energy infrastructure projects within the strategic framework set by Government. The Government does not consider it appropriate for planning policy to set targets for or limits on different technologies*" (NSP EN-1 Paragraph 3.1.2).

2.1.9 The policy also acknowledges that the biodegradable or more accurately the 'biogenic' fraction of waste is acknowledged as being a source of renewable energy generation. This was most recently recognised in Energy from Waste: A guide to the Debate 2014[3].

> "*Of the waste in our typical black bag, currently somewhere between one half and two thirds will contain biogenic carbon*".

2.1.10 Recognising the need to move waste away from landfill and further up the waste hierarchy, the proposed ERF can provide benefits in terms of climate change mitigation and contributes towards a more diversified energy mix.

2.1.11 Energy recovery facilities are recognised in national policy as being one of the renewable sources of energy that have an important role to play in contributing to the urgent need for renewable energy sources[4]. The UK has a commitment to sourcing 15 per cent of its total energy (across the sectors of transport, electricity and heat) from renewable sources by 2020[5]. NPS EN-1 notes that to achieve the 15 per cent target, and to

[3] Department for Energy and Climate Change (2014) Energy from Waste: A guide to the Debate February 2014 (revised edition) https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/284612/pb14130-energy-waste-201402.pdf

[4] Note: *"Renewable energy is energy which comes from renewable non-fossil sources. For energy from waste this means things that were recently growing. Residual waste contains a significant proportion of materials like food and wood ('biogenic' materials) and energy from this proportion is considered renewable. However, residual waste also contains wastes from 'fossil' sources (oil etc.) such as plastic. Therefore when energy is recovered from mixed residual waste it is considered to be only a partially renewable energy source*". Sourced from Defra Energy from Waste: A guide to the Debate February 2014 (revised edition)

[5] HM Government (2009) UK Renewable Energy Strategy, July 2009.

deliver a largely decarbonised power sector by 2030, it is necessary to bring forward, as soon as possible, new projects which are capable of generating renewable electricity (Paragraphs 3.4.5).

2.1.12 NPS EN-3 has been prepared specifically in regard to renewable energy infrastructure. Regarding the importance and urgency of developing new renewable energy generating capacity, NPS EN-3 reiterates the points made within NPS EN-1. At Paragraph 2.5.2 it too recognises that "*recovery of energy from the combustion of waste, where in accordance with the waste hierarchy, will play an increasingly important role in meeting the UK's energy needs. Further, the recovery of energy from the combustion of waste forms an important element of waste management strategies in both England and Wales*".

2.1.13 Paragraph 2.5.11 of NPS EN-3 highlights the range of potential combustion technologies including grate combustion, fluidised bed combustion, gasification and pyrolysis and confirms that the decision maker need not concern themselves with technology choice.

2.1.14 In terms of the fuel throughput of a proposed ERF the sources and volume of waste are not constrained by the NPSs although any increase in impacts must be assessed. However, in the case of waste, reference is made to the waste hierarchy (discussed in Section 2.4) and the importance of using waste that cannot be re-used or recycled. In terms of volume NPS EN-3 states:

> *"Throughput volumes are not, in themselves, a factor in IPC decision-making as there are no specific minimum or maximum fuel throughput limits for different technologies or levels of electricity generation. This is a matter for the applicant. However the increase in traffic volumes, any change in air quality, and any adverse impact as a result of the increase in throughput should be considered by the IPC in accordance with this NPS and balanced against the net benefits if the combustion of waste and biomass as described in para 2.5.2 above and in Section 3.4 of EN-1." (*Paragraph 2.5.13*)*

2.1.15 An Environmental Impact Assessment of the Project has been carried out in accordance with Schedule 1 Part 10[6] of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (the 'EIA Regulations'). The requirements of NPS EN-1 and NPS EN-3 relating to the general EIA methodology have also been addressed.

2.1.16 The NPS EN-1 and NPS EN-3 complement the wider energy policy framework that promotes renewable energy generation from waste.

2.1.17 The UK Renewable Energy Strategy 2009[5] also recognises explicitly that EfW and/or associated Combined Heat and Power (CHP) has a role to play in providing a supply of renewable energy.

[6] "Waste disposal installations for the incineration or chemical treatment (as defined in Annex IIA to Council Directive 75/442/EEC under heading D9) of non-hazardous waste with a capacity exceeding 100 tonnes per day."

2.1.18 The UK Renewable Energy Roadmap (July 2011[7]) indicates that "*Based on current information, and taking account of their long term potential as well as their cost effectiveness, 8 technologies are capable of delivering more than 90% of the renewable energy we need for 2020".* Two of these technologies are biomass electricity and biomass heat, both of which encompass EfW.

2.1.19 It is noted in the Annual UK Renewable Energy Roadmap update (2013[8]) that: "*Energy recovery through a range of technologies - including combustion, anaerobic digestion (AD) and landfill gas extraction - can be a sustainable option for waste that would otherwise go to landfill and create landfill methane emissions. Where waste cannot be economically or practically reused or recycled, the aim is to get the most value from it via energy recovery using the most efficient technologies*".

2.1.20 Energy from Waste: A Guide to the Debate 2014[3] identifies at Paragraph 68 that as an energy source, energy from waste has a number of potential advantages beyond its renewable content including: energy security; non-intermittent nature; and variety of potential energy outputs

2.1.21 Page 3 of the overview section to the Energy from Waste: A Guide to the Debate[3] recognises that:

> *"Energy from waste is not just about waste management.*
>
> - *The energy it produces is a valuable domestic energy source contributing to energy security.*
> - *As a partially renewable energy source it can also contribute to our renewable energy targets which are aimed at decarbonising energy generation.*
> - *It has the added advantage that it is non-intermittent, so it can complement other renewable energy sources such as wind or solar*".

2.1.22 At Paragraph 70 it notes that "*generating energy from waste rather than from these fossil fuels, as with other renewables, provides a domestically-derived energy source and gives the UK greater fuel security, greater energy independence and protection from fossil fuel price fluctuations*".

2.1.23 The Government Review of Waste Policy in England 2011[9] states:

> *"The government supports energy from waste as a waste recovery method through a range of technologies, and believes there is potential for the sector to grow further."* (Paragraph 207)

2.1.24 The review continues with an estimation of how much renewable electricity may be available from EfW facilities in England by 2020 even with the expected improvements in prevention, re-use and recycling.

[7] Department of Energy and Climate Change (2011) UK Renewable Energy Roadmap, July 2011.
[8] Department of Energy and Climate Change (2013) UK Renewable Energy Roadmap Update, November 2013.
[9] Department for Environment, Food and Rural Affairs (2011) Government Review of Waste Policy in England 2011

> "…*waste derived renewable electricity from thermal combustion in England is calculated to grow from the current 1.2TWh to between 3.1TWh and 3.6TWh by 2020, depending on how much of the solid recovered fuel produced is utilised in the UK*." (Paragraph 215)

2.1.25 The benefits of recovery include preventing some of the negative greenhouse gas impacts of waste in landfill. Preventing these emissions offers a considerable climate change benefit, with the energy generated from the biodegradable fraction of this waste also offsetting fossil fuel power generation, and contributing towards our renewable energy targets. Even energy from the non-biodegradable component, whilst suffering from the negative climate impacts of other fossil fuels, has additional advantages in terms of providing comparative fuel security, provided it can be recovered efficiently (Paragraph 208).

2.1.26 The Renewable Energy Road Map Update 2013[8] includes a spotlight on energy from waste (page 39) which states:

> "*Energy recovery through a range of technologies - including combustion, anaerobic digestion (AD) and landfill gas extraction - can be a sustainable option for waste that would otherwise go to landfill and create landfill methane emissions. Where waste cannot be economically or practically reused or recycled, the aim is to get the most value from it via energy recovery using the most efficient technologies*".

2.1.27 The Government's Renewable Energy Action Plan (2010)[10] highlights the following:

> "*Currently 6 TWh of heat and power is generated from biomass municipal solid waste collected by Local Authorities, and about 18 TWh from landfill gas. If all the food and wood waste sent to landfill were used for energy it would generate 42 TWh, or approximately 18% of our renewable energy target*".

London policy

2.1.28 The Mayor's Climate Change Mitigation and Energy Strategy[11] is one of eight environmental strategies setting out the action the Mayor is taking, and encouraging others to take, to limit climate change, secure a low carbon energy supply for London, and moving London to a thriving low carbon capital. Objectives for the strategy include ensuring a secure and reliable energy supply for London.

> *"London is currently heavily reliant upon the national grid for electricity, and its supply is inextricably linked to national energy infrastructure and national energy policy. This presents a particular challenge as without significant investment in infrastructure and demand reduction, the UK faces an energy gap in the near future."* (Section 4.5)

[10] The UK National Renewable Action Plan, 2010.
[11] Mayor of London (2011) Delivering London's Energy Future: The Mayor's Climate Change Mitigation and Energy Strategy, October 2011.

2.1.29 Policy 5.7 addresses renewable energy and the objective to increase the proportion of energy generated from renewable sources.

2.1.30 Policy 5.5 of the Mayor of London's London Plan (The London Plan)[12] promotes decentralised energy networks and requires that 25 per cent of heat and power used in London should be generated through localised decentralised energy systems by 2025. It notes that renewable energy decentralised energy opportunities including the use of energy from waste are supported.

2.1.31 The London Plan proposes that London's district heating networks are to evolve from natural gas CHP to being supplied by EfW. Policy 5.5c of the London Plan therefore requires boroughs to identify possible opportunities to utilise EfW when establishing decentralised energy network opportunities. In north London a heat network (the Lee Valley Heat Network (LVHN)) is being promoted by the Greater London Authority (GLA) and LB Enfield, pursuant to this policy. The Project includes safe guarding of land areas for local energy network use but not the local energy network itself.

2.1.32 The Mayor of London's Upper Lee Valley Opportunity Area Planning Framework[13] identifies the Application Site as the preferred location of a supply hub for the LVHN. This recognises that the LVHN will contribute to the London Plan target to supply a quarter of London's energy from decentralised sources by 2025 and help London become more self–sufficient in relation to its energy needs.

2.1.33 The Edmonton EcoPark is located within an area that is designated for significant regeneration incorporating a range of potential uses e.g. the Meridian Water[14] development located just south of the A406. The proposed ERF is therefore well located to fully exploit the potential for combined heat and power.

Local policy

2.1.34 The Central Leeside, Proposed Submission Area Action Plan[15] identifies the Edmonton EcoPark as the site to provide the next generation of waste services and the provision of heat for a decentralised energy network.

> "*The principal requirement for the future development of the EcoPark is to treat waste in the most sustainable way possible, however the treatment of waste also presents a significant opportunity to generate additional community benefits through the provision of heat. For this reason, the EcoPark is identified as the key heat source for initial development of the LVHN*".

[12] Greater London Authority (GLA) (2015) The London Plan, the Spatial Development Strategy for London Consolidated with Alterations since 2015, March 2015
[13] Mayor of London (2013) Upper Lee Valley Opportunity Area Planning Framework, July 2013.
[14] http://www.meridianwater.co.uk/
[15] LB Enfield (2014) Central Leeside Proposed Submission Area Action Plan, November 2014.

Energy need summary

2.1.35 This Project supports the Government's urgent need for low carbon energy required within the next 10 to 15 years in order to meet the twin challenge of energy security and climate change (NPS EN-1 Paragraph 3.3.5 and 3.4.5). NPS EN-1 notes that to achieve the 15 per cent target, and to deliver a largely decarbonised power sector by 2030, it is necessary to bring forward, as soon as possible, new projects which are capable of generating renewable electricity (NPS EN-1 Paragraph 3.4.5). Energy from waste is recognised as a component of the energy diversification sought by Government which could contribute to renewable energy generation (NPS EN-1 Paragraph 3.4.3 and 3.3.10). The Project will contribute significantly towards the Government's objectives for renewable energy generation in a manner than accords fully with the objective of policy relating to the sustainable use of resources.

2.1.36 The proposed ERF would generate up to 70MWe of power and would support the Government's urgent need for energy diversification; it would offer a non-intermittent source of energy through '*dispatchable*' power generation which would contribute to energy security (NPS EN-1 Paragraph 2.2.20 and Paragraph 3.4.4; NPS EN-3 Paragraph 2.5.2).

2.1.37 The Government's Energy from Waste: A Guide to the Debate 2014[3] report (Paragraph 68 and 70) identifies the potential advantages of energy recovery including: energy security, contribution to UK renewable energy targets; and support to other renewable energy sources such as wind or solar as a non-intermittent energy source.

2.1.38 The Project supports London and local policy objectives in addition to national policy. The Mayor's Climate Change Mitigation and Energy Strategy[11] and the Mayor's London Plan[12] recognise London's heavy reliance on the national grid for electricity and the need to increase the proportion of energy generation from renewables. The London Plan requires that 25 per cent of heat and power used in London should be generated through localised decentralised energy systems by 2025. The London Plan recognises energy from waste as a potential source of renewable decentralised energy (Paragraph 5.32). Under policy 5.5c boroughs are required to identify possible opportunities to utilise energy form waste when establishing decentralised energy network opportunities.

2.1.39 The Edmonton EcoPark is recognised by the Central Leeside Proposed Submission Area Action Plan as a source of decentralised energy as well as a site to provide the next generation of waste services. The proposed ERF would be combined heat and power (CHP) enabled and the Project would include safe guarding of land areas for local energy network use.

2.2 Climate change

Policy overview

2.2.1 NPS EN-1 notes that "*As part of the UK's need to diversify and decarbonise electricity generation, the Government is committed to increasing dramatically the amount of renewable generation capacity*".

The document further notes "*An increase in renewable electricity is essential to enable the UK to meet its commitments under the EU Renewable Energy Directive. It will also help improve our energy security by reducing our dependence on imported fossil fuels, decrease greenhouse gas emissions and provide economic opportunities."*

2.2.2 The UK's Renewable Energy Strategy 2009[5] states at (Paragraph 1.1) that the UK should "*…radically increase its use of renewable energy*" and sets out how Government plans to achieve its renewable energy targets. As highlighted in Paragraph 2.1.11 of this Need Assessment, the Strategy has been prepared to implement the Renewable Energy Directive (2009/28/EC), which requires the UK to deliver 15 per cent of energy generation from renewable sources by 2020.

2.2.3 In order to achieve this, the government set out a 'lead scenario' which identified how the 2020 target could best be achieved. This lead scenario involved the deployment of the following proportions of renewable energy:

- 30 per cent of electricity demand;
- 12 per cent of heat demand; and
- 10 per cent of transport demand.

2.2.4 As included in Paragraph 2.1.8 of this Need Assessment between one half and two thirds of typical black bag (residual) waste will contain biogenic carbon and is regarded as renewable energy.

2.2.5 An important aspect of London's Strategy for the management of municipal waste is to minimise the carbon dioxide equivalent (CO2eq) emissions by maximising the generation of low carbon energy from waste.

2.2.6 Policies 5.1 and 5.2 of the London Plan address climate change mitigation generally and minimising carbon emission respectively. The former sets a target to achieve an overall reduction in London's CO2 emissions of 60 per cent (below 1990 levels) by 2025. Policy 5.2 provides further detail in respect of minimising carbon emissions.

Climate change assessment

2.2.7 A minimum carbon dioxide (CO_2) emission performance level for energy generated from London's municipal waste has been set by the Mayor of London such that energy is generated in a way that is no more polluting in carbon terms than the energy source it replaces. The minimum performance standard (EPS) or the Carbon Intensity Floor (CIF) has been set using the Department of Energy and Climate Change (DECC) marginal energy mix figures of 400gCO_2/kWh to offset any electricity or heat generated.

2.2.8 The GLA has developed a Greenhouse Gas (GHG) Calculator to assist local authorities in assessing the GHG emissions associated with new waste facilities or services. The tool is designed to test direct burden emissions associated with the generation of energy from residual waste which allows an assessment of performance to be made against the CIF.

2.2.9 The Applicant undertook an assessment of the likely GHG impacts of the proposed ERF using the Mayors of London's GHG tool (Appendix C of the CHP Development Strategy (AD05.06). The assumptions used to inform this study are consistent with those used in the Environmental Statement (AD06.02).

2.2.10 The results show that the proposed ERF would meet the CIF if operating in CHP mode. The proposed ERF CIF 'tipping point' was identified at $12MW_{th}$ such that below this heat supply level the facility would not meet the CIF target. It is worth noting that "*whilst achieving the EPS is not a mandatory requirement for London's waste authorities, the Mayor requires waste authorities to achieve the carbon intensity floor, or demonstrate that there are steps in place to meet it in the near future, in order to be in general conformity with his Municipal Waste Management Strategy*"[16].

2.2.11 The LVHN which is being promoted by LB Enfield expects a heat demand of $26MW_{th}$ by 2025 when the Project is expected to be fully operational. The ultimate heat capacity requirement is given as $34MW_{th}$ in 2031. The Project includes safe guarding of land areas for local energy network use but not the local energy network itself.

2.2.12 The Mayor's GHG Calculator demonstrates that the proposed ERF has the potential to meet the CIF if the heat supply exceeds $12MW_{th}$. The proposed ERF meets the CIF at $302gCO_2e/kWh$ when producing a thermal power output of $34MW_{th}$ (maximum heat demand specified by the LVHN) and a corresponding electrical power output $57MW_e$.

2.2.13 In addition to the Mayor's GHG Calculator, NLWA investigated the wider environmental impacts of the new facility using the WRATE [17] tool. WRATE utilises the concept of Life Cycle Assessment (LCA) to include resource consumption such as energy and material use, waste transportation and operation of waste management processes; the WRATE tool has a wider scope than the Mayor's GHG Calculator. The impacts associated with WRATE include: Global Warming Potential; Acidification; Eutrophication; Freshwater Aquatic Ecotoxicity; Human Toxicity; and Abiotic Resource Depletion.

2.2.14 The results from the WRATE modelling work indicate that the proposed ERF has less of a potential environmental impact across all six indicators when compared with the other scenarios assessed, for example, comparison with the existing EfW facility if operational in 2025 onwards or comparison with landfill.

2.2.15 In addition to GHG emissions, the WRATE model highlights the importance of other environmental impacts which are avoided by diverting residual waste to the proposed ERF; depletion of non-renewable resources such as minerals and fossil fuels (abiotic resource use) is one

[16] Mayor of London (2011) London's Wastes Resource: The Mayor's Municipal Waste Management Strategy, November 2011

[17] The Waste and Resources Assessment Tool for the Environment (WRATE) is an industry recognized Life Cycle Analysis modeling software designed in partnership with the Environment Agency

particular example of other environmental impacts. In addition to other environmental indicators, the emerging results indicate the proposed ERF helps to mitigate the impacts of resource depletion when compared with landfill.

2.3 Waste management

2.3.1 The following paragraphs set out the waste management policy context which underpins the need assessment for the proposed ERF. The importance of the waste hierarchy is discussed in Section 2.4 and an assessment of the Project's compliance with the waste hierarchy is outlined.

National policy

2.3.2 There are comprehensive waste management policies in England which taken together deliver the objectives of the revised Waste Framework Directive [18] (WFD) "*to protect the environment and human health by preventing or reducing the adverse impacts of the generation and management of waste, and by reducing overall impacts of resource use and improving the efficiency of such use*".

2.3.3 Published in December 2013, the Waste Management Plan for England[19] provides an overview of waste management in England and fulfils the requirement of the WFD requiring authorities to establish waste management plans for their area. The key aim of the plan is to work towards a zero waste economy as part of the transition to a sustainable economy. In particular, this means using the waste hierarchy as a guide to sustainable waste management.

2.3.4 "*Incineration*" with energy recovery falls within other recovery in the waste hierarchy. The Waste Management Plan for England states that the Government supports efficient energy recovery from residual waste to deliver environmental benefits, reduce carbon impact and provide economic opportunities. No one type of technology is preferred by the Government as local circumstances differ, however, it is recognised that the delivery of heat from energy recovery plants can be done at much higher efficiencies than electricity alone.

2.3.5 In addition, energy outputs such as heat are expected to decarbonise at a much slower rate than electricity as the challenges associated with decarbonising heat networks are complex and will require a shift in the way heat is generated. "*To fully understand the heat challenge it is important to recognise that, unlike electricity, different sorts of heat are required for different purposes. The heat requirement is highly dependent on the circumstances: where is it needed, what is it needed for, when it is needed and how hot it needs to be*"[20]. The amount of heat required and

[18] Waste Framework Directive 2008/98/EC.
[19] Department for the Environment, Food and Rural Affairs (2013) the Waste Management Plan for England, December 2013.
[20] Department of Energy and Climate Change (20130 The Future of Heating: Meeting the Challenge. Department of Energy and Climate Change, March 2013.

decarbonisation options vary depending on specific industry factors. In addition, the demand for heat undergoes significant daily and seasonal peaks which present further challenges for decarbonisation. Consequently, CHP schemes which are capable of supplying energy to heat networks are part of the overall solution and there is a drive to treat residual waste in those plants which deliver the most efficient conversion of waste to energy. This is recognised within the Defra report *Energy from Waste: A Guide to the Debate*[3].

2.3.6 The National Planning Policy for Waste[21] sets out the approach to identifying the need for waste facilities, identifying suitable sites and key considerations in the assessment of proposals. The Project will enhance community responsibility for the management of waste at a more local level in line with the proximity principle and will help "*to secure the re-use, recovery or disposal of waste without endangering human health and without harming the environment"*.

2.3.7 Waste combustion facilities are identified within the NPS EN-1 as a source of renewable electricity generation that reduces the amount of waste going to landfill in accordance with the waste hierarchy (discussed further in Section 2.4).

2.3.8 Energy recovery from the combustion of waste is also recognised in NPS EN-3 as an important element of the waste management strategy for England.

> *"The recovery of energy from the combustion of waste, where in accordance with the waste hierarchy, will play an increasingly important role in meeting the UK's energy needs. Where the waste burned is deemed renewable, this can also contribute to meeting the UK's renewable energy targets. (Paragraph 2.5.2)".*

London policy

2.3.9 The Mayor of London has set an overall target for London to become net self-sufficient in the management of its waste by 2026. The London Mayor's London Plan[12] sets out waste policy at 5.16 (waste net self-sufficiency) and policy 5.17 (waste capacity).

2.3.10 Policy 5.16a outlines the requirement to manage as much of London's waste within London as practicable, working towards managing the *equivalent* of 100 per cent of London's waste within London by 2026. This does not preclude the movement of waste materials either in or out of London in the future as acknowledged in Paragraph 5.67A of the London Plan which notes that '*the Mayor encourages the flow of materials into London where economically beneficial*".

2.3.11 To ensure that London achieves self-sufficiency, each borough has been asked to manage within its administrative area a proportion of the total waste arising in that area, known as the 'apportionment target'. This

[21] Department for Communities and Local Government (2014) National Planning Policy for Waste, October 2014.

proportion rises over time with a target to achieve net self-sufficiency by 2026. The London Plan (Table 5.3) proposes individual apportionment targets for Constituent Boroughs which in aggregate by 2031 amount to 630,000 tonnes per annum (tpa) of household waste and 848,000 tpa for Commercial and Industrial (C&I) waste. These targets rise by 2036 to 650,000 tpa and 859,000 tpa, respectively[12].

2.3.12 The London Plan also states that boroughs may collaborate by pooling their apportionment targets. It is not necessary for the boroughs to meet the waste apportionment figures individually, provided the total apportionment figure is met. These targets are a key driver for the Project.

2.3.13 Increasing London's waste processing capacity is a major mayoral priority (Paragraph 5.76) as set out in Policy 5.17A *"The Mayor supports the need to increase waste processing capacity in London. He will work with London boroughs and waste authorities to identify opportunities for introducing new waste capacity, including strategically important sites for waste management and treatment, and resource recovery parks/consolidation centres, where recycling, recovery and manufacturing activities can co-locate."*

2.3.14 The importance of waste management practices in maximising waste as a resource is reiterated in London's Municipal Waste Strategy: London's Waste Resource (2011) which sets out a vision *"to become a world leader in waste management, making use of innovative techniques and technologies to minimise the impact of waste on our environment and fully exploit its massive economic value"* (page 13). The Strategy includes targets to achieve zero municipal waste direct to landfill by 2025 and to increase London's capacity to reuse or repair municipal waste from approximately 6,000 tonnes each year in 2008 to 40,000 tonnes a year in 2012 and 120,000 tonnes a year in 2031.

2.3.15 The existing EfW facility is permitted to treat 750,000 tonnes per annum while the capacity based on the original design was for treating up to 700,000 tonnes. As a result of the introduction of the Waste Incineration Directive, the physical capacity of the facility was reduced translating to an operational capacity of around 540,000 tonnes per year. The processing capacity of the proposed facility is 700,000 tonnes which is within the range of the original EfW facility design capacity (the sizing and capacity of the proposed ERF is discussed in Section 3.4).

Local policy

2.3.16 Within LB Enfield the policy framework comprises the North London Waste Plan (NLWP), the Enfield Core Strategy and the Edmonton EcoPark SPD.

2.3.17 The North London Waste Plan (NLWP) draft for consultation is anticipated to be published in May-June 2015. The NLWP provides the waste planning policies for the Constituent Boroughs. The plan is anticipated to identify the Edmonton EcoPark site as an existing waste site where ongoing waste use will be safeguarded. On the adoption of the NLWP it will form part of the Local Plan policy framework within LB Enfield.

2.3.18 The Enfield Plan Core Strategy 2010-2025 sets out the Council's overall approach to waste management, including in its role as a waste disposal authority through the activities of the Authority.

2.3.19 Core Policy 22 states that the Council will support the provision of sufficient, well-located waste management facilities, which will increase the self-sufficiency of North London and meet the combined apportionment figures of the constituent boroughs of the NLWP. The policy further states that it will achieve this by continuing to support the use of the Edmonton EcoPark as a strategic waste site and working with the North London Waste Authority and the site operator to maximise the use of the site with more sustainable and efficient waste management processes including the future decommissioning of the existing EfW facility. This includes exploring opportunities for local energy provision to support new development at Meridian Water to the south.

2.3.20 The Edmonton EcoPark Planning Brief[22] is a Supplementary Planning Document (SPD) to the Enfield's Plan and provides guidance on the future development of the Edmonton EcoPark. The document sets out the need for modern exemplar waste management facilities at the Edmonton EcoPark to meet North London's apportionment target and manage waste in the most sustainable way.

2.4 The Waste Hierarchy

2.4.1 The Revised EU Waste Framework Directive 2008/98/EC sets the basic concepts and definitions related to waste management. The Directive lays down some basic waste management principles: it requires that waste be managed without endangering human health and harming the environment, and in particular without risk to water, air, soil, plants or animals, without causing a nuisance through noise or odours, and without adversely affecting the countryside or places of special interest.

2.4.2 Article 4 of the revised EU Waste Framework Directive sets out 5 steps for dealing with waste, ranked according to environmental impact - the 'waste hierarchy' and the Directive also states that waste legislation and policy of the EU Member States shall apply as a priority order the waste management hierarchy. The waste hierarchy is enshrined in law in England through the Waste (England and Wales) Regulations 2011.

2.4.3 The waste hierarchy (Figure 2.1) provides a guide to sustainable waste management. Member states should first prevent waste generation as well as its harmfulness. Where prevention is not possible, and in order of priority, waste materials should be reused, recycled or recovered, including being used as a source of energy. If none of the above offers an appropriate solution, waste should be disposed of safely.

[22] Edmonton EcoPark Planning Brief Supplementary Planning Document to the Local Plan Adopted May 2013

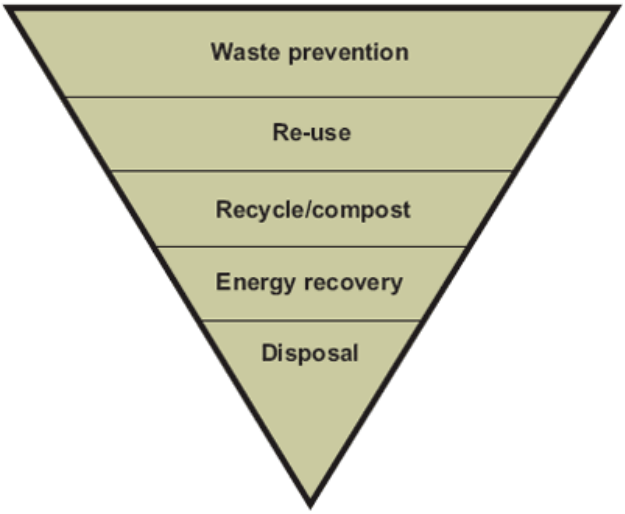

Figure 2.1: Waste Hierarchy

2.4.4 The Landfill Directive (1999/31/EC) at European level is also based on the objective of preventing or reducing as far as possible negative effects on the environment from the landfilling of waste. Stringent technical requirements for waste and landfills are set, which require a significant reduction in the quantity of biodegradable waste going to landfill.

2.4.5 The National Planning Policy for Waste[21] highlights the pivotal role positive planning plays in delivering the UK's waste ambitions including, inter alia:

> "*delivery of sustainable development and resource efficiency, including provision of modern infrastructure, local employment opportunities and wider climate change benefits, by driving waste management up the waste hierarchy*".

2.4.6 The Mayor's Municipal Waste Management Strategy[16] again emphasises the role of the waste hierarchy encouraging waste prevention, re-use, recycling and composting with recovery the preferred option for residual waste.

2.4.7 Recovery activities such as energy from waste are also a key part of the hierarchy (discussed in detail in the following section). The Waste Management Plan for England states that the Government supports efficient energy recovery from residual waste to deliver environmental benefits, reduce carbon impact and provide economic opportunities. This is in line with the waste hierarchy and the Project reflects these principles.

Compliance with the waste hierarchy

2.4.8 In addition to demonstrating the need case for the project the applicant must address the specific requirements set out at Paragraphs 2.5.66 to 2.5.69 of the NPS EN-3 regarding an energy generating station that uses waste as its fuel. This chapter responds to this requirement.

2.4.9 Paragraphs 2.5.66 to 2.5.69 of NPS EN-3 requires the Applicant's assessment to examine the conformity of the scheme with the waste hierarchy and the effect of the scheme on the relevant waste plan or plans

where a proposal is likely to involve more than one local authority, taking into account existing capacity.

2.4.10 Paragraph 2.5.70 of NPS EN-3 states:

> "*The IPC should be satisfied, with reference to the relevant waste strategies and plans, that the proposed waste combustion generating station is in accordance with the waste hierarchy and of an appropriate type and scale so as not to prejudice the achievement of local or national waste management targets in England*."

2.4.11 In addition to the policy context for waste and energy, this Need Assessment document sets out the basis on which the Project reflects the waste hierarchy. The Applicants' waste forecasting includes scenarios based on achieving 40 per cent, 50 per cent and 60 per cent household waste reuse, recycling and composting. The modelled growth result in conservative future growth assumptions and incorporate observed trends in waste arisings growth linked to waste prevention effects; this is discussed in Section 3.3. The modelled recycling targets reflect targets for waste management set out in the North London Joint Waste Strategy[23], the London Plan[12] as well as national targets.

2.4.12 As stated in the Waste Management Plan for England the Government supports efficient energy recovery from residual waste. This support was reiterated and clarified in further guidance issued by Government (Energy from Waste: A Guide to the Debate[3]). Paragraph 41 of the guide states:

> "The *more efficiently the energy from waste plant converts the waste to useful energy, the greater the carbon dioxide being offset and the lower the net emissions*".

2.4.13 The proposed ERF is expected to have an overall efficiency of around 36 per cent operating in combined heat and power mode (producing 35MW_{th} and 54MW_{e}). Typically, a coal fired power station will have an efficiency of 33 per cent to 38 per cent and a combined cycle gas turbine (CCGT) will have an electrical efficiency of in excess of 50 per cent. According to Defra, the far larger scale of the coal and gas plants is generally one of the main reasons for the difference in efficiencies[24]. In addition, these facilities utilise fuel which is of a higher calorific value (i.e. higher energy content) and is of a more homogenous nature when compared with residual waste. However, the efficiency of the proposed ERF operating in Combined Heat and Power (CHP) mode could be comparable with the efficiencies of some coal fired power stations.

2.4.14 The potential of the ERF for carbon emission avoidance is discussed in Section 2.2.

2.4.15 Paragraph 50 of the Waste Management Plan for England further qualifies the meaning of 'recovery' in the context of the waste hierarchy: "*A municipal waste combustion plant can only be considered to be a*

[23] North London Waste Authority (2009) Joint Waste Management Strategy, February 2009.
[24] Defra, Incineration of Municipal Waste, 2013

recovery operation under R1 if it generates energy and the plant meets the efficiency thresholds calculated using the R1 formula[25]".

2.4.16 In the revised Waste Framework Directive the definitions of "*recovery operations*" *and* "*disposal operations*" are provided in order to make a clear distinction between the two concepts based on a genuine difference in environmental impact. A new facility may be considered a recovery operation only if the R1 energy efficiency is greater than 0.65 as specified in the Waste Framework Directive.

2.4.17 The existing EfW facility has a R1 energy efficiency of 0.54 and is considered a disposal operation. The proposed ERF will be designed to have a R1 energy efficiency of around 0.80 operating in both power only and CHP mode. At this rating the proposed ERF is expected to be one of the most efficient facilities in the UK.

2.4.18 The Project will be in alignment with the requirements of the hierarchy, and the Applicant is proposing an efficient localised source of renewable energy for north London with the potential to provide heat and electricity for local households and businesses displacing more polluting sources of energy. The proposed ERF will achieve R1 status for recovery which is above disposal as a last option for residual waste

Applicant's waste prevention activity

2.4.19 The Applicant has a statutory duty to arrange for the disposal of all the residual waste collected by the seven north London boroughs (Constituent Boroughs). The Applicant works in partnership with the Constituent Boroughs to promote waste prevention and minimisation, and improve recycling.

2.4.20 NLWA's waste prevention work is currently delivered in accordance with the work programme outlined in the North London Waste Prevention Plan 2014/16[26]. The Applicant's in-house waste prevention team supports waste prevention practices by implementing practical measures to raise awareness and encourage participation. Measures include, for example, outreach activities (128 outreach events reaching over 10,000 residents delivered in 2014/15); workshops with local community groups (delivered to 38 local groups in 2014/15), universities and colleges (worked with 15 north London universities in 2014/15; advertising (newspapers, buses etc.); events and dedicated campaigns (e.g. 'Waste Less, Lunch Free' events); and working with local businesses to reduce waste (e.g. 'Bag it up and Reuse'). The Applicant's dedicated website 'Wise up to Waste[27]' provides a centralised point for residents and local businesses to access

[25] The R1 formula calculates the energy efficiency of the municipal solid waste incinerator and expresses it as a factor. This is based on the total energy produced by the plant as a proportion of the energy of the fuel (both traditional fuels and waste) which is incinerated in the plant. It can only be considered recovery if the value of this factor is above a certain threshold. It is important to note that the calculated value arrived at via the R1 formula is not the same as power plant efficiency which is typically expressed as a percentage.
[26] North London Waste Authority (2014) Waste Prevention Activity 2013/14
[27] http://www.wiseuptowaste.org.uk/

information about recycling and waste prevention in north London. Appendix A provides more detailed information in relation to the Applicant's activities in these areas.

2.4.21 The Applicant also works both with the Constituent Boroughs and engages with a number of national regional organisations including the Waste and Resources Action Programme (WRAP), the Chartered Institution of Wastes Management (CIWM), the Greater London Authority, the London Waste and Recycling Board (LWARB); the Association of Cities and Regions for Sustainable Resource Management (ARC+); the London Community Resource Network; and Recycling for London.

2.4.22 The Applicant has an ongoing working relationship with LWARB – a statutory Board established by the Greater London Authority Act 2007 to provide a strategic approach to waste management in London[28]. Further support is offered by LWARB through its newly formed partnership with WRAP called *Resource London*. The Applicant has benefitted from LWARB's pan-London perspective receiving advice on UK or EU policy and support in relation to joint-working practices and recycling communications. A representative from LWARB spoke at the recently held *Waste Prevention Exchange* conference which was organised and facilitated by the Applicant's waste prevention officers. The conference attracted nearly 100 delegates from the UK and mainland Europe[29].

2.4.23 Preventing recyclables entering the residual waste stream and achieving continual improvements to recycling is a significant challenge which is recognised widely by the waste management industry. According to the Energy from Waste: A guide to the Debate[3]:

> "*Residual waste is mixed waste that cannot be usefully reused or recycled. It may contain materials that could theoretically be recycled, if they were perfectly separated and clean, but these materials are currently too contaminated for recycling to be economically or practically feasible. It may also be that there is currently no market for the material or it is uneconomic to take to market".*

2.4.24 Residual waste will inevitably contain material which theoretically could be recycled. It is important that energy recovery does not diminish efforts to overcome the barriers to recycling. However, as further recognised in the Energy from Waste: A guide to the Debate

> "...*it is equally important that while those barriers do exist, energy from waste is used effectively to ensure those materials do not go to a worse environmental fate in landfill*".

2.4.25 The modelling work undertaken as part of the Project considers the impacts of improved recycling rates and an increased awareness of waste prevention. More detailed information is provided in Section 3.3.

[28] http://www.lwarb.gov.uk/who-we-are/
[29] http://lcrn.org.uk/wp-content/uploads/2015/02/Waste-Prevention-exchange-program.pdf

3 Infrastructure requirements

3.1 Energy infrastructure requirements

Electricity

3.1.1 In October 2012, the Office of Gas and Electricity Markets (Ofgem) published the first Electricity Capacity Assessment report which showed that the risks to security of supply were expected to increase appreciably in the coming years from near-zero levels. This was mainly due to a significant reduction in electricity supplies from coal and oil generation plant, coupled with limited investment in new plant[30].

3.1.2 The Mayor's Climate Change Mitigation and Energy Strategy[11] quantifies the electricity gap for London as a share of the national gap, proportionate to London's share of national usage (13 per cent). A gap in electricity supply as high as 43,000 GWh by 2016 has been identified of which London's share would be about 5,600 GWh.

3.1.3 The existing EfW facility on the Edmonton EcoPark generates around 290GWh of electricity per annum. The Applicant's current estimate is that the existing EfW facility will reach the end of its operational life by around 2025. The existing EfW facility began operations in the early 1970s and is becoming increasingly inefficient and difficult to operate. Once the EfW facility reaches the end of its operational life, this generating capacity would be lost to the grid. The proposed ERF would ensure a continued supply of electricity to the grid and contribute to reducing London's electricity supply gap.

3.1.4 The Mayor identifies that programmes which have been put in place have the potential to fill London's share of the gap and contribute to the national one. Given the general unsuitability of London for large generating stations this is primarily to be targeted through low and zero carbon decentralised energy networks. The Project while one of a limited number of opportunities to maintain large scale electricity generating capacity has also been identified as key to the delivery of a large scale area wide decentralised energy network.

Heat

3.1.5 In light of the challenge of a national energy gap, an opportunity exists in London to deploy low and zero carbon decentralised energy. Decentralised energy is defined by the Mayor's Climate Change Mitigation and Energy Strategy as low and zero carbon power and/or heat generated and delivered within London. This includes microgeneration, such as photovoltaics on individual buildings, through to large scale heat networks. The Mayor's Climate Change Mitigation and Energy Strategy identifies the contribution of waste-derived fuels to meeting this objective and states:

[30] Office of Gas and Electricity Markets (2013) Electricity Capacity Assessment Report.

"*Although heat networks are likely to be fuelled predominantly by natural-gas-fired CHP initially, they have the potential to use a range of low and zero carbon fuel sources such as waste-derived-fuels and biomass as these become more commercially available*."

3.1.6 London's mixed building types and uses, and its high building densities provide the high and diverse energy demands that allow CHP systems to be run efficiently, as well as the high heat-demand densities that make heat network deployment cost effective. The potential of the Project is set out further in the CHP Development Strategy (AD05.06) submitted with this Application, which confirms that the proposed ERF will be heat network connection ready.

3.1.7 The LVHN being promoted by LB Enfield has set out its projected heat capacity requirements to 2031. The Project includes safe guarding of land areas for local energy network use but not the local energy network itself. The initial capacity required by LB Enfield is just over 4MW_{th} in 2017 rising to 26MW_{th} in 2025 when the proposed ERF is expected to be fully operational. The networks initial ability to operate at forecast capacities is predicated on a supply of heat being delivered from the existing EfW facility at the Edmonton EcoPark. The ultimate heat capacity requirement is given as 34MW_{th} in 2031, beyond which LVHN is not able to project long term demand. As provided in Table 3.1, the proposed ERF is expected to be capable of meeting this demand if the opportunity that has been identified progresses.

Table 3.1: ERF expected power output in electricity only and CHP mode

Electricity Output Gross (MWe)	Electricity Output Net (MWe)	Heat Output (MWth)
70.6	61.5	0
68.5	59.4	10
66.4	57.3	20
64.3	55.2	30
63.2	54.2	35

3.2 Energy need case conclusion

3.2.1 National policy demonstrates a need for new energy generating facilities to replace planned closures and to accommodate growing demand for energy in the future. This national need is replicated at a regional level by the desire to maintain and increase London's contribution to the national energy mix and thus replacement of the generating capacity provided by the existing EfW facility at the Edmonton EcoPark. The proposed ERF will contribute to the national and the local need for new generating facilities.

3.2.2 London policy on energy emphasises the Major of London's aspiration for new low and zero carbon decentralised energy sources to meet London's energy needs in a sustainable way. It also emphasises the opportunity of major generating facilities to provide low carbon heat as well as power to local homes and businesses. The proposed ERF has the potential to make a significant contribution to London's decentralised energy targets through the capability of supplying heat via a heat network.

3.3 Waste infrastructure requirements

North London Joint Waste Strategy

3.3.1 As a joint waste disposal authority, the Applicant is required to have and keep in review a joint municipal waste management strategy in accordance with Section 32 of the Waste and Emissions Trading Act 2003. The North London Joint Waste Strategy (NLJWS), which is a joint strategy entered into by the Applicant and the Constituent Boroughs, covering waste management in the north London area, was adopted in February 2009, and covers the period from 2004 to 2020.

3.3.2 The Applicant is committed to achieving the above objectives and has outlined a number of implementation actions including the achievement of a 50 per cent household waste recycling and composting rate by 2020. Further information relating to the NLJWS is provided in Appendix A.

3.3.3 For the period beyond 2020 the Applicant has considered the impact of any policy and practical factors which are likely to influence north London's future waste arsings and recycling rates. Having considered these factors the Applicant is committed to achieving a 50 per cent household waste recycling target from 2020 onwards. The 50 per cent target has been assumed within the waste forecast model as there is no current policy in place which provides a sufficiently strong basis for assuming changes to future waste recycling targets. More detailed information on the development of the model is provided in the following sections.

Waste to be treated in the ERF

3.3.4 The ERF is designed to serve the management needs for the residual waste which the Applicant has a duty to treat/dispose i.e. residual Local Authority Collected Waste (LACW) collected by or on behalf of the Constituent Boroughs. This residual LACW is collected from households, and non-domestic properties for which a charge can be made under the Controlled Waste Regulations 2012, along with waste collected by, or on behalf of, the constituent boroughs from commercial premises.

3.3.5 The ERF will not impact on joint NLWA targets which remain in place to achieve a 50 per cent household recycling rate and to reduce the amount of biodegradable waste sent to landfill to 35 per cent (of 1995 amounts) by 2020. The 50 per cent household recycling rate target was included within the recycling rate scenarios within the Applicants' waste forecasting model identifying expected future tonnage of residual waste.

Resource Recovery Facility and EcoPark House

3.3.6 As an associated development, the RRF and EcoPark House would support operations at the proposed ERF as well as the Applicants wider waste management responsibilities at the Edmonton EcoPark and across north London. These developments are an important part of the Project and would be constructed on the southern end of the Edmonton EcoPark.

3.3.7 EcoPark House would be a two storey building which would be used to accommodate the requirements of non-operational staff, visitors and the Edmonton Sea Cadets. The building would provide for community and education facilities, office accommodation, a new IT server system for the Edmonton EcoPark, and a base for the Edmonton Sea Cadets including a launch into the River Lee Navigation.

3.3.8 EcoPark House would be the gateway to the site, welcoming the general public and providing an overview of the Edmonton EcoPark's organisation and facilities. This would be the start of a guided tour through the grounds with access to its different facilities. A dedicated walkway to the proposed ERF from EcoPark House and the car park would be provided and utilised by both staff and visitors.

3.3.9 The RRF would be designed to manage a range of waste streams which require either bulking for onward deliveries (e.g. organic waste) or pre-treatment such as some sorting and size reduction prior to delivery to the proposed ERF.

3.3.10 The RRF would be used to re-house existing on-site operations which would be removed from the northern part of the Edmonton EcoPark to enable sufficient space for the proposed ERF to be constructed. At present, the northern area of the Edmonton EcoPark includes an In-Vessel Composting (IVC) facility processing food and garden waste from kerbside collections and RRCs; a Bulky Waste Recycling Facility (BWRF) separating materials suitable for recycling; a Fuel Preparation Plant (FPP) for size reduction of larger materials and an Incinerator Bottom Ash (IBA) recycling facility.

3.3.11 The BWRF and the FPP would be relocated within the proposed RRF and would be jointly referred to as the Recycling and Fuel Preparation Facility (RFPF).The IBA recycling operation would be removed from the Edmonton EcoPark. The IVC operation would also be removed, however, organic waste would continue to be bulked up at the RRF for delivery to a treatment site elsewhere.

3.3.12 The proposed RRF would also encompass a RRC where small businesses and the public may come to deposit waste for recycling or treatment. Together with EcoPark House (and certain areas of the ERF) the RRC would form part of the publically accessible elements of the Edmonton EcoPark and would be accessed via the new entrance off Lee Park Way.

3.3.13 The capacity of the proposed RRF is 386,200 tonnes per year and is estimated based on residual waste data outputs described below. For further information the Fuel Management Assessment (AD05.05) includes a mass balance diagram which shows the expected movement of waste on and off the Edmonton EcoPark as well as the movement of waste between the RRF and the proposed ERF.

Local Authority-Collected Waste forecasting method

3.3.14 In order to estimate the tonnage of residual LACW requiring treatment, a model has been created that estimates future waste arisings within the

administrative boundaries of the Constituent Boroughs from a 2012/13 baseline year through to 2050/51. The baseline year of the model is set as 2012/13 as, at the time of modelling, this was the year up to which actual tonnages of waste were available. The proposed ERF is expected to remain operational up to around 2050/51. The model then subtracts from the total arisings figure the tonnage of waste estimated to be re-used, recycled or composted to arrive at an estimate for the annual tonnage of residual LACW requiring treatment.[31]

3.3.15 The model considers three main types of waste, all collected by the Constituent Boroughs and collectively referred to LACW:

a. Household waste;

b. Commercial waste; and

c. 'Other' waste.

3.3.16 The methodology used for forecasting future arisings and the amount of residual waste requiring treatment is discussed for each of these main waste types below. Further information regarding the waste forecast modelling can be found in Appendix B[32].

Local authority collected household waste

3.3.17 The factors affecting household waste generation are many and the ways in which they affect waste generation are complex. Such factors are thought to include population growth, housing type, economic prosperity, consumption patterns, packaging design, and waste collection service design, amongst others.

3.3.18 In order to determine a reasonable statistical basis for the projection of future waste arisings, analysis of a number of independent economic and social indicators for the period 1997/98 to 2011/12 reveals that Gross Disposable Household Income (GDHI) shows the strongest correlation with historic household waste arisings in London. This should not be surprising given that GDHI captures not only growth in earnings but also growth in household numbers, with both of these being intuitively important in waste generation.

3.3.19 However, the statistical analysis suggests that GDHI alone is not sufficient to explain the observed historic household waste arisings trend. Over time, there has been a gentle and steady change in the relationship between GDHI and household waste arisings, most likely related to waste prevention and minimisation effects. In addition, scrutiny of the waste arisings data reveals a recessionary impact acting to further supress arisings due to the protracted economic downturn which began in 2007/8.

3.3.20 The statistical correlation identified between historic household waste arisings and GDHI, together with a time series variable to account for the assumed waste minimisation trend and a recessionary impact variable –

[31] The term 'composted' when used in this document includes treatment of organic wastes by Anaerobic Digestion.
[32] Eunomia Waste Forecasting – Final Model May 2014

to represent the impacts of the economic downturn (and assumptions regarding subsequent recovery), yields a regression equation which has been used to project forward changes in waste arisings based on estimated future changes in GDHI. Assumptions regarding future GDHI growth have been based on Office of Budgetary Responsibility projections[33].

3.3.21 The waste prevention/minimisation effect observed in the statistical analysis has been assumed to continue throughout the modelled forecast period whilst the economic impact on the suppression of waste arisings is assumed to recede over time with a recovery to the observed pre-recession relationship between GDHI and arisings being achieved by 2020/21.

3.3.22 Under this approach, the forecast future growth in waste arisings growth is relatively conservative when compared with the forecasts of future household waste arisings reviewed for the Further Alterations to the London Plan (FALP)[34].

3.3.23 Figure 3.1 compares NLWA Forecast Household Waste Arisings ('NLWA – GDHI based') with that presented in the Further Alterations to the London Plan and other comparator forecasts reviewed for that plan. It can be seen from this figure that NLWA results are closely aligned with the FALP scenarios of 'illustrative low population' and 'household based, target waste prevention'. Post-2020, the NLWA modelled arisings are below the arisings projected based on GLA population projections within the FALP.

[33] OBR central projections of national GDHI provided in the Budget 2014 – see: HM Treasury (2014) Budget 2014, March 2014.
[34] SLR (2014) Revised London Plan Waste Arisings Study Review for the Greater London Authority – Model Guide and task 4 Findings

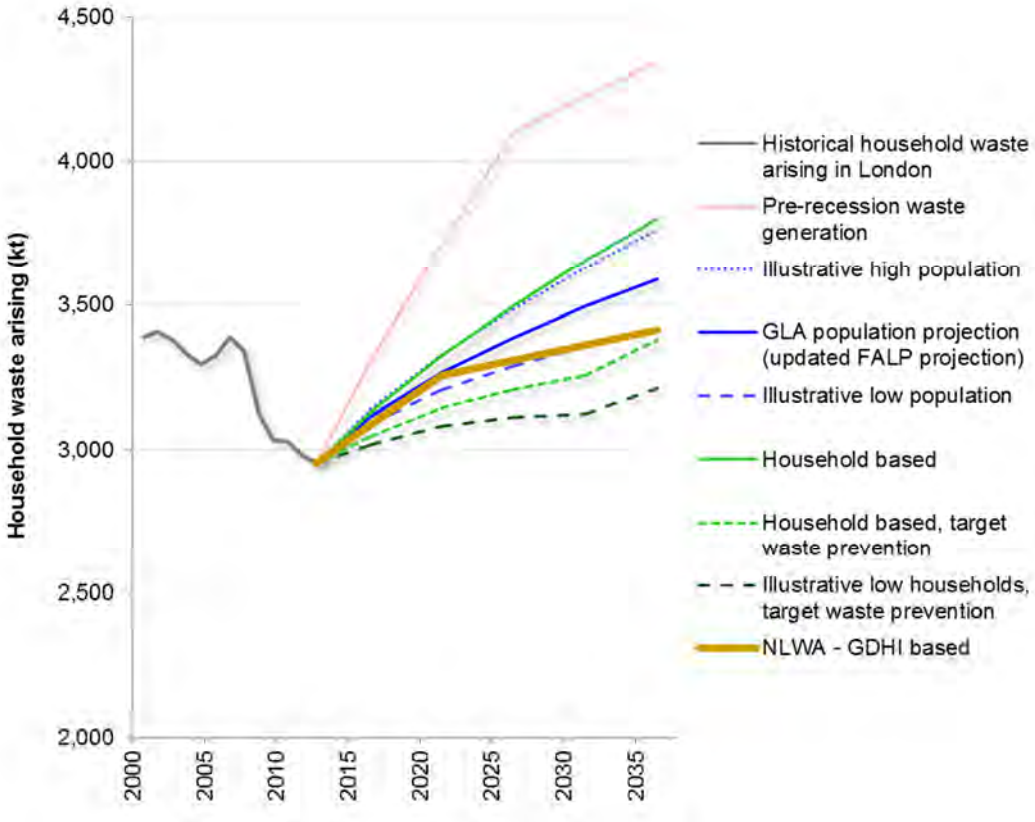

Figure 3.1: NLWA Forecast Household Waste Arisings compared with that presented in the Draft Further Alterations to the London Plan and other comparator forecasts

Local authority collected household waste recycling rate

3.3.24 In order to calculate the amount of residual household waste requiring treatment, a set of recycling rates have been applied to the overall waste arisings forecast. The recycling targets selected for household waste are as follows:[35]

a. low recycling scenario – 40 per cent recycling by 2020/21 and remaining static thereafter;

b. central recycling scenario – 50 per cent recycling by 2020/21 and remaining static thereafter; and

c. high recycling scenario – 50 per cent recycling by 2020/21, rising to 60 per cent in 2031/32 and remaining static thereafter.

3.3.25 The central and high recycling scenarios reflect the recycling rate target within both the NLJWS and the London Plan with the 60 per cent target in the high recycling scenario relating to the 'aspiration' included within the London Plan.

3.3.26 In 2012/13 NLWA reused, recycled or composted around 32 per cent of total LACW. Although the recycling rate has increased from 23 per cent in 2006/07 the slowing of the increase in recent years (replicated nationally) suggests that for an urban, densely populated area such as north London,

[35] As measured by NI192 methodology.

it will be challenging to replicate such a large increase in recycling rates going forward. The modelled recycling rate scenarios therefore represent a positive, if challenging, approach to increased level of reuse, recycling or composting in the future.

3.3.27 To put north London's recycling rate in context the national recycling rate for England in 2012/13 was 43.3 per cent and ranged from around 12 per cent up to around 68 per cent. The recycling rate for London in the same year was 34 per cent ranging from around 20 per cent up to approximately 54 per cent. Figure 3.2 provides a comparative illustration of recycling rates across London, north London boroughs (highlighted in green), England and the regions. The graph highlights how, typically, London boroughs (in particular inner London boroughs) are recycling at much lower levels than other parts of the UK.

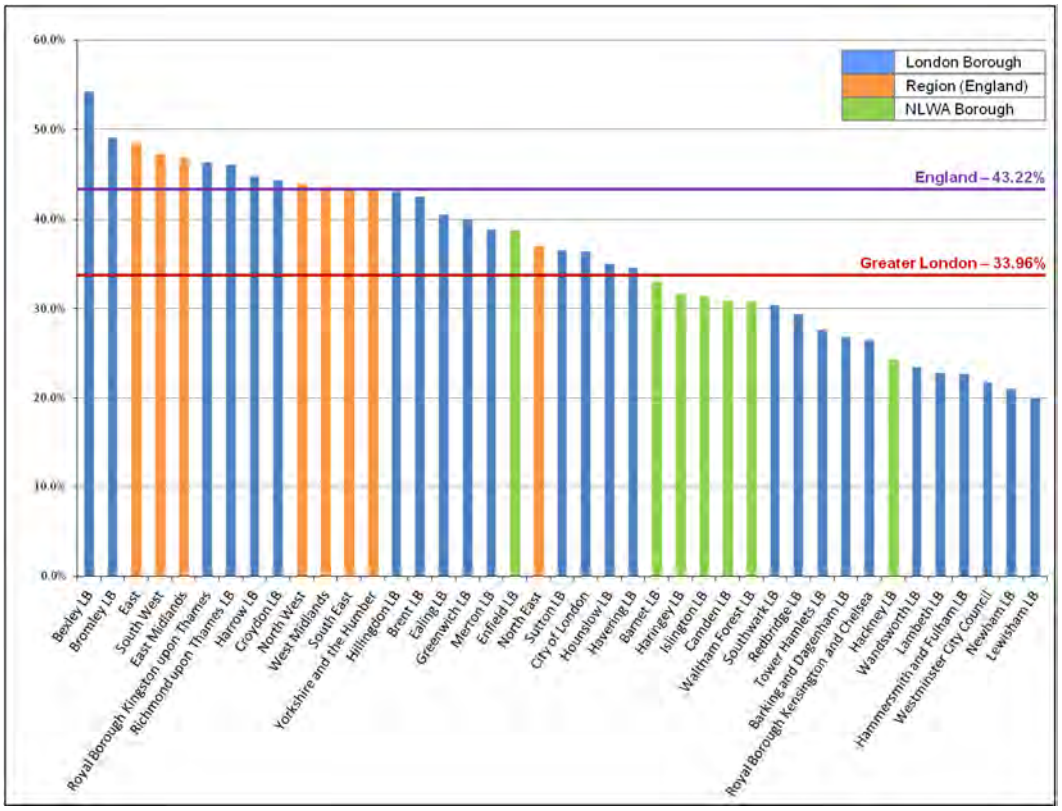

Figure 3.2: Regional and borough recycling rates (2012/13)

3.3.28 Weight based recycling targets are a well understood means for measuring progress towards improvements in waste management. However, it is worth noting that weight based recycling targets can have some immediate disadvantages and overlook the wider environmental context. Carbon based targets or metrics can provide a more holistic measurement of environmental impacts over the entire lifecycle. This is recognised by the Scottish Government: "*The Zero Waste consultation exercise highlighted a general view that using waste tonnage as a basis for measuring recycling does not always promote waste prevention,*

reduction and re-use and does not focus recycling towards the waste material with greatest environmental impact[36]".

3.3.29 According to the tonnage based metric, in 2008/9 Scotland's recycling performance was 33 per cent but using a carbon metric it was 27 per cent. A carbon metric approach could result in the prioritisation of particular materials for recycling, i.e. those with the greatest carbon benefit (not necessarily the heaviest, which would be prioritised at present).

3.3.30 Local authorities in densely populated urban areas such as north London are faced with significant barriers to increasing recycling rates. These challenges have been taken into consideration in relation to the Constituent Boroughs future recycling performance. These specific challenges are outlined in more detail below:

3.3.31 Local authorities in densely populated urban areas such as north London are faced with significant barriers to achieving high recycling rates relative to other less densely populated, less urban areas; this is illustrated in Figure 3.3 that shows how the Authority compares with other urban areas in the UK. It is worth noting that although Wales achieved its national target for 50 per cent recycling, Cardiff and Swansea achieved rates below this level with the gap being made up by higher performing, less urban authorities. These specific challenges are outlined in more detail in the following paragraphs.

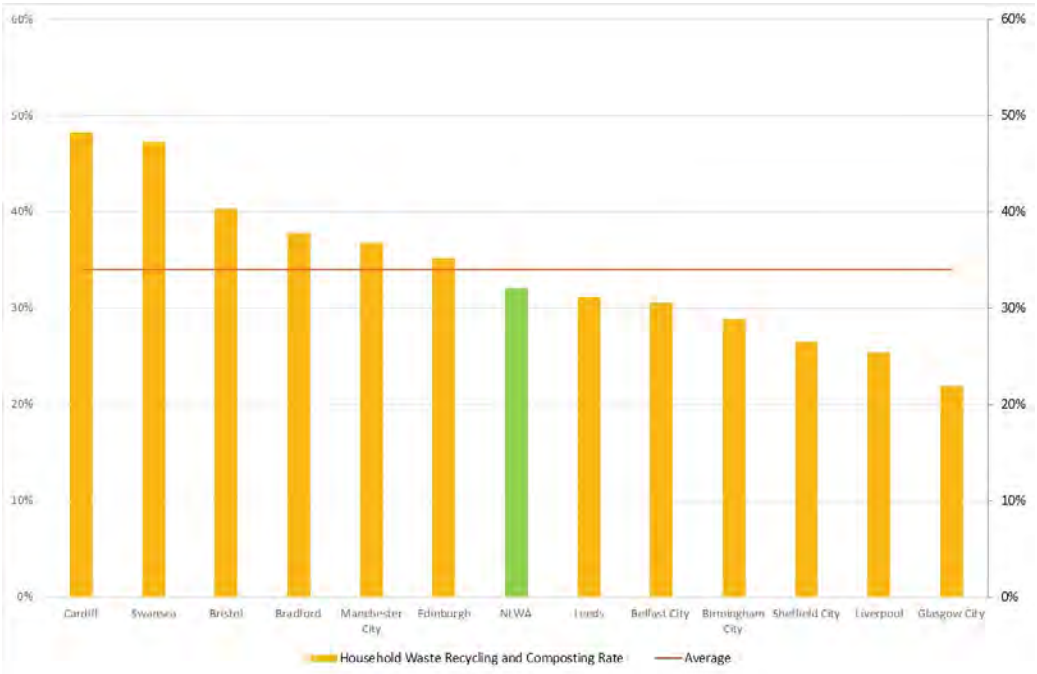

Figure 3.3: Comparative of urban recycling rates

3.3.32 The nature of the housing stock in north London presents a significant challenge for recycling. Owing to the nature of flatted properties (for example space restrictions, building features, multiple stakeholders,

[36]The Scottish Government (2010) Scotland's Zero Waste Plan: Annex A Zero Waste Targets and Data Need

resident and management turnover etc)[37] recycling rates are typically around 10 per cent or less[16] for these housing types. Going forward the proportion of high density housing is expected to increase in line with the London Plan[38]. The increasing numbers of flatted properties in north London will mean the challenge of achieving a 50 per cent recycling target will be increased.

3.3.33 To provide additional supporting information to the target-led waste forecasting model referred to in Paragraph 3.3.14 of this need assessment, an additional model has been developed to explore the levels of recycling which are practically achievable by households in north London, taking into account current collection systems and socio-economic and demographic conditions in the Capital. This modelling has been based on data on household numbers, waste composition, and waste flows from 2012/13.

3.3.34 The model has been based on an assumed future common waste and recycling collection service method designed to optimise recycling levels applied to all seven Constituent Boroughs. The model predicts a household waste re-use, recycling and composting rate of 45.3 per cent could be achieved by 2020/21. This modelling takes into account the predicted change to housing stock profile in north London over the forecast period with an assumed increase in the proportion of flat properties compared with houses. Since yield of the common recycling materials from flats is known to be lower than from houses, the increase in the proportion of flats in the overall household numbers over time constrains the achievement of higher recycling rates.

3.3.35 The highest performing waste collection authorities in England have a high proportion of green waste within the household waste stream. This is in contrast to inner London boroughs and is another barrier to raising recycling rates to levels comparable with these authorities. Work by the Applicant's advisors to rescale a hypothetical 50 per cent recycling rate to remove the average garden waste yields for English waste collection authoritiess and unitary authorities produced an adjusted recycling rate of 41 per cent. This provides an indicative impression of the inflationary effect of garden waste on recycling rates.

3.3.36 High levels of deprivation are associated with lower levels of recycling[39]. A number of the north London boroughs have some of the highest deprivation levels in London and England[40] which is likely to contribute to lower aspirations and levels of achievement amongst the community in

[37] Waste and Resource Action Programme (WRAP) Recycling for Flat – understanding Flats. Accessed 18/12/14 http://www.wrap.org.uk/content/recycling-collections-flats-understanding-flats
[38] The London Plan, Housing, 3A.2 Borough Housing Targets. Accessed 18/12/14 http://www.london.gov.uk/thelondonplan/policies/3a-02.jsp
[39] Low Participation Areas, Effective Communication Planning, WRAP. Accessed 18/12/14 http://www.wrap.org.uk/content/low-participation-areas
[40] Indices of Deprivation 2010, Greater London Authority. Accessed 18/12/14 http://data.london.gov.uk/dataset/indices-deprivation-2010

relation to recycling[41]. LB Hackney has the highest level of income deprivation in England. LB Islington and LB Waltham Forest rank within the top 10 most deprived while Haringey is the 11th most deprived Local Authority in England.

3.3.37 The population of north London is highly diverse with many different nationalities, cultures and communities represented and a very transient population. LB Camden and LB Islington in particular, contain relatively large populations of people aged between twenty and thirty who are considered to be more transient than other groups[42]. Four of the Applications Constituent Borough have population turnover rates greater than 20 per cent. LB Islington (the London borough with the highest population turnover) and LB Camden (third highest) have population turnover rates of greater than 25 per cent[43]. The transient population presents further difficulties for Local Authorities wishing to communicate the need for improved recycling and waste prevention in the form of increased costs associated with communication budgets and increased recycling contamination rates.

3.3.38 A further consideration was given to recent trends in recycling rates. In recent years, national and regional recycling rates have demonstrated a slowdown in the rate of increase of recycling which suggests the trend in increased recycling has slowed (see Figure 3.4).

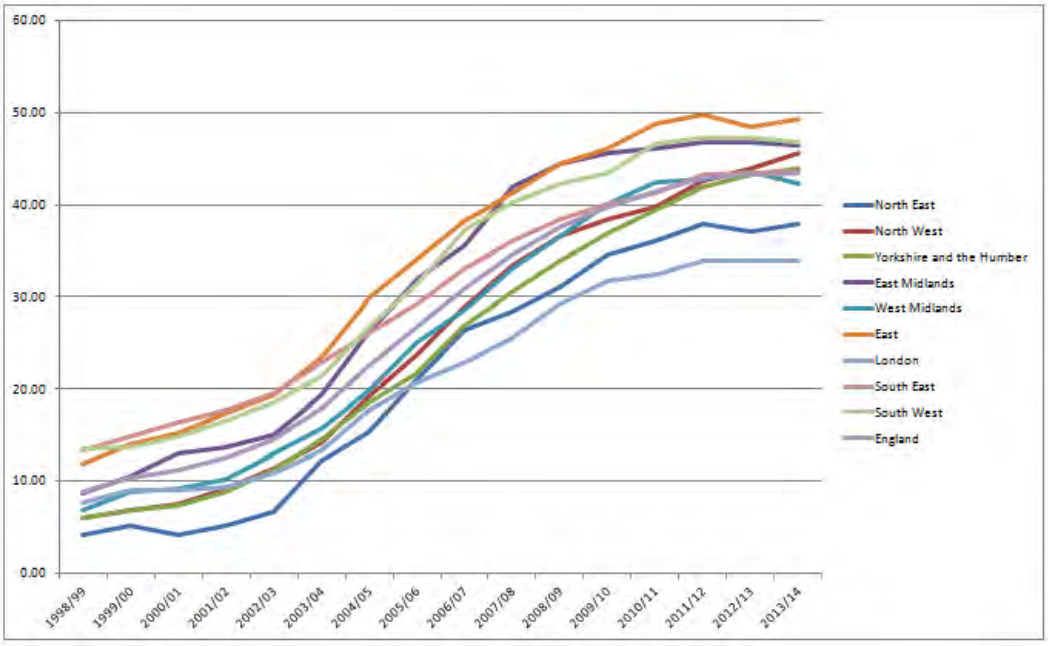

Figure 3.4: National household recycling rates (1998/99 – 2012/13)

[41] A Waste and Resource Action Programme (WRAP) report produced in 2009 (Analysis of kerbside dry recycling performance in England 2007/08, WRAP.2009) focused on the performance of dry recycling. Some local authorities typically those in high density areas with high levels of deprivation face a series of additional challenges or barriers that others do not. This point was highlighted in Appendix 4a of the Mayor of London's Municipal Waste Management Strategy.
[42] Experian (2014) Transient Population Report – Final Report for Thames Water, Experian
[43] Greater London Authority, Focus on London – Population and Migration Report, 2010

3.3.39 For household waste collected in England in 2013/14, the amount of waste reused, recycled or composted increased by only 0.23 per cent progressing from 43.22 per cent in 2012/13 to 43.45 per cent in 2013/14. A similar increase was experienced the year before while some regions have experienced a slight decrease in recycling rates between 2012/13 and 2013/14.

3.3.40 Although local authorities have achieved large increases in recycling rates over the last decade (as shown in Figure 3.4), the slowing trend may suggest such increases in recycling are unlikely to continue; a variety of converging factors have been linked to slowing recycling rates including, for example, achieving the practical maximum, less recyclable materials in the waste stream (product light weighting, less newspapers etc.), lower tonnages of green waste, depressed markets for recyclate, green fatigue etc.

3.3.41 With respect to speculation on the direction of future recycling rate targets, the European Commission scrapped the proposed Circular Economy Package in December 2014 in order to make way for a 'broader and more ambitious approach' to be delivered in 2015. Full details of the revised package have not yet been released and so it is not clear how this will affect the recycling and reuse targets set out in the original package. Regardless of the level of any new target(s), achievement of any new EU target transposed for England will need to be met at the national level with some collection authorities inevitably making a higher contribution than others. As is the case currently, densely populated urban areas with fast growing and highly transient populations are expected to make a lower contribution to achieving this target than other areas where the conditions for achieving high recycling performance are more prevalent.

3.3.42 Given this uncertainty, and based on the level of current performance of the Constituent Boroughs compared to the national average together with the forecast recycling rate modelling 3.3.34, the use of 40 per cent, 50 per cent and 60 per cent recycling rate scenarios in the waste flow modelling represents a reasonable range of estimated future household recycling performance for the NLWA area.

3.3.43 Further context can be provided by examining recycling rates for a range of other EU cities (for which data is easily and publically available). Although direct comparisons should be treated with a degree of caution, owing to the variation in the quality of the underlying data and differences in what waste types are included in recycling rates, there is considerable variation as shown in Table 3.2. The majority of the rates shown are for Municipal Solid Waste (MSW) and therefore are likely to include waste from commercial sources as well as household waste.

Table 3.2: European city recycling rates (per cent)

City	Recycling Rate *(all figures for MSW except where indicated)*
Athens	10%[44] - 12%[45] (2014)
Barcelona	36%[46] - 38%[47] (2014)
Berlin	48%[48] (2014)
Frankfurt	42%[49] (2010)
Lisbon	18%[50] (2014)
Milan	38%[51] (2014 - household waste)
Paris	15%[52] to 22%[53] (2014)
Rome	43%[54] (2014)
Vienna	41%[55] (2010)

3.3.44 It is worth noting that the three of the four highest performers, Berlin, Frankfurt and Vienna all have some form of 'pay as you throw' or volume-based charging mechanism for residual waste collections as well as various deposit refund schemes for some recyclables, whilst Rome, the second highest performer in the list, has a compulsory recycling scheme enforced with fines; such schemes are not currently in place in the UK.

3.3.45 Although the context and policy environment of these cities is different to London they help to illustrate that whilst higher recycling rates than those currently achieved by the Constituent Boroughs are practically possible, levels above 50 per cent are likely to be challenging given current technologies, the socio-economic/demographic context of north London and the existing policy regime.

3.3.46 The waste forecast model includes a range of relatively ambitious (in the context of NLWA borough current performance and socio-demographics) future re-use, recycling and composting rates as well as allowance for the continuation of the assumed waste prevention/minimisation effect observed via the statistical analysis of historic arisings. As stated

[44] L'Observatoire Régional des Déchets d'Ile-de-France
[45] http://www.iledefrance.fr/fil-actus-region/tri-dechets-europe-loupe
[46] Op.Cit
[47] L'Observatoire Régional des Déchets d'Ile-de-France
[48] http://www.iledefrance.fr/fil-actus-region/tri-dechets-europe-loupe
[49] European Green Capital (August 20012) *European Green Capital Award: Applicant Workshop 2015 Title - Case Study 2*, August 20012, http://ec.europa.eu/environment/europeangreencapital/wp-content/uploads/2012/09/8.-Case-study-2-Final.pdf
[50] L'Observatoire Régional des Déchets d'Ile-de-France
[51] Op.Cit
[52] http://www.iledefrance.fr/fil-actus-region/tri-dechets-europe-loupe
[53] L'Observatoire Régional des Déchets d'Ile-de-France
[54] http://www.amaroma.it/raccolta-differenziata/
[55] European Green Capital (August 20012) *European Green Capital Award: Applicant Workshop 2015 Title - Case Study 2*, August 20012, http://ec.europa.eu/environment/europeangreencapital/wp-content/uploads/2012/09/8.-Case-study-2-Final.pdf.

previously, a comparison with a number of alternative approaches to modelling future waste arisings in London shows that the waste forecast model results are broadly consistent with the alternatives (for example, those based on waste per household using various household growth scenarios examined for the development of the FALP). Any further estimation of the potential impact on waste arisings of changes in other variables in the future including technological, regulatory or legislative changes, would be highly speculative and difficult to justify in the context of this application.

3.3.47 The approach taken to forecasting future need for residual waste treatment is consistent with the waste hierarchy and compatible with a strategy of maximising re-use, recycling and composting thereby reducing the amount of residual waste requiring treatment in the ERF which in turn reduces the amount of waste sent to landfill.

Local authority collected C&I waste

3.3.48 Forecasting C&I waste (or business waste) quantities for future years is notoriously difficult due to the lack of robust data on historic and current tonnages. This lack of data also means that it is not possible to develop projections of C&I waste arisings based on statistical correlations with other independent variables. An alternative method for forecasting C&I waste arisings is therefore required and for this purpose, work undertaken by SLR Consulting Ltd on behalf of the GLA for the FALP[34] has been drawn upon.

3.3.49 The FALP includes a forecast of C&I waste arisings through to 2036 based on a 'waste per employee' figure from GLA employment figures and forecasts and Defra C&I waste data from 2009. The C&I waste arisings forecast growth rate detailed in the FALP has been used as the basis for this modelling.

3.3.50 Using data on the tonnages of C&I waste collected by each Constituent Borough reported via WasteDataFlow[56] (WDF), a market share was calculated for each borough; this being the proportion of total C&I waste arisings being collected by each waste collection authority. WDF data suggests a general decline in market share between 2009 and 2012/13. In order to forecast future volumes of local authority collected C&I waste it has been assumed that each Constituent Borough's market share will increase from its 2012/13 baseline year level to reach the market share collected in 2009 by 2016/17 and then increases a further 2 per cent in both 2017/18 and 2018/19 whereupon it remains constant for the remainder of the forecast period. This is on the assumption that a recovery of economic activity over this period will benefit borough C&I waste collection services and is an assumption that has been agreed with the Constituent Boroughs as being reflective of their future plans for these services.

[56] http://www.wastedataflow.org/

Local authority collected C&I waste recycling rate

3.3.51 The same growth rate as the household recycling was applied to the C&I waste arisings to predict future tonnages of C&I recycling. The modelling assumes that the improvements in the recycling of C&I waste will increase at the same rate as the recycling rate for household waste under the three household recycling rate scenarios. For example, under the low recycling scenario, the recycling of household waste will have to increase by 1.14 per cent per annum in Camden if the 40 per cent target is to be achieved by 2020/21. Under the low recycling scenario for C&I waste it is assumed that recycling of this waste stream will also increase by 1.14 per cent per annum, based on a starting point of 2012/13. The same logic has been applied for the central and high scenarios for all Constituent Boroughs starting from the 2012/13 baseline.

3.3.52 In 2012/13, the Constituent Boroughs collected just over 102,000 tonnes of business waste and achieved a recycling rate of around 7 per cent. The proportion of waste managed by the boroughs in 2012/13 was around 10 per cent of total C&I waste in north London (around 990,000 tonnes in total).

3.3.53 Waste management firms have a strong presence in north London and London more broadly. There were 806,000 private sector businesses in London at the start of 2012 and local authorities collected commercial waste from just 6.8 per cent of businesses (55,090) in the capital[57]. The incentive for private waste management firms to collect C&I waste is significant. Local authorities struggle to compete with these firms particularly for recyclable materials. There are multiple reasons why local authorities have not flourished in the business waste market including, for example, a lack of resources, a focus on household services, lack of competitive pricing structures (e.g. generous introductory offers, individual business offers offered by many private waste contractors.). Private firms are typically more agile and able to focus commercial waste collection services in high density areas or target desired material streams.

3.3.54 Local authorities typically have focused resources on improving household waste services and raising recycling rates. In north London collection services are offered to businesses however, the competitive environment has meant the majority of customers using council services are for residual waste collections. Consequently, the majority of LACW collected by the Constituent Boroughs has been household waste (greater than 70 per cent). A number of factors contribute to businesses opting for residual collections, for example, lack of space (particularly in high density areas), lack of convenience, small volumes of waste produced etc.

3.3.55 Given the north London context for business waste collection a threefold increase in recycling rates and a return to pre-recession market share is considered a reasonable projection of future performance.

[57] London Councils (2013) Waste Management in London – Key Challenges, November 2013

3.3.56 According to the London Plan, London produced about 15 million tonnes[58] of waste in 2012 and C&I comprised approximately 4.7 million tonnes (32 per cent of all London waste arisings). In 2012/13, around 992,000 tonnes of C&I waste was produced in the north London area. It is estimated that just over half of London's C&I waste arisings are reused, recycling or composted[59].

3.3.57 It is recognised in the Mayor's business waste strategy[59] that "*there is still a market failure in the development of infrastructure for C&I waste. Unlike the LAC waste sector, there are no long-term contracts available for significant amounts of C&I waste to underpin the capital costs of new waste management infrastructure development*". This is reiterated in a recent study by the Green Investment Bank which demonstrates that "*as the market evolves there will remain a gap between the tonnages of residual waste (particularly merchant C&I waste) which are not yet being fully utilised and the energy recovery infrastructure projected to be installed by 2020[60]*".

3.3.58 The development of sufficient capacity to treat the large volume of residual C&I waste produced is a concern as highlighted. As identified within the Mayor's business waste strategy[59] another option to address the C&I waste management infrastructure gap "*would be that more facilities built by waste management companies on the back of long-term local authority waste management contracts could include some 'merchant' capacity to treat C&I waste*". The provision for merchant C&I residual waste capacity within the proposed ERF will help to mitigate the risk of insufficient capacity in the future in addition to supporting stable operations at the proposed ERF (capacity need is discussed in Section 3.4).

'Other' local authority collected waste

3.3.59 In addition to household and C&I waste, the model also includes a number of 'Other' local authority collected waste streams, namely: fly-tipped waste, Construction and Demolition (C&D) waste, ground clearing waste, highways waste, and asbestos waste.

3.3.60 The quantity of Other waste collected in 2012/13 was calculated by subtracting the amount of C&I waste collected by each of the Constituent Boroughs (as reported by NLWA) from the quantity of non-household waste reported by Defra. Relative to the local authority collected household and C&I waste arisings these wastes make up only a very small proportion of total arisings (6 per cent in 2012/13).

3.3.61 Given the uncertainty regarding changes in these waste streams in the future, and the relatively low proportion of the overall waste arisings

[58] Consisting of household waste (3 million tonnes); C&I waste (4.7 million tonnes); and construction, excavation and demolition waste (7.2 million tonnes)
[59] Mayor of London (2011) Making Sense of Waste: The Mayor's Business Waste Strategy for London, November 201.
[60] Green Investment Bank (2014) The UK Residual Waste Market: A report by the Green Investment Bank. July 2014

represented, for forecasting purposes it has been assumed that these 'Other' waste arisings will remain static at 2012/13 levels for the duration of the modelling period (i.e. out to 2050/51).

Modelling results

3.3.62 Table 3.3 shows the results of the modelling described above. It predicts that by 2050/51 there will be between 509,063 (high recycling scenario) and 713,491 tonnes (low recycling scenario) of residual LACW, with the central recycling scenario resulting in 611,277 tonnes of residual LACW requiring treatment.

3.3.63 This proposed sizing of the facility has informed by the results of the modelling exercise in addition to other influencing factors which are discussed in Section 3.4.

Table 3.3: Tonnes of waste collected for re-use, recycling and composting and tonnes of residual waste requiring treatment by year

Year	2012/13	2020/21	2025/26	2030/31	2040/41	2050/51
Low Recycling Scenario – 40% by 2020/21						
Recycling	229,570	324,297	328,990	333,912	344,268	354,971
Residual	597,717	660,744	667,914	676,093	694,450	713,491
Central Recycling Scenario – 50% by 2020/21						
Recycling	229,570	418,169	424,049	430,280	443,507	457,185
Residual	597,717	566,872	572,856	579,725	595,210	611,277
High Recycling Scenario – 50% by 2020/21, 60% by 2030/31						
Recycling	229,570	418,169	467,257	517,888	542,747	559,400
Residual	597,717	566,872	529,647	492,117	495,970	509,063
Total	827,288	985,041	996,904	1,010,005	1,038,717	1,068,462

3.3.64 The modelling has reflected the waste hierarchy in so far as it has projected waste arisings toward the lower range of expected future tonnages (illustrated by the FALP scenarios) together with re-use, recycling and composting levels that reflect agreed national and local targets.

3.3.65 Putting the figures into context, under the central recycling scenario, residual waste tonnages are projected to increase by 2 per cent between 2012/13 and 2050/51 (around 13,500 tonnes) while tonnages of recyclable materials are projected to increase by 99 per cent over the same period (around 227,600 tonnes).

3.3.66 Based on GLA projections, the number of households in north London is expected to increase by 27 per cent between 2012 and 2041[61]. On a per household basis household waste would need to reduce from 894kg per household in 2012 to 814kg per house by 2041 (a reduction of 80kg).

[61] GLA 2013 round population and household projections (accessed 20 March 2015)

3.3.67 The modelled results are consistent with the FALP scenarios of 'illustrative low population' and 'household based, target waste prevention'.

3.4 Energy Recovery Facility capacity need

3.4.1 The Applicant has a statutory duty to arrange for the disposal of all the waste collected by the Constituent Boroughs. The basis of the capacity for the proposed ERF is the need to ensure the ability to treat all of the Authority's residual waste arisings, minimisation of landfill disposal, accounting for seasonality and peaks, and minimisation of financial risk to NLWA and the Constituent Boroughs.

3.4.2 As discussed previously in Section 2.3, the Mayor of London has set an overall target for London to become net self-sufficient in the management of its waste by 2026. The proposed ERF will contribute to the Mayor of London's goal to manage the equivalent of 100 per cent of London's waste within London by 2026.

3.4.3 The factors which were considered to inform the proposed capacity of the proposed ERF (700,000 tonnes) are discussed in more detail from Paragraph 3.4.12 onwards. In fulfilling its statutory responsibility to dispose of all waste collected by the Constituent Boroughs, the Applicant must consider the implications of any risks of under or over sizing of the proposed ERF, for example, if recycling rates do not materialise as modelled or there is an increase in waste growth rates.

3.4.4 The Applicant is proposing to treat smaller amounts of residual non-LACW waste i.e. waste which is not collected by the Constituent Boroughs, in addition to residual LACW collected by the Constituent Boroughs. This is discussed in more detail in Paragraph 3.4.34.

3.4.5 As mentioned in Section 2.3, the National Planning Policy for Waste[21] highlights the need for consideration of the proximity principle in waste management planning; the Applicant adheres to this principle.

3.4.6 The proximity principle was specifically addressed within the recent report Energy from Waste: A Guide to the Debate[3]. The guide notes:

> "*proximity principle itself requires mixed municipal waste "...to be recovered in one of the nearest appropriate installations, by means of the most appropriate methods and technologies, in order to ensure a high level of protection for the environment and public health*"".

3.4.7 The guide continues to expand on the subject of the proximity principle in relation to sourcing waste from locations elsewhere:

> "*The ability to source waste from a range of location/organisations helps ensure existing capacity is used effectively and efficiently, and importantly help maintain local flexibility to increase recycling without resulting in local overcapacity*"

3.4.8 With regard to sizing of the proposed ERF, although recognising the benefits of smaller ERFs, the guide specifically notes the advantages brought about by investing in larger infrastructure:

"*in some circumstances a larger plant may be the appropriate solution and there can be benefits from these also. For example: greater efficiencies; economies of scale; the ability to support alternative transport links such as dedicated rail heads; or the availability of large industrial heat customers*".

3.4.9 As noted in Paragraph 2.3.15, the existing EfW facility is permitted to treat 750,000 tonnes per annum while the capacity based on the original design could handle up to 700,000 tonnes. As a result of the introduction of the Waste Incineration Directive (2000/76/EC), the physical capacity of the facility was reduced translating to an operational capacity of around 540,000 tonnes per annum. The capacity of the proposed ERF is 700,000 tonnes per annum which is in the range of the original EfW facility design capacity

3.4.10 The design for the proposed ERF is based upon advanced moving grate technology, with the number of lines being determined through examination of the required capacity and the most cost effective configuration.

3.4.11 The Applicants' waste forecasting model shows that, under the central recycling scenario, around 611,000 tonnes of residual LACW is likely to require disposal by 2050/51. This figure is based on achieving the 50 per cent household recycling target and achieving a threefold increase in trade waste recycling.

3.4.12 While the waste modelling exercise was undertaken to help inform the size of the proposed ERF, waste projections are just one of the important factors which are considered when sizing a facility. Other influencing factors which have also been examined to enable a fully considered approach on sizing include:

a. capacity and risk to the Authority and therefore, the Constituent Boroughs;

b. waste seasonality and operational impact;

c. ERF thermal capacity and associated throughput.

3.4.13 These factors are discussed in the following paragraphs.

Capacity and Risk to the Authority

3.4.14 Because of uncertainty over the future treatment capacity within reasonable proximity to the north London area along with the gate fees offered by these facilities, the undersizing of a new ERF poses a significant risk to the Authority.

3.4.15 As is shown in Table 3.4, under the central recycling scenario within the residual waste forecast results, a 2-line 700,000 tonne per annum facility would result in an initial over capacity of 18 per cent (around 127,000 tonnes) in the year 2024/25 reducing to 13 per cent by 2050/51 (around 89,000 tonnes). Under the low recycling scenario (achieving a 40 per cent household recycling rate) the proposed ERF is expected to reach capacity by 2042 and have under-capacity of 2 per cent by 2050/51.

Table 3.4: Energy Recovery Facility Available Capacity

	2 x 350ktpa Lines		
Low Recycling Scenario	**5% (2025)**	**0% (2042)**	**-2% (2051)**
Central Recycling Scenario	**18% (2025)**		**13% (2051)**
High Recycling Scenario	**24% (2025)**		**27% (2051)**

3.4.16 The challenges of increasing the recycling rate and the risk of under sizing need to be balanced. The risk of under sizing the facility would have a significant financial impact with waste needing to be transported outside of north London for treatment, thereby incurring higher transport and disposal costs to residents of the Constituent Boroughs.

3.4.17 As discussed, the waste forecast model projects waste tonnages towards the lower range of expected future arisings. Given the uncertainty associated with predicting waste growth and recycling levels so far into the future a 700,000 tonne per annum facility is being put forward as a suitable size to mitigate the potential risk to the Authority.

3.4.18 If the Application to obtain a DCO were unsuccessful it would be necessary for the Applicant to source residual waste treatment capacity outside of the north London area and potentially London. This would expose the Applicant and the Constituent Boroughs to potentially significant financial risk as the ability to maintain price security for the treatment of residual waste would be lost with the closure of the existing EfW facility in around 2025/26. The proposed ERF would enable the Applicant to continue to provide a stable price for the treatment of residual waste.

3.4.19 In addition to mechanical throughput, equal consideration must be given to the thermal capacity of the facility. The thermal capacity (i.e. the steam boiler load) could have a downward impact on the expected mechanical throughput depending on the calorific value (CV) of the fuel. This is discussed in more detail below (See below Section 'Thermal Capacity').

Waste seasonality and operational impact

3.4.20 A further factor to consider in relation to the capacity of the proposed ERF is the seasonality of waste arisings and the impact this will have on operations. Waste delivery volumes vary significantly during the course of a year due to seasonality effects; for example, periods of increased waste arisings typically occur for a number of weeks around holiday periods (including Easter and Christmas).

3.4.21 The ERF must have the ability to cope with variations in waste arisings throughout the year. Consequently, the seasonality in waste arisings must be considered in the design. In addition, the facility must have sufficient capacity to process waste within a number days; for operational, as well as health and safety reasons, prolonged stock piling of waste in the bunker is undesirable (bunker management is discussed below).

3.4.22 Within the Applicants' waste forecast model for the central recycling scenario, an annual volume of 611,000 tonnes per year by 2050/51 would equate to an average weekly delivery of 11,750 tonnes. An analysis of north London weekly residual waste arisings over the last three years (2011 to 2014) show that average weekly residual waste arisings could vary between 12 per cent above the mean and 14 per cent below the mean. Therefore, by 2050/51 weekly deliveries could vary between around 10,000 tonnes and 13,000 tonnes.

3.4.23 At the upper variance level of 12 per cent above the mean, the weekly tonnage of residual waste is close to the ERF weekly capacity at 97 per cent. Although this volume of waste could be managed on a short term basis by stock piling in the bunker, this approach is undesirable operationally. The maximum weekly capacity of the proposed ERF is around 13,500 tonnes.

Bunker management

3.4.24 The proposed bunker is sized to store waste for a duration corresponding to 6.8 days operating both lines at full capacity (14,280 tonnes), or for the duration of 14 days with one line out of operation (servicing or maintenance). There are important operational reasons for the proposed size of the bunker which serves to minimise the impact on the environment by improving the process efficiency resulting in lower emissions to the atmosphere.

3.4.25 The design supports the optimal requirements for waste reception and mixing of waste. The aim is to produce a homogeneous fuel which is critical for promoting stable plant operations resulting in lower gaseous emissions and reduced operating and maintenance costs. Therefore, bunker zones (designated areas within the bunker) are needed for the reception of waste as well as the mixing of waste. Reduced mixing would also lead to higher operating costs and less favourable emissions due to sub optimal waste mixing.

3.4.26 Waste at the bottom of the bunker must be regularly moved/turned as it will otherwise decompose. Furthermore, waste at the bottom of the bunker will also have a tendency to compact under the weight of overlaying waste layers. This will make it difficult for cranes to grab and move the bottom waste layer for mixing or processing. It is important to prevent the formation of a bottom layer that is difficult to access by cranes. Prolonged storage or stockpiling can be managed by good bunker management including the regular movement and mixing of waste from one area to another; the proposed bunker sizing supports good bunker management.

3.4.27 The proposed ERF will be designed to operate all year around with a minimum expected availability of 8,000 hours per year. Regular scheduled maintenance will be undertaken on one line at a time to minimize service disruptions, with both ERF processing lines being shut for maintenance only during exceptional cases.

3.4.28 ERF maintenance shutdowns are normally planned in advance and the bunker level will be much reduced prior to line maintenance. The mechanical capacity of the lines as well as the enhanced bunker sizing

will allow the Applicant to continue receiving waste and store waste in the bunker as appropriate when processing capacity will be reduced or during complete plant outage**.**

3.4.29 The enhanced capacity of the bunker is proposed in order to mitigate any risks from prolonged storage or stockpiling of waste. Coupled with the mechanical throughput of the facility (13,500 tonnes per week) the ERF would be expected to be capable of handling all of the Authority's residual waste requirements minimising the risk of potential future reliance on third party capacity and ensuring the ability to cope with such factors as seasonal fluctuations in waste volumes.

Thermal capacity

3.4.30 The proposed ERF would comprise two lines, each having a processing capacity of 350,000 tonnes per year based on a design calorific value (CV) of 10 gigajoules per tonne (GJ/t) resulting in a gross power output of 70MW_e. While significant emphasis for process capacity is placed on mechanical throughput, equal emphasis should be placed on the proposed ERF's thermal capacity i.e. waste throughput will vary depending on the CV of the waste stream.

3.4.31 A key parameter for the design of the ERF is the CV. The CV refers to the amount of energy which may be released when the waste is combusted. This will have an impact on the size of the boiler. For the purposes of the DCO, a design CV of 10GJ/t has been assumed for residual LACW based on the reported CV of the existing EfW facility

3.4.32 The capacity of the ERF is based on achieving a balance between the mechanical throughput (tonnes) and the thermal capacity or CV (energy contained in the waste). Therefore, the throughput may vary depending on the CV or energy content in the waste.

3.4.33 For the ERF, the mechanical capacity of the lines is at the upper limit of the operational range with little ability to increase throughput above 44 tonnes per hour. If the CV of the waste drops to 9GJ/t the power output would reduce to circa 62 MW_e (gross) as no corresponding increase in throughput would be possible. Similarly, if the CV of the waste increases above 10GJ/t it will be necessary to reduce the mechanical input to avoid overloading the boiler.

Third party waste

3.4.34 As discussed in the Section 'Sizing and Risk', the facility is expected to have spare capacity of around 127,000 tonnes in 2025/26 reducing to around 89,000 tonnes by 2050/51 (based on a design CV of 10GJ/t).

3.4.35 In terms of the risk associated with any potential excess capacity, and changes to CV, these could be mitigated by offering any head room to third party residual waste collectors. In doing so, this could result in a lower overall gate fee because of income from external sales. Such sources of third party residual waste may include:

a. C&I waste from non-LACW sources within the north London area;

b. Other London LACW; and

c. LACW and C&I waste outside of London

3.4.36 In previous years the existing EfW facility received around 100,000 tonnes of residual waste from the surrounding area for treatment.

3.4.37 The Applicant investigated the availability of residual C&I waste within a 50mile radius of the Edmonton EcoPark. The total tonnage (residual and recycling) of C&I waste within the 50 mile radius is estimated to range from around 8.3 million tonnes in 2025/26 increasing to around 8.6 million by 2050/51 (assuming an annual growth rate of 0.5 per cent for commercial and a negative annual growth rate of 1.0 per cent for industrial waste).

3.4.38 Assuming a 75 per cent recycling rate for C&I waste by 2030 and remaining static thereafter total residual C&I waste within the 50 mile radius of the Edmonton EcoPark would be around 1.7 million tonnes in 2025/26. By 2050/51, due to a slight increase in recycling rates and an increase in total C&I waste the expected amount of residual C&I waste would be around 1.7 million tonnes. Under the central recycling scenario in the waste forecast model, the proportion of this residual C&I forecast within the 50 mile radius of the Edmonton EcoPark required to fill the forecast capacity gap would vary from 7.6 per cent in 2025/26 reducing to around 5.3 per cent by 2050/51.

3.4.39 Further analysis was undertaken to estimate what proportion of the total residual C&I waste produced may be available for treatment within a 50 mile radius, taking into consideration the catchment of other residual waste treatment facilities currently in operation as well as those in construction.

3.4.40 The analysis estimated that, by 2025/26, around 291,000 tonnes of residual C&I waste could be available for disposal within a 50 mile radius of the Edmonton EcoPark decreasing to around 278,000 tonnes by 2050/51. These figures include the residual output from mechanical biological treatment facilities within the 50 mile radius (assuming a 50 per cent residual output).

3.5 Waste need case conclusion

3.5.1 The Applicants' waste forecasting model provides an estimate of the amount of residual waste collected by the Constituent Boroughs that will require treatment in the proposed ERF through to 2050-51 based on a range of recycling rate scenarios. In order to model the need for capacity to treat residual waste in the future, assumptions regarding a continuation of recent trends in waste prevention and minimisation are built in to the waste forecast model. In addition the achievement of a wide range of targets for the rate of re-use, recycling and composting have been modelled. This contributes to a forecast range of the amount of residual waste remaining to be treated with the planned ERF through to 2050/51.

3.5.2 In addition to the waste modelling work, the proposed sizing is informed by a number of important influencing factors including the financial risk to

the Authority of having under-capacity, as well as operational design considerations relating to the seasonality of waste arisings, bunker management and thermal capacity. These factors result in variations in waste arisings throughout the year and as such the proposed ERF will be required to manage these fluctuations.

3.5.3 If the application to obtain a DCO were unsuccessful, the Applicant would have insufficient capacity to manage the projected residual LACW once the existing EfW facility has reached the end of its operational life; the proposed ERF will support the diversion of residual waste away from landfill in line with local, regional and national policy and in line with the waste hierarchy (Section 2.4).

3.5.4 The ERF has been sized at the upper end of the forecast residual waste envelope predicted by each for the low, central and high recycling scenarios within the Applicants' waste forecasting model, to ensure that the Applicant has the capacity to provide a local non-landfill solution for its residual waste, should the lower forecast scenario be realised.

Should lower than forecast waste arisings occur and/or higher rates of re-use, recycling and composting be achieved, then other sources of residual waste (as noted in Paragraph 3.4.12) will be available both from within the north London area and beyond to fill any spare capacity in the ERF without this capacity acting as a barrier to continued efforts by the Applicant and its Constituent Boroughs to move the management of LACW further up the waste hierarchy.

Appendix A – Waste Prevention and Recycling in North London

North London Waste Authority

North London Heat and Power Project

Waste Prevention and Recycling in North London

AD05.04 Appendix A

The Planning Act 2008 The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 Regulation 5 (2)(q)

Issue | October 2015

NLWA

nlwa
north london waste authority

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Executive Summary

i.i.i North London Waste Authority (NLWA) provides a wide range of waste prevention activities, strategic recycling communications work, and contracted services for the treatment of mixed dry recyclables and mixed food and green wastes. Since 2012/13 NLWA has managed the operation of the majority of the re-use and recycling centres (RRCs) in its area, and has increased recycling performance at these RRCs.

i.i.ii This report sets out the above areas of activity in detail, but the key highlights of each area are:

Waste Prevention

a. 2006 - first Waste Prevention Officer appointed;

b. 2012 - full NLWA waste prevention team of four officers appointed, having had externally funded and contracted support for three years;

c. Budgets of c.£350k per annum;

d. c.10,000 people contacted per annum; and

e. NLWA has also won a number of awards for its waste prevention work:

- 2012 Best Waste Minimisation Project (finalist)
- 2012 Bronze Zero Waste Award
- 2013 Gold Zero Waste Award
- 2013 LARAC Best Waste Minimisation Project (finalist)
- 2013 CIWM Best Waste Minimisation Programme (finalist)
- 2013 Awards for Excellence, Best Waste Minimisation Initiative
- 2014 LARAC Best Waste Minimisation Programme

Recycling Communications

a. 2012 - first joint recycling communications campaign commenced by NLWA;

b. Campaigns based on socio-demographic data and market testing for effectiveness; and

c. 2013 - NLWA won the EPIC Media Communications Campaign Award at the CIWM Awards for Environmental Excellence for the joint recycling communications campaign.

Recycling

a. 2005 - first contract for mixed food and green waste composting, including the commissioning of the first in-vessel composting facility in the country to be accredited to make compost in accordance with PAS100;

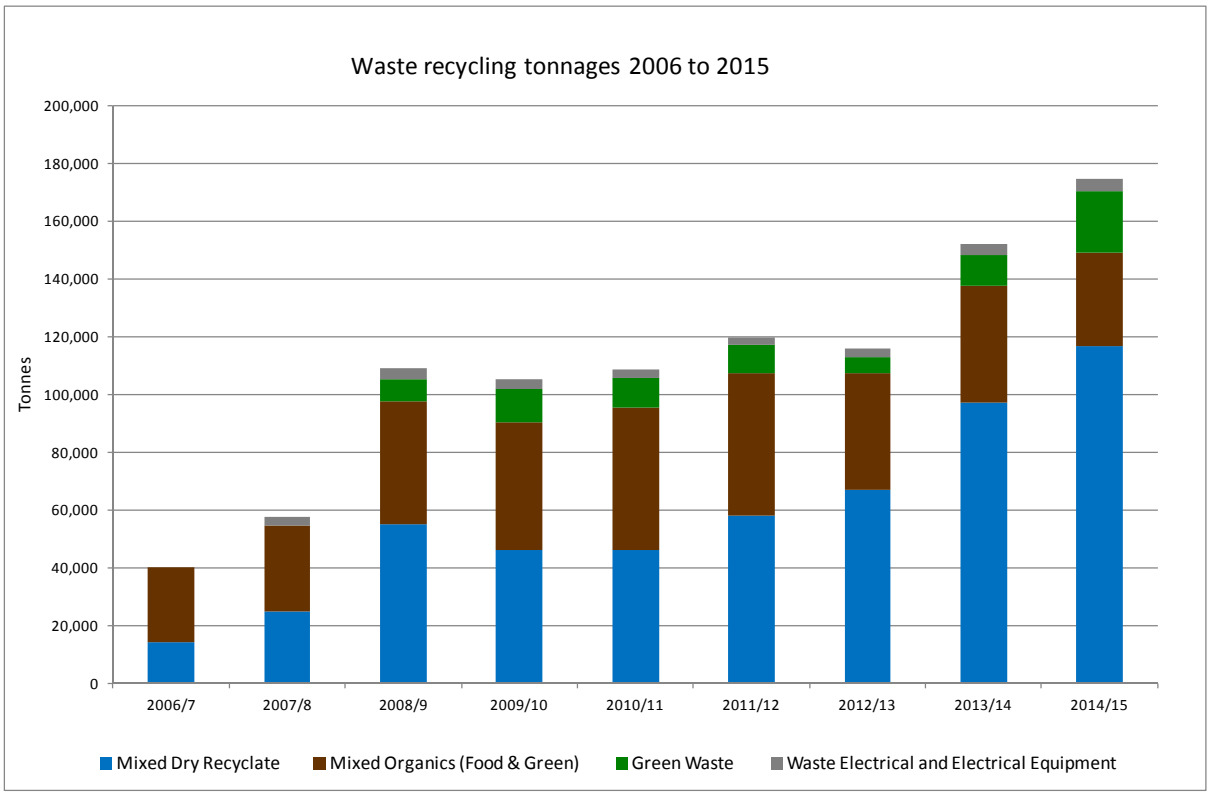
b. 2006 - first contract for mixed dry recycling;

c. 2007 - first contract for waste electrical and electronic equipment recycling;

d. 2008 - first contract for green garden waste composting; and

e. 2012 - took over the management of seven of the nine re-use and recycling centres (RRCs) in the NLWA area, increasing recycling rates from 59 per cent to 72 per cent.

i.i.iii A summary of the Applicant's waste recycling tonnages from 2006 to 2015 is presented below.



Waste recycling tonnages managed by North London Waste Authority

1 Introduction

1.1 Objective

1.1.1 This report sets out the work that North London Waste Authority (NLWA) has been co-ordinating or undertaking in order to maximise the amount of waste that is prevented, reused or recycled, thereby minimising the amount of waste that requires either treatment for energy recovery or else final disposal at landfill.

1.2 Overview

1.2.1 The overall statutory framework and governance arrangements are first set out, then the various waste prevention and joint communications activities that are essentially behavioural change programmes, then the actual physical recycling activities of NLWA, both at re-use and recycling centres and for wastes collected by the Constituent Boroughs.

2 Statutory Framework and Governance

2.1 Statutory Framework

2.1.1 European Directives are the principal source of waste law, and generally set objectives that member states must transpose into national law such that they achieve the objectives set out in Directives, but in a way that suits national circumstances.

2.1.2 The government, principally through the Department of Environment, Farming and Rural Affairs (but also other government departments), sets national policy and strategy including the implementation of national legislation in accordance with Directives.

2.1.3 At the regional level, the London Mayor also has a statutory duty to publish a municipal waste management strategy and a spatial strategy that addresses such matters as waste management needs. London's local authorities, including NLWA, must act in general conformity with these.

2.1.4 At the local authority level, there are the different duties of waste collection authorities (the Constituent Boroughs) and the waste disposal authority (NLWA)[1]. In general, Constituent Boroughs collect waste for recycling[2] or disposal and then deliver it to places as directed by NLWA; this includes sweeping the streets and clearing-up fly-tipped waste. NLWA arranges for those places to receive waste from the Constituent Boroughs and arranges the subsequent recycling, recovery or disposal of the waste. In addition it is NLWA's duty to arrange re-use and recycling centres (RRCs), although as a result of local choices there are two Constituent Boroughs that do this independently.

2.1.5 It is important to note in this report that NLWA has the power to direct the Constituent Boroughs where to deliver all their waste, but the Constituent Boroughs are exempt from this direction to the extent that they are recycling the waste. However, if NLWA objects to the Constituent Borough withholding the waste (for example because NLWA has made arrangements for its treatment), then the Constituent Borough is no longer exempt from NLWA's power of direction.

2.1.6 In practice however, arrangements for recycling in north London are a matter of cooperation and partnership between the Constituent Boroughs and NLWA, such that the recycling arrangements made by NLWA are all by agreement with the Constituent Boroughs.

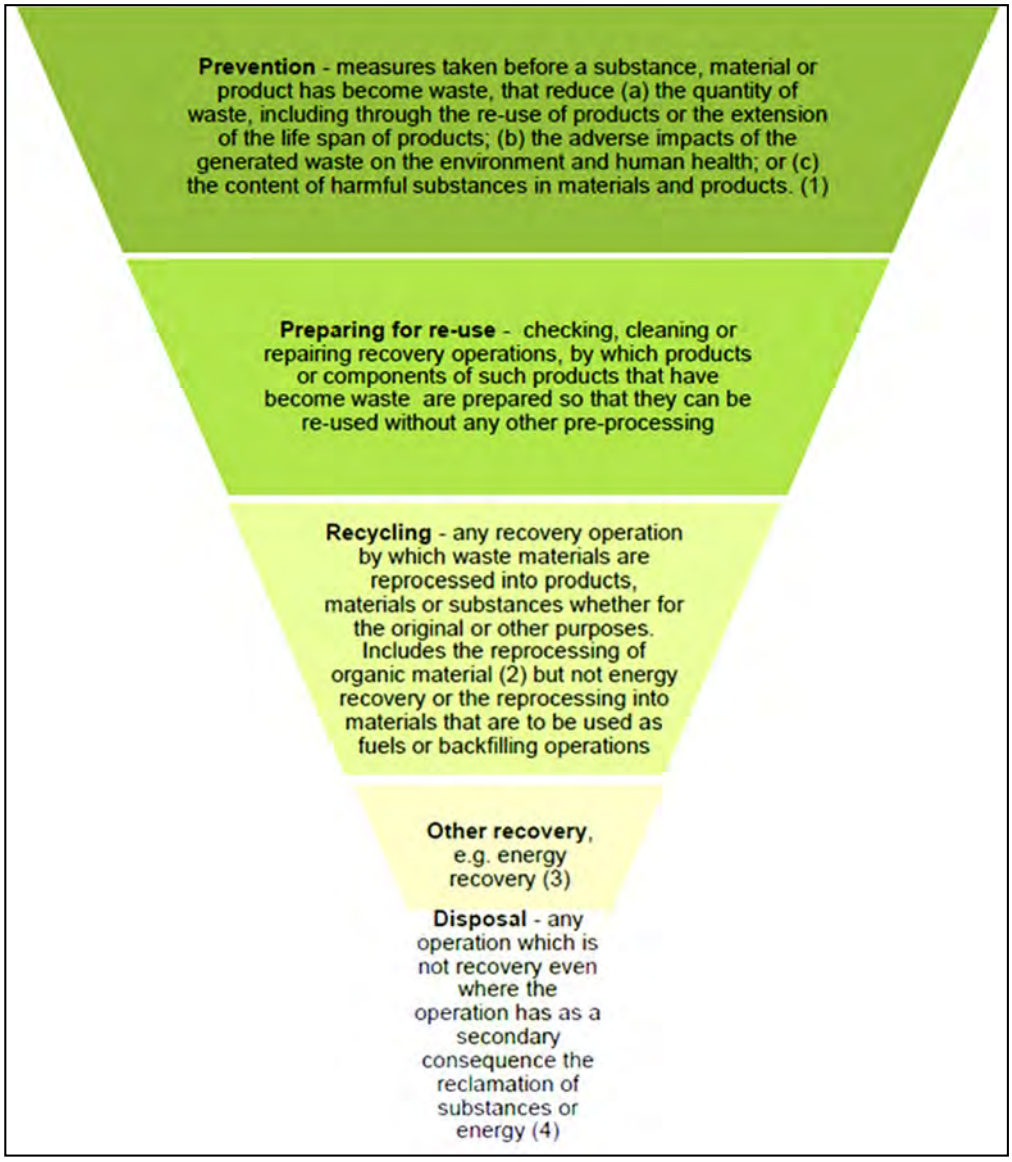
2.2 The Waste Hierarchy

2.2.1 The various ways of categorising the ways in which our society should deal with waste are usefully summarised in the "waste hierarchy" diagram below, a version

[1] This describes the statutory arrangements in north London and most of the rest of London, but there are 12 London Boroughs that are unitary waste authorities and are individually responsible for both the collection and disposal of municipal wastes in their areas. These arrangements are as legislated for on the abolition of the former Greater London Council; but more recently four of the unitary boroughs have formed a partnership (the South London Waste Partnership).

[2] The term "recycling" is to be read as including both the recycling of 'dry' items such as paper, cardboard and glass, plastic or metal containers as well as the treatment of food and green garden wastes in composting or anaerobic digestion facilities.

from DEFRA[3] that provides more specific guidance than the normal 'headline-only' graphic. It is however based on the hierarchy set out by the European Union[4].



2.2.2 The essential premise of the waste hierarchy is that wastes should be managed in accordance with the optimum environmental outcome that is achievable under the circumstances. Preventing waste from arising in the first place is therefore the very best outcome, but once the waste is there it is generally best to repair it for re-use, then to recycle it into a new product, then to recover the energy embedded within it (e.g. at an Energy Recovery Facility), and finally to landfill the waste.

[3] DEFRA 2010 *Consultation Draft Guidance on Applying the Waste Hierarchy*, London, available at: http://archive.defra.gov.uk/corporate/consult/waste-framework-revised/index.htm

[4] European Union (2008) Waste Framework Directive 2008/98/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 19 November 2008 on waste and repealing certain Directives, Brussels, available at: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:312:0003:0030:EN:PDF

2.2.3 The waste hierarchy is very much a set of principles however, and not a prescriptive set of rules. Practical, technical, environmental and commercial considerations all have a role to play as well.

2.3 Local Governance

2.3.1 NLWA, as a statutory joint waste disposal authority, is governed by fourteen members (councillors), two appointed by each of the seven Constituent Boroughs[5].

2.3.2 NLWA and the Constituent Boroughs have approved the North London Joint Waste Strategy (NLJWS) that guides the development of waste services. Annual strategy monitoring reports[6] are published by NLWA on progress in implementing the NLJWS.

2.3.3 NLWA has also established a Members' Recycling Working Group which monitors waste prevention and recycling performance, suggests activity where appropriate and acts as a conduit for communication on waste prevention and recycling matters at a Member level between NLWA and the Constituent Boroughs. The Members Recycling Working Group also provides an opportunity for Members to examine proposals in greater detail as they are being developed to improve NLWA's waste prevention, joint recycling communications and actual recycling services.

2.3.4 As noted above, NLWA works in partnership with the Constituent Boroughs and has been providing a wide range of waste prevention activities, strategic recycling communications work (e.g. advertising on London Buses where routes are only partly within individual borough areas but are wholly or principally within the NLWA area) and contracted services for the treatment of mixed dry recyclables and mixed food and green wastes for many years. Since 2012/13 NLWA has been managing most of the Re-use and Recycling Centres in its area.

2.3.5 Further detail is provided in subsequent sections of this report.

[5] Additional detail is available in NLWA's Annual reports available at: http://www.nlwa.gov.uk/governance-and-accountability/annual-reports.
[6] Available at: http://www.nlwa.gov.uk/governance-and-accountability/annual-strategy-monitoring-reports.

3 Waste Prevention and Joint Recycling Communications

3.1 Waste Prevention Overview

3.1.1 Since 2006, with the appointment of its first Waste Prevention Officer, NLWA has co-ordinated and delivered a range of waste prevention activities across NLWA's area in partnership with the Constituent Boroughs.

3.1.2 As activity increased and external funding was secured for additional waste prevention work the number of staff needed increased (initially with contractor personnel), but since 2012/13 NLWA has had its own direct team of four officers working on waste prevention matters, with a budget of c.£380,000 per annum excluding re-usable nappy vouchers.

3.1.3 NLWA's waste prevention work is currently delivered in accordance with the work programme outlined in the North London Waste Prevention Plan 2014/16 (the Plan) available at http://www.nlwa.gov.uk/docs/default-document-library/pj55337-nlwa-waste-prevention-doc--final.pdf.

3.1.4 The Plan is prepared biennially, maintained on an on-going basis and revised annually and is driven by European, national, regional and local statutory drivers as well as NLWA's and the Constituent Boroughs' strategic priorities. It is developed in liaison with NLWA Members, NLWA and Constituent Borough officers and community partners in the context and priorities set out in key documents such as the Waste Prevention Programme for England and national research.

3.1.5 The aim of the 2014/16 Plan is to reduce municipal waste arisings in north London, promote resource efficiency and improve the local environment through a comprehensive and sustainable programme of waste prevention activities.

3.1.6 The preparation process of the Plan was guided by various developments in the waste sector and consultation with key stakeholders, namely:

a. the results of three independently facilitated stakeholder consultation workshops with:
   - Constituent Borough Officers including senior staff;
   - community partners and delivery agencies; and
   - NLWA Officers;
b. consultation with NLWA's Chair;
c. consultation with the Members' Recycling Working Group; and once approved
d. review by all NLWA Members at NLWA's meeting (February 2014).

3.1.7 The Plan was also developed in the context of priorities and guidance set out in:

a. the Waste Prevention Programme for England 2013;
b. the Government Review of Waste Policy in England 2011; and
c. a number of reports produced by the Waste and Resources Action Programme (WRAP), the European Commission and the Association of Cities and Regions for Recycling and Sustainable Resource Management (ACR+).

3.1.8 Priority waste streams for 2014/16 have been identified as food waste, furniture and textiles and activity includes action-oriented interventions encompassing

focusing on informational, educational and promotional initiatives that can be applied on a local level.

3.1.9 The Plan is complemented by other activities promoting Waste Electrical and Electronic Equipment (WEEE) re-use and recycling, reduction of unwanted mail, promotion of reusable nappies and waste education.

3.1.10 NLWA's approach has been developed using the '4 E's' behavioural change model: enabling people to make a change, encouraging action, engaging in the community and exemplifying what's being done by others. A mixture of measures will be required for the development of a successful waste prevention programme that encompasses all 4E's.

3.2 Evaluation of NLWA's waste prevention activity

3.2.1 The monitoring methods that are used to evaluate waste prevention activity are categorised as follows:

a. physical measure of waste diverted, e.g. weighing of items at Give and Take days, measuring the impact of the activity;

b. survey methods, such as feedback, e.g. from conversations at events or resident questionnaire, and event statistics, e.g. no of attendees at an awareness-raising event; and

c. proxy measures, e.g. no. of information packs provided to residents, e.g. unwanted mail packs.

3.2.2 Measuring the success of waste prevention activities is a challenging process as at present there is no common set of tools or indicators that can be widely used by local authorities, central funding agencies and other stakeholders to measure the relative and absolute impact of waste prevention initiatives. Waste prevention indicators are in demand, but widely accepted models do not yet exist, although the Government is committed to be developing a suite of metrics in 2015.

3.2.3 For estimating the amount of waste that waste prevention activities divert, NLWA estimates the quantity of waste reduced at source. Estimating the quantity assumes that there is a constant relation between private consumption and waste generation although the complexity of factors determining waste generation is high[7]. Hence, any predicted impact is based on a number of assumptions to assist with the monitoring of the activities. Most of the activities are evaluated on the amount of waste they are estimated to have diverted from disposal rather than any measured amount of waste thus diverted. Diversion rates are used where possible to indicate the portion of a waste stream which is managed through waste prevention as opposed to disposal.

3.2.4 There are instances of monitoring and evaluation that has taken place elsewhere that assists with diversion estimates for north London, such as in the case of food waste prevention. For example, national research[8] has shown that food waste campaigns of a similar nature and level of investment to that carried out in

[7] ACR+ (2009) Quantitative Benchmarks for Waste Prevention: A Guide for Local and Regional Authorities in Support of the New Waste Framework Directive

[8] WRAP (2013) West London Food Waste Prevention Campaign Evaluation Report, available online at http://www.wrap.org.uk/sites/files/wrap/West%20London%20Food%20Waste%20Campaign%20Evaluation%20Report_1.pdf

north London in 2012/13 and 2013/14 can decrease the amount of avoidable food waste by 14 per cent and that for every £1 invested, up to £8 can be saved on disposal costs and savings to consumers. Therefore, NLWA makes the assumption that considerable savings can be made at a local level by replicating work carried out elsewhere.

3.2.5 In 2014/15, NLWA commissioned research into the monitoring and evaluation of its waste prevention programme and the impact of the activities set out in North London Waste Prevention Plan. Currently, there are no nationally agreed tools or metrics to use in assessing the impact of waste prevention activity. As a result NLWA appointed an independent consultant (Resource Futures) to review NLWA's current approach to measuring the impact of its waste prevention programme and to provide recommendations for a comprehensive measurement regime that NLWA can use to evaluate the impact of future waste prevention programmes. This work will then be updated when Defra produces its national evaluation methodology.

3.2.6 The review includes consideration of comparable work carried out by other organisations and provision of a robust future-proof monitoring and evaluation methodology document for NLWA. It is anticipated that the monitoring of the waste prevention programme will be wider than just waste tonnage avoidance with proposals likely to additionally report on carbon savings and financial and social impacts, and to capture and communicate the impacts of the work to a wide group of beneficiaries.

3.2.7 The following conclusions were drawn from the assessment:

a. for the majority of activities, an attempt is being made to measure outputs and outcomes;

b. the data-gathering methods used are appropriate for the type of activity, e.g. where waste is directly handled during an activity it is measured during that activity and survey methods are used for activities where a physical weighing of waste would be difficult or impossible;

c. NLWA's monitoring and evaluation regime does not currently cover metrics for greenhouse gas savings or social outcomes, e.g. value of incomes generated through employment in second-hand furniture shops and consumer savings, and this is something that can be considered in the future; and

d. long-term benefits of waste prevention activity are not currently reported, but could include reduced operating and capital costs of waste collection across NLWA's area.

3.3 Stakeholders

3.3.1 NLWA supports waste prevention practices by working with both the Constituent Boroughs and by supporting and engaging in active dialogue with a number of other national and regional organisations including the Waste and Resources Action Programme, the Chartered Institution of Wastes Management, the Greater London Authority and the London Waste and Recycling Board.

3.3.2 Stakeholders for the development of the activity include:

a. local authorities (including other waste management departments, communications departments, social services teams and health services);

b. national and regional bodies (including Defra, Recycle for London, London Waste and Recycling Board);

c. European bodies (including the Association of Cities and Regions for Sustainable Resource Management);

d. voluntary and community sector (including the London Community Resource Network, Real Nappies for London, Furniture Re-use Network); and

e. local residents and businesses (including local press, manufacturers and retailers, waste management companies and contractors)

3.3.3 NLWA is also a member of a number of organisations as follows:

a. Association of Cities and Regions for Recycling and Resource Management (ACR+)

b. Local Authority Recycling Advisory Committee (LARAC)

c. London Environmental Education Forum (LEEF)

d. Sustainable Environmental Education Forum (SEED)

e. London Textiles Forum

3.3.4 Additionally, individual officers are members or attend the meetings of a number of other officer based groups.

3.4 Waste Prevention 2012- 2015

3.4.1 The sections below describe NLWA's activity and results for each targeted waste stream for the last three years. The activity is being described in line with the waste hierarchy as described in the revised Waste Framework Directive[9].

"Waste prevention (using less material in design and manufacture, keeping products for longer, re-use, using less hazardous materials) and Preparation for re-use (checking, cleaning, repairing, refurbishing, whole items or spare parts)"

3.5 Waste Prevention and Preparation for Re-use

Food waste

Food waste reduction outreach activity

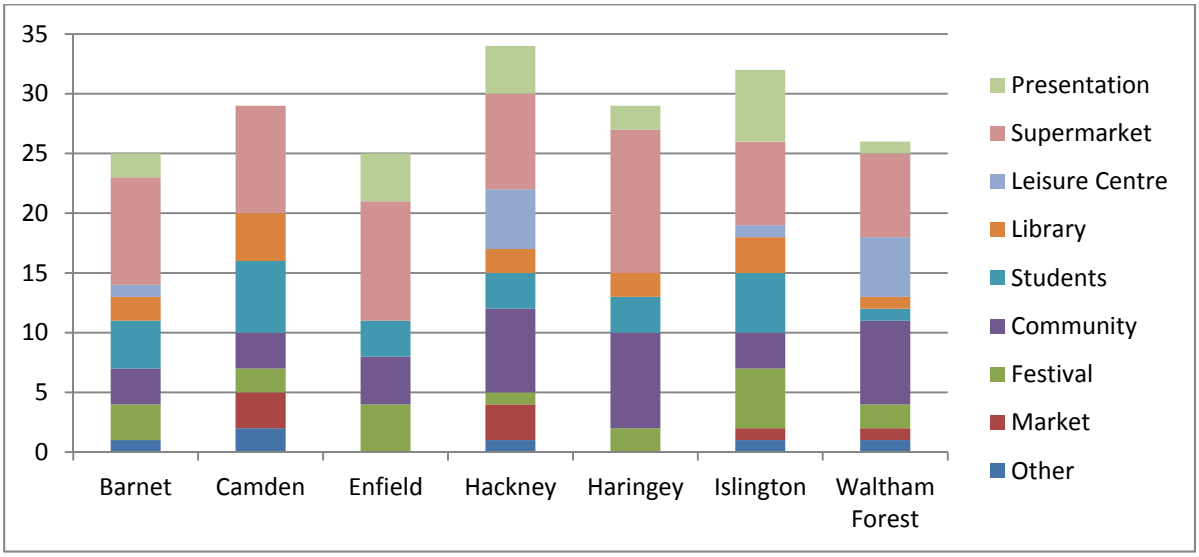
3.5.1 In 2012/13 and in line with the target set at the start of the programme, the Waste Prevention team participated in 200 events engaging directly with over 13,000 north London residents across the Constituent Boroughs. Event feedback shows that of those questioned, 85 per cent said that the advice they received will assist them to reduce the amount of food waste they produce. Correct portion sizes was the most popular topic for discussion. The table below

[9] Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/218586/l_31220081122en00030030.pdf.

provides a summary of the events that were delivered in each Constituent Borough.

Constituent Borough	Events Delivered	Number of Conversations
Barnet	25	
Camden	29	
Enfield	25	
Hackney	34	
Haringey	29	
Islington	32	
Waltham Forest	26	
Total	**200**	**13,000**

3.5.2 Additionally, the figure below provides a visual breakdown of the types of events that have been attended in each Constituent Borough.



North London Food Waste Challenge

3.5.3 The north London food waste challenge provided dedicated support to one household in each Constituent Borough.

3.5.4 Households were recruited to the challenge through a number of channels including social media, events and networks. The challenge was also promoted through NLWA's series of food waste road-shows. Residents who expressed interest in participating in the challenge were contacted and asked to complete a shortlisting questionnaire and were then selected according to the following criteria:

a. one household per Constituent Borough;

b. reflection of the range of backgrounds, household types and property types found in north London, in order to incorporate the range of different challenges households face in relation to reducing food waste; and

c. households likely to benefit most from participating in the challenge, i.e. households producing the most food waste and not already committed to reducing food waste.

3.5.5 The challenge was completed in December with results showing an average reduction of food waste per household of 38 percent and a reduction in the weekly spend on food purchases of 30 percent. These results were presented at an open event at Portcullis House, Houses of Parliament, on 31 January 2013. Approximately 50 people attended in total, and of those who provided feedback, all of them rated the evening as either 'good' or 'excellent'.

3.5.6 Challengers from five of the seven households attended the event along with NLWA Officers, Constituent Borough officers, journalists and industry partners. The Chair of NLWA presented the challengers with a certificate, a prize and a copy of the new North London Food Lovers' Cookbook.

3.5.7 This project which provided intensive support to a small number of north London residents has resulted in a large amount of information and resources which is actively being used by NLWA to promote food waste reduction messages to the wider north London community over the coming months. For example, there are positive real-life examples of how local families can significantly reduce their food waste and save money. To support these, photographs and quotes from participants were collected. These resources have helped to make the project accessible to local press, resulting in three pieces of media coverage and numerous mentions in industry newsletters.

Universities outreach

3.5.8 Waste Prevention Officers delivered food waste sessions at universities and colleges across the seven Constituent Boroughs. 15 sessions were provided, directly engaging with over 1,450 people. Delivery of talks continued in four institutions. NLWA officers participated in two university Green Week events and a Food Waste day, as well as further Fairtrade and Health & Wellbeing events. In addition, three sessions were held in halls of residence.

Work with community groups

3.5.9 As at June 2012 officers have begun establishing a network of community groups across the seven Constituent Boroughs, delivering 18 food waste road-shows and 10 presentations. Officers have continued to make contact with community organisations with similar aims encountered through these events. This includes discussing formalising an arrangement with a social enterprise focussed on cookery skills and healthy eating, to which officers have delivered food waste presentations.

Food waste reduction activity in 2013/14

3.5.10 In 2013/14, NLWA's Waste Prevention Officers set up food waste information stands and presentations in libraries, shopping centres, universities, community centres and leisure centres. The main messages conveyed through this outreach work were the financial cost to households of wasting food and the impact on the environment. Tools were given away to help residents measure the correct portions of commonly wasted foods, such as spaghetti measurers and rice cups, whilst food containers, food bag clips and fridge thermometers were provided to encourage safe and efficient food storage. Here officers provided the public with tips to help them reduce the food waste they produce and at the same time received a number of tips from the public.

Food waste reduction outreach events

3.5.11 154 food waste events were delivered in 2013/14, directly engaging with 9,621 north London residents. The most popular topic of discussion was portion

measuring, and as a result of follow-up surveys 80 per cent of residents surveyed have said they would reduce their food waste as a result of attending an event.

3.5.12 The summary of the events that were delivered can be found below.

Constituent Borough	Events Delivered	Number of Conversations	Attendance
Barnet	17	1,250	16,295
Camden	19	798	5,854
Enfield	22	1,404	12,960
Hackney	19	959	6,521
Haringey	31	2,270	24,778
Islington	29	1,860	18,683
Waltham Forest	17	1,080	16,850
Total	154	9,621	101,941

Working with the community

3.5.13 Towards the end of 2013, around 350 north London community groups were approached, both by letter and email, about receiving a free food waste presentation or information stall. A large number of enquiries were received which formed the basis for expanding community engagement activity.

3.5.14 In 2013/14, officers delivered 30 food waste workshops and presentations to community groups, directly engaging with 555 residents across the Constituent Boroughs. These groups ranged from adults at children's centres, Age UK, Tenants' and Residents' Associations to Asian and Nigerian communities.

3.5.15 Feedback was collected by 52 residents at the end of the workshops and it was positive, with 79 per cent of those contacted claiming that they will be able to significantly reduce their food waste as a result of the presentation. The vast majority found the workshops interesting and said that it helped them learn new skills, 98 per cent (51 residents) and 71 per cent (37 residents) respectively.

Working with universities and colleges

3.5.16 In 2013/14 the Waste Prevention team also engaged 1,609 students in conversations regarding food waste prevention at 22 events.

3.5.17 In particular, during February 2014 the team attended a number of university 'Go Green' weeks, an annual national week of action on climate change held at different dates in schools, colleges and universities

3.5.18 In particular, 'Go Green' weeks were held during February and March at City University, Middlesex University and the College of North-East London (CONEL), and the team held stalls and spoke to students about food waste. The waste prevention stall was particularly well-received, with bag clips, food storage and portion tools being the most popular topics.

3.5.19 The team also held stalls at student halls of residence and continued to investigate the possibility of carrying out more work with colleges or universities that deliver cookery classes and catering courses, in particular so that the behaviour change messages can move into the catering and hospitality industry for maximum effect.

Resident feedback

3.5.20 Officers have also begun taking residents' contact details at stalls in order to contact people at a later date to ask for their feedback on the information they received. It is hoped this will provide more in-depth data on the impact of the information officers provide.

3.5.21 Six months after the events have occurred feedback was collected from 18 residents and 73 per cent of those (13 residents) said that they have an improved knowledge about food waste since speaking to staff at food waste prevention events. This has been translated into a reduction in food waste as 73 per cent (13 residents) of the respondents believe that they throw less food away than they used to. Responses also indicate that the majority of people who provided feedback saved money on food purchases, mainly through better planning. Finally, 89 per cent of attendees who have provided feedback said that they passed on or are planning to pass on the advice they received to friends and family.

3.5.22 Rice scoops and spaghetti measurers were deemed the most useful tools that residents were provided with and more than half of those that responded saying that they still use these measurers six months after receiving them.

3.5.23 In addition, unprompted resident comments have been positive:

a. 'Advice made me think before buying food and throwing food away';

b. 'Great campaign, get more people involved';

c. 'Keep going and talk to others'; and

d. 'Keep up the good work!'

3.5.24 The comments demonstrate that the events provide a platform to residents to ask questions and remove barriers they face in their effort to reducing waste. The majority of comments were encouraging and positive and there were no negative comments about the events or about the quality of the information received.

Waste Less Food, Save More Money Challenge

3.5.25 Based on the success of the 2012/13 intensive food waste challenge, another online food waste challenge was held from 23 September 2013 until the end of January 2014. The challenge was promoted via the 'wise up to waste' website (including a short film about a local family showing how to take part); posters; press release; internal borough communications; and via social media.

3.5.26 A prize draw was used to incentivise residents to take part in the challenge, with the first prize being a weekly organic vegetable box supplied for a month; the second prize was an organic vegetable box for two weeks and the third prize a single organic vegetable box.

3.5.27 Participating residents simply followed these three steps:

a. they completed a food waste diary for a week recording the money spent on food and the weight of food thrown away;

b. they then received a 'waste less food' pack in the post consisting of tools, recipes and other information to help them reduce their food waste; and lastly

c. they completed the diary for one more week and submitted their results.

3.5.28 A total of 147 residents expressed an interest in taking part and in total, 45 residents signed up to the challenge. Overall, results show that by following the tips and advice, the challenge participants reduced the amount of money they spent on food purchases by an average of £3.52/week during the second week of the challenge (representing an 8 per cent decrease in the cost of food purchases) whilst the average food waste reduction during the second week was 1.07kg, representing a 46 per cent decrease.

Waste Less Save More, Big Free Lunch events

3.5.29 During September, a Waste Less Save More lunch was held in each of the Constituent Boroughs. The core message behind the events was that it is possible to feed 1,000 people on a budget of £680, which is the amount of money that the average UK family wastes on uneaten food each year.

3.5.30 A free lunch was offered to members of the public, along with food waste reduction advice and free tools, such as rice scoops. The food was prepared following recipes from the North London Food Lovers' Cookbook and ingredients were sourced from donations from local suppliers of food that was coming to the end of its useful life (and therefore would otherwise have been wasted).

3.5.31 In total, 7,085 portions of food were served and 2,175 people were directly engaged by the attending staff. Feedback from attendees was excellent with a 95 per cent approval rating for the events overall. The vast majority of people were happy to engage with staff about reducing their food waste, a problem most people recognised as something they need to address.

Food Waste prevention displays

3.5.32 In order to further engage with the local community, in 2013/14 the Waste Prevention team aimed to provide at least one display per Constituent Borough to promote the food waste prevention message. Following on from last year when in partnership with Healthy Planet, two food waste reduction displays were installed in their shops, eight more displays were set up in other places across the Constituent Boroughs. As a result, 10 displays were set up in north London.

Food Lovers' Cookbook

3.5.33 The third edition of the North London Food Lovers' Cookbook was produced in February 2014 containing recipes that had been collected over the summer from north London community groups and local residents at outdoor events. Recipes were showcased along with tips from recipe contributors on how they reduce their own food waste by utilising leftovers and ingredients approaching their use by dates.

3.5.34 The cookbook was launched on 27th February 2014 and is available for free download at http://www.wiseuptowaste.org.uk/docs/videolib/pj53399-nlwa-a5-cookbook-v8.pdf?sfvrsn=0.

End of year event

3.5.35 An end of year event was held on 27 February at Shoreditch Town Hall. The aim of the event was to showcase the success of NLWA's waste prevention programme whilst providing an entertaining and educational evening for people who attended. The event also doubled as the launch of the third edition of the North London Food Lovers' Cookbook and provided an opportunity for

participants to hear an outline of NLWA's waste prevention programme for the forthcoming year.

3.5.36 There were 60 attendees at the event including industry professionals; local and trade press representatives and north London community groups and residents who had been involved in the year's waste prevention outreach programme.

3.5.37 The event included speeches, a cookery challenge, hosted by chef Richard Fox who provided a demonstration cookery course for a three course meal made from leftovers in addition to the formal launch of the North London Food Lovers' Cookbook.

Food waste reduction activity in 2014/15

Outreach food waste events

3.5.38 Over the course of 2014/15, NLWA's Waste Prevention team delivered a programme of face-to-face outreach activities to encourage food waste reduction across north London and held information stands in a range of settings, such as festivals and fairs, in libraries, community centres, offices, universities and leisure centres. Officers promoted the five key food waste reduction behaviours:

a. plan meals;
b. write a shopping list;
c. understand 'best before' and 'use by' dates;
d. measure portions; and
e. store food well.

3.5.39 In addition, free tools were provided to help with food storage and correct measurement of portions, as well as a leaflet describing the five food waste reduction behaviours.

3.5.40 A total of 128 outreach events were delivered, directly engaging a total of 10,333 residents in line with the target set at the start of the programme. This included 781 conversations at 13 events at university campuses and at student halls. The table below shows a breakdown by Constituent Borough:

Constituent Borough	Total	Number of Conversations	Attendance
Barnet	20	1,787	7,270
Camden	31	1,675	8,859
Enfield	11	1,230	5,254
Hackney	14	1,155	4,720
Haringey	15	1,799	3,382
Islington	28	1,906	7,683
Waltham Forest	9	781	3,100
Total	**128**	**10,333**	**40,268**

Event feedback

3.5.41 Feedback from stall attendees was gained using a survey conducted six months after events were held to determine whether behaviours were sustained over the long term and provide more in-depth data on the impact of the information officers provide. 23 residents returned the feedback form and results revealed that:

a. 83 per cent (19 residents) felt they had an improved knowledge about food waste;

b. 83 per cent (19 residents) said they had thrown away less food than they used to;

c. 91 per cent (21 residents) said they were now saving money on food purchasing as a result;

d. 83 per cent (19 residents) said that they cascaded or were planning to cascade the advice they received to friends and family.

3.5.42 Rice scoops and spaghetti measurers were deemed the most useful tools offered to residents and more than half of respondents said that they still use them.

3.5.43 The above results demonstrate that the events provide a platform to residents to remove barriers they face in their effort to reducing waste. The majority of comments were encouraging and positive and there were no negative comments about the events or about the quality of the information received.

Work with the community

3.5.44 Waste prevention workshops were delivered to 38 local community groups, engaging 569 people. The sessions were attended by diverse audiences and the team feel confident that those who engaged in the sessions will be able to reduce their food waste at home.

3.5.45 Community groups that the team engaged include the following:

a. Edgware & Mill Hill Friendship Centre;

b. Age UK groups across the Constituent Boroughs;

c. Camden Carers Service;

d. Peel Institute;

e. North London Cares;

f. Ruth Winston Community Centre;

g. PACT Meal – Manor House Development Trust;

h. Redmond Community Centre;

i. Live Simply Group;

j. Montem Primary School (Parents' groups);

k. Islington Arts and Media school;

l. St Luke's over 55's group;

m. St Luke's family cookery school;

n. More Life;

o. Fairway Children's Centre;

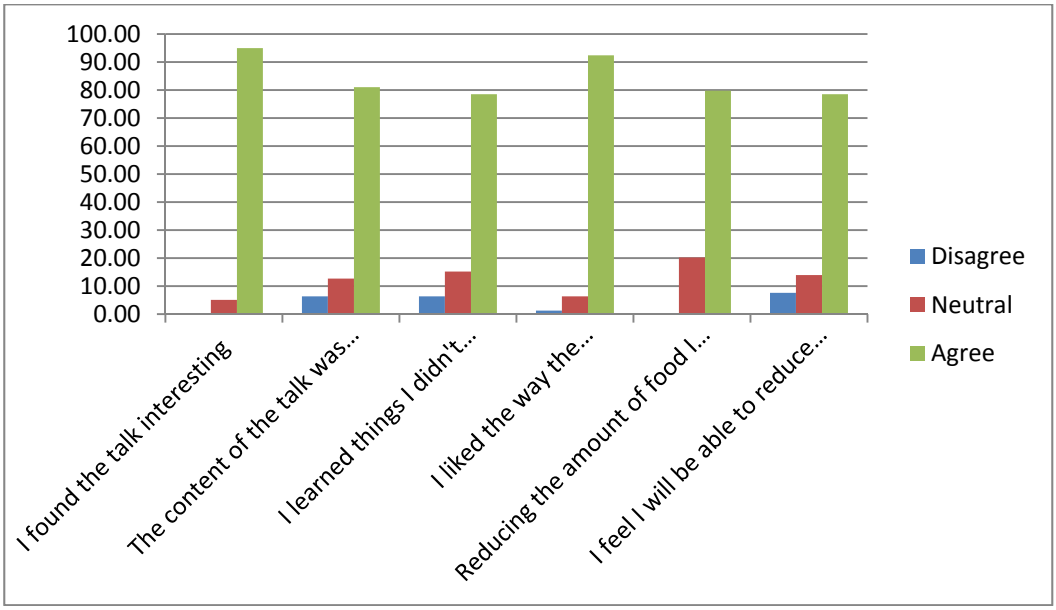
p. Bell Lane Primary School (Parents' groups);

q. Barnet Stroke Group; and

r. UCL Medical Department (Royal Free Hospital).

3.5.46 Feedback gained from 79 attendees was positive and found that **79 per cent** felt that they would be able to reduce their food waste as a result of the presentation. The vast majority found the talk interesting and claimed that it helped them learn new skills (**95 per cent** and **78 per cent** respectively).

3.5.47 The analysis of the feedback forms is graphically represented below:



Green Office Week

3.5.48 As part of national Green Office Week which took place between 12 and 16 May 2014, food waste events were delivered in Camden, Hackney, Islington and Waltham Forest with events in the other three Constituent Boroughs scheduled for later in the summer 2014. The events were delivered in Council buildings to engage with Council staff and promote the 'waste free lunch' message. In total Waste Prevention Officers engaged with 325 members of staff, with 96 per cent stating that following the tools and advice they received will help them to reduce their food waste. Correct portion sizes were the most popular topic of discussion.

Waste prevention displays

3.5.49 To further engage with the local community and promote the food waste reduction message, the Waste Prevention team set up waste prevention displays in libraries, food banks, community centres and empty shop windows. Over the course of 2014/15, 951 leaflets and portioning tools were taken by visitors. The table below shows the full list of display locations. There were no displays in Hackney or Haringey but NLWA will look for additional opportunities in 2015/16 in these boroughs:

Display Location	Borough
Eastern European Centre	Barnet
Abbey Community Centre	Camden
Holborn library	Camden
Highgate Library	Camden
Kilburn Library	Camden
Camden Town Library	Camden
Queen's Crescent Library	Camden
Kentish Town Library	Camden
North Enfield Food Bank,	Enfield
Edmonton Food Bank	Enfield
St Luke's Community Centre	Islington
Islington Central Library	Islington
Islington Food Bank	Islington
Hale End Library	Waltham Forest
Higham Hill Library	Waltham Forest
Lea Bridge Library	Waltham Forest
Leytonstone Library	Waltham Forest
North Chingford Library	Waltham Forest
Walthamstow Library	Waltham Forest
Wood Street Library	Waltham Forest

Food Waste Challenge

3.5.50 This year's food waste challenge ran from April 2014 until the end of February 2015. A total of 137 people signed up and participants recorded the amount of food they wasted and the amount of money they spent on food for two weeks. The first week involves participants measuring their food waste during a 'typical' week whilst the second week requires them to repeat the measurement process, having received a pack of advice, tips and tools to help them reduce their food waste.

3.5.51 Six residents returned results. Overall, results showed that 67 per cent of those that completed the challenge (4 residents) reduced the amount of money they spent on food purchases during the second week of the challenge by 39 per cent, and 80 per cent (5 residents) had reduced the amount of food waste they produced, on average by 20 per cent. Consequently, the average financial saving to participants was £42/week (through both less waste and more home cooking rather than takeaways); and the average food waste reduction was calculated as 610g/week[10].

[10] The average reduction weight would have been higher but for a water melon discarded during the second week in one of the six households that returned results.

Waste Less, Lunch Free events

3.5.52 During the summer of 2014, the 'Waste Less, Lunch Free' events were repeated as per 2013/14 activity and one event was held in each of the seven Constituent Boroughs.

3.5.53 There were three sample dishes at each event, and the total numbers of portions served and of conversations with residents about food waste reduction were recorded for each event.

Borough	Date	Venue	Number of Portions	Number of Conversations
Barnet	5 July	Barnet Church Yard	400	247
Camden	31 July	Swiss Cottage Open Space	900	300
Enfield	24 July	Palace Gardens Shopping Centre	1,100	377
Hackney	28 June	London Fields	900	400
Haringey	16 August	Tottenham Green	475	192
Islington	26 July	Islington Green	500	317
Waltham Forest	12 July	Walthamstow Town Square Gardens	755	230
Total			**5,030**	**2,063**

3.5.54 In total, 5,030 portions of food were served and 2,063 people were directly engaged by the attending staff.

3.5.55 Although events relied largely on passing footfall, they were promoted on the 'wise up to waste' website and via social media. BBC Radio London also approached NLWA for an interview and a NLWA Waste Prevention Officer had a twenty minute interview with the hosts of Sunday morning's Breakfast Show on 16 August 2014.

Interactive website game

3.5.56 In 2014, a digital media company was appointed to develop an interactive food waste game, to be uploaded onto the 'wise up to waste' website. The game takes the form of a quiz and is intended to be a fun but informative way to learn about the five habits that people can adopt to reduce the amount of food they throw away:

a. plan meals;

b. write a shopping list;

c. use perfect portions;

d. know your ('best before' and 'use by') dates; and

e. store food correctly so that it keeps fresher for longer.

3.5.57 The game quickly became one of the top viewed pages on the website with 104 unique views in February and then 209 in March (third most viewed page). The game was also shared by the Association of Cities and Regions for Sustainable Waste Management (ACR+) on the European Week for Waste Reduction webpage http://www.ewwr.eu/en/support/thematic-days-2014-stop-food-waste. ACR+ also promoted the game via posts on its Facebook page.

3.5.58 The end of year event for 2014/15 was held on 11 March to share information on best practice of waste prevention in urban areas rather than on food waste. The event included invited speakers from France, Catalonia and Belgium. 96 people attended including speakers, staff and exhibitors. The results of the event will assist in the development of NLWA's own monitoring approach for the next two-year prevention plan and the contacts made will assist with sharing best practice and approaches going forwards.

Furniture re-use

3.5.59 Since 2011, NLWA has been working with the London Community Resource Network (LCRN) in order to increase the level of re-use of bulky waste in north London and develop links between local re-use organisations and Housing Associations within the north London area region. Since the project started in 2011/12, the following has been achieved:

3.5.60 Initially, six options were developed and offered to the Housing Associations that they could choose from:

a. Promotion – Tenants were made aware of local re-use initiatives and organisations in their community through leaflets, posters, newsletter copy and local events;

b. Referrals – Tenants were offered vouchers to redeem against low cost furniture, appliances and/or paint;

c. Collections – Full or partial voids clearances where re-use and recycling was maximised;

d. Fit-Outs – Unfurnished properties were fitted out with various kitchen appliances to complete living arrangements using warranted, reused goods at the fraction of the cost of new items; and

e. Employment and Training – Re-use organisations provide standardised accredited volunteer training to support people in getting back to work.

3.5.61 To promote the above options, a number of activities took place:

a. a freelance journalist promoted the scheme in the national Housing Press and an article was published in Inside Housing in October 2013;

b. a contact list of Housing Associations who manage considerable housing stock in the north London area was devised, and for whom targeted promotion took place;

c. a breakfast briefing was hosted to introduce Housing Associations to the service opportunities of working with local re-use organisations; and

d. regular contact via face-to-face meetings with senior Housing Association officers took place for the promotion of the options.

3.5.62 All the above yielded the following results:

a. Origin Housing Association confirmed development of a full contract with Restore Community Projects to deliver voids clearances;

b. Notting Hill Housing Group confirmed development of a contract with Restore Community Projects to deliver voids clearances from their properties in Barnet.

c. new arrangements to supply paint were made between Forest Recycling Project and five other projects, namely Bright Sparks, Home Again, Petit Miracles, Healthy Planet and Splash Pillion;

d. Notting Hill Housing agreed a fit-out/referral service with London Re-use Network members across London as part of their welfare provision. In north London, this service is offered to residents in Barnet and Enfield where Notting Hill Housing operate;

e. Viridian has agreed a referral scheme and a fit out service with ReStore as part of their financial inclusion strategy. The service to Viridian residents includes the provision of "fit-out packs" at advantageous prices for their tenants and referral of residents in urgent need when they are moving into a property;

f. the Guinness Trust fit out service was agreed in September with a start date at the end of October;

g. two voids clearance trials took place between Restore and Camden Housing Association (clearance of five premises) and the North London Muslim Housing Association (clearance of three premises), even though formal agreements were not signed; and

h. Forest Recycling Project secured annual membership of paint re-use scheme with two housing associations, namely Friday Hill TMO (Waltham Forest) and Newlon Fusion (Haringey).

3.5.63 As part of an engagement initiative with the non-housing sector to maximise re-use, a mapping exercise and survey of organisations providing residential services other than Housing Associations was conducted. The survey included prisons, care homes, hostels and university halls of residence, all of which have not previously been approached by the re-use sector in London. Results of the survey concluded that there was a high level of potential diversion through re-use from university halls of residence, and as a result the following was achieved:

a. trials and on-going agreements from the non-Housing Association action plan took place via agreement with community re-use group CRISP, with 0.7 tonnes of material collected for re-use from UNITE Halls of Residence in a pilot. The pilot scheme was developed into a contract with CRISP, a registered supplier of UNITE;

b. nineteen collections were carried out from 11 separate halls. This resulted in 18.4 tonnes of material collected which yielded a total of 14.7 tonnes recycled and reused between January 2014 and April 2014. A further expansion of the service took place between April and October 2014 when eight more universities were engaged clearing halls of residence in NLWA's area of 44.9 tonnes amounting to a total of 59.6 tonnes; and

c. a ReLove event, in collaboration with CRISP, was held in William Wyatt Hall (Hackney) in January 2014 to promote re-use.

3.5.64 In 2012/13 110.34 tonnes were diverted, in 2013/14 295.6 tonnes and so far in 2014/15 a total of 324.6 tonnes of furniture waste was diverted for re-use.

Community exchange events

3.5.65 Since 2011 NLWA has been working in partnership with charities and local re-use organisations to deliver community exchange events, namely Give and Take Days across north London. Give and Take Days are free community exchange events where residents are invited to bring unwanted household items and take away something they need for free.

3.5.66 By encouraging re-use through Give and Take Days NLWA assists in preventing reusable material going for disposal and at the same time provide free goods to local residents. There is also the added benefit that residents, by attending information stands on the event days, develop a broader understanding about how to reduce the amount of waste they produce and increase their awareness of the financial and environmental benefits of such activities.

3.5.67 Three 'stuff for free' events were held in north London during 2012/13. These community exchange events encouraged re-use of large and small household items by giving local people the opportunity to donate unwanted items and/or collect donated items, all for free. A short film was created and shown on NLWA's 'wise up to waste' website to explain the concept so that future potential attendees and venues would know what to expect.

3.5.68 The events were widely promoted across north London with more than 900,000 'opportunities to see' via websites, social media, newsletters, business networks and community groups. A total of 1,280 people attended the events and 13.7 tonnes of waste were diverted from disposal as a result. In addition, 48 volunteer opportunities were created and 13 local organisations promoted their work by holding free activity and information stalls at the events. During the project period, a further 23.2 tonnes of books were collected for re-use bringing the total weight of household items redistributed to 37 tonnes.

3.5.69 Since June 2013 NLWA officers have worked with LCRN to support housing associations to run their own re-use sessions on an on-going basis. Give and Take Days took place, targeting housing association residents. These days were either free exchange events or 'yard sale' or jumble sale type activities. In 2013/14 the following results were achieved through working on re-use with housing associations:

a. 21 events were delivered, three in each of the Constituent Boroughs;

b. 979 north London residents attended the events;

c. 10.72 tonnes of material was diverted for re-use;

d. training to raise awareness of re-use was delivered on five occasions to 18 members of housing association staff in total; and

e. after receiving initial training, Sanctuary and Southern Housing Group led three Give and Take days in north London using their own staff.

3.5.70 Feedback from 225 resident attendees indicated that 81 per cent of the respondents thought that their knowledge of waste prevention and re-use had improved as a result of attending an event. Additionally, 94 per cent of respondents rated the event they attended either excellent or very good with 92 per cent willing to attend a Give and Take day in the future.

3.5.71 In 2014/15 NLWA worked in partnership with LCRN to run 14 Give and Take Days across north London (two events per Constituent Borough).

3.5.72 The events ran in two separate rounds, from October 2014 through to February 2015, attracting a total of 1,024 attendees who brought 21.9 tonnes of items and took away 14.7 tonnes for re-use. Give and Take Days also included the following free services:

a. a collection of bulky items arranged via email or telephone for a limited period prior to the Give and Take Days;

b. repair workshops for electrical items; and

c. awareness raising and information stalls.

3.5.73 Feedback from 195 attendees indicated that 76 per cent of the respondents thought that their knowledge of waste prevention and re-use had improved as a result of attending an event. Additionally, 82 per cent of respondents rated the event they attended either excellent or very good with 90 per cent willing to attend a Give and Take day in the future.

Textiles

Swishing

3.5.74 Since 2012 NLWA has been promoting textile re-use by promoting the concept of 'swishing' (clothes-swapping), encouraging residents and community groups to hold their own swishing parties, exchange clothes and accessories and save money at the same time. Swishing party packs are available for download from the website at http://www.wiseuptowaste.org.uk/reuse/clothes-and-shoes/swishing.

3.5.75 In 2012, promotion of the swishing pack took place with 118 printed copies distributed across north London. In 2013, apart from the promotion of the swishing guide, nine swishing events took place during the year. The events were attended by 432 people, donating 1,086 items (235.87kg) and taking away with them 933 items (131.23kg). Feedback from attendees was positive, with 94.7 per cent rating the event they attended as very good, excellent, or above excellent. Finally, during February 2015, a combined swishing advertisement and advertorial was placed in borough publications across north London to provide some basic information about swishing and promote NLWA's swishing party pack, as well as textiles recycling at Re-use and Recycling Centres. In 2014/15, 92 hard copies of the swishing guide were distributed directly.

London Textile Forum

3.5.76 NLWA is also a member of the London Textiles Forum (LTF). The aim of the LTF is to share good practice and subsequently increase the diversion of textiles waste from landfill and other final forms of disposal in London and assist in delivering the London Mayor's Municipal Waste Management and Business Strategies.

3.5.77 The LTF provides a platform for members to openly discuss issues surrounding textile recycling and re-use, and to collectively work towards a common goal of increasing textile re-use and recycling in the capital.

Waste Less, Save More: A Guide for North London Households

3.5.78 A new household reference guide was produced for north London residents. The aim of the guide was to highlight the need for waste reduction while

shopping, by adjusting purchasing habits, reusing, recycling and composting instead of disposing of items. It includes a range of advice and information about the benefits of and rationale behind sustainable living. Topics covered include food waste reduction; packaging; carrier bags; buying products as refills or concentrates; buying in bulk; repair and re-use.

3.5.79 The guide was launched via a press release, as well as being promoted via website and social media. It is available for download at www.wiseuptowaste.org.uk/waste-less

Plastic bag reduction

3.5.80 The government's plastic bag levy, due to commence from October 2015, will require large retailers to charge customers 5p for every single use plastic bag they distribute. In an effort to engage customers of smaller shops, NLWA officers devised a project in partnership with local retailers, whereby customers are offered a reusable bag, in exchange for a used plastic one.

3.5.81 A total of 25 small retailers from across north London were recruited to participate in the project; three businesses in each Constituent Borough (with the exception of Haringey, where a number of smaller business units have been enlisted). Business owners signed Service Level Agreements (SLAs) and were each delivered 250 'wise up to waste' branded reusable bags, along with information leaflets to hand to participating customers and a promotional sticker and poster.

3.5.82 The project is still underway as at April 2015 but so far a total of 5,450 plastic bags have been swapped with plastic bags by north London residents.

3.5.83 An evaluation questionnaire, completed by 21 participating businesses:

a. 86 per cent of respondents (18 businesses) felt customers responded positively to the project;

b. 62 per cent of respondents (13 businesses) said they saw customers returning with the reusable bag;

c. 52 per cent of respondents (11 businesses) said that the project had allowed them to save money as they gave out fewer plastic bags; and

d. 95 per cent of respondents (20 businesses) would be interested to participate in a similar project in future.

3.5.84 Feedback shows that the project has been received positively by local retailers but also assisted NLWA with building relationships with north London businesses and gaining their trust. This will enable assessment of the difficulties and barriers that small north London businesses face in relation to waste prevention and what support they may need in the future.

Waste Less, Save More: A Guide for North London Businesses

3.5.85 An updated version of NLWA's business guide was launched in 2014, designed in a similar style to the new guide for households. It is available for download from NLWA's 'wise up to waste' website at http://www.wiseuptowaste.org.uk/businesses/free-business-resources. The guide provides north London businesses with background on the benefits of managing waste efficiently as well as ideas to reduce waste. It also pinpoints localised sources of free advice and information available to north London businesses.

Packaging

3.5.86 In January 2013, NLWA's Chair wrote to 31 large retailers and suppliers, asking them to look at ways they might reduce their packaging waste. The letter emphasised the benefits of reducing packaging, highlighted the progress made under the Courtauld Commitment and offered support. The Courtauld Commitment is a voluntary agreement aimed at improving resource efficiency and reducing waste within the UK grocery sector.

3.5.87 The agreement is funded by Westminster, Scottish, Welsh and Northern Ireland governments and delivered by the Waste and Resources Action Programme (WRAP). It supports the UK governments' policy goal of a 'zero waste economy' and climate change objectives to reduce greenhouse gas emissions.

3.5.88 Five positive responses were received with details of actions companies had taken. To follow-up, in April 2013, all 31 companies were contacted again, either as a prompt, or to thank them for their response and action taken. As a result of this contact, 10 more companies responded with details of actions they have taken.

Paper reduction

3.5.89 A 'say NO to junk mail' action pack was produced which can be accessed here[11]. It includes information and advice on how residents can reduce the amount of junk mail they receive in order to reduce waste paper.

3.5.90 Since 2012, a series of advertisements are being developed and displayed in north London council magazines and newspapers to promote ways residents can reduce the amount of unwanted mail they receive. The advertisements highlight 'five easy ways' to reduce junk mail and explain how anyone can obtain a 'no junk mail' information pack and letterbox sticker.

3.5.91 In 2012/13 a total of 1,019 packs and 1,219 'no junk mail' letterbox stickers were requested from NLWA's website. During the same period 3,882 residents registered with the Mailing Preference Service (MPS) to stop their members from sending unwanted mail, an 89 per cent increase compared to previous months.

3.5.92 In 2013/14, 10,117 Mail Preference Service (MPS) registrations were made across all Constituent Boroughs, allowing residents to opt out of receiving unwanted mail. In addition 1,041 'no junk mail' packs were requested via the online form.

3.5.93 During 2014/15, 8,425 MPS registrations were made across all Constituent Boroughs. The 'no junk mail' packs continued to be made available online and for 2015/16 they will also be available in printed form.

Waste education

3.5.94 An intensive waste education project called 'watch your waste' was delivered in one primary school in each of the seven Constituent Boroughs between September 2012 and January 2013. Each school received training for teaching and non-teaching staff, whole school assemblies, several hands-on interactive workshops for pupils, and access to a project-specific web page/information-sharing portal.

[11] Full address: http://www.wiseuptowaste.org.uk/docs/hwrc-leaflet/say-no-to-junk-mail-action-pack.pdf?sfvrsn=0

3.5.95 The project was found to have a positive impact on pupil and staff behaviour, and ultimately on the amount of waste produced by the participating schools. Questionnaires were completed before and after the sessions, and showed that pupils' understanding of the waste hierarchy had increased by 48 per cent, with the amount of re-usable, recyclable or compostable waste in school waste bins decreasing on average by 13 per cent, and feedback from teachers was very positive with 9 out of 10 teachers rating the project as a positive learning experience and having fulfilled objectives. Children were asked if they now do anything differently at home as a result of the project and subsequent feedback indicated that the waste prevention messages were being turned into action in the pupils' homes.

3.5.96 In 2014/15, over the autumn term, two schools per Constituent Borough participated in NLWA's intensive education programme. Schools were offered a package of sessions by the local environmental charity ecoACTIVE, who NLWA contracted to deliver the work, on the topics of food waste reduction, textiles re-use/recycling and waste electrical and electronic equipment re-use/recycling. Sessions included assemblies, waste audits, school 'swishing' (or clothes swapping) events and parent coffee mornings on the topic of food waste reduction.

3.5.97 The sessions were developed in collaboration with lead teachers in order to meet the needs of each school. As part of the project, schools were offered a resource pack which includes customised information to suit the needs of the north London schools. The charity ecoACTIVE also engaged the wider school community of parents and carers through existing coffee morning events, or playground 'road-shows'.

3.5.98 Overall, 1,893 pupils were directly engaged along with 87 members of school staff at 14 school meetings and two staff training workshops. 73 pupil workshops and 15 hosted assemblies were delivered by ecoACTIVE. With regards to parent engagement, 253 parents were engaged in waste prevention discussion at six parent events.

3.5.99 The project was qualitatively evaluated using a quiz, given to both staff and pupils before, and again, after the sessions. Results showed that engagement activities had improved pupils' understanding of the need to reduce waste, as well as knowledge about possible ways to achieve this. Furthermore, school staff felt better equipped to prevent waste. These key findings are listed below:

a. 40 per cent more pupils were able to suggest 2 or more ways to prevent waste at school;

b. 36 per cent of pupils were more able to explain a problem caused by waste;

c. 42 per cent more staff were able to discuss waste prevention efforts at school; and

d. 40 per cent more staff reported being aware of waste prevention in the curriculum.

3.5.100 Results demonstrate that as a result of the project, pupils are more aware of ways to prevent waste and schools are now better equipped to provide waste prevention information to the pupils and have greater awareness of how practically to prevent or reduce their waste and the support available to them. Parents and carers are also better informed of the ways they can prevent or reduce waste at home.

Real Nappies

3.5.101 NLWA pays a subsidy of up to £54.15 per baby to parents in north London who use reusable (real) nappies rather than disposable ones. The level of subsidy reflects the saving to NLWA of not having to dispose of the babies' disposable nappies. Two systems are in operation:

a. a voucher system where parents receive a voucher that can be redeemed against the cost of a reusable nappy laundry service; and

b. a cash back system where parents buy the nappies and then claim back up to £54.15 retrospectively.

3.5.102 As data demonstrates, north London parents are fairly consistently receptive to the idea of using real nappies.

Year	Total children/vouchers
2012/13	860
2013/14	770
2014/15	823

3.5.103 Since 2007 when the scheme first came into effect, 7,373 vouchers and cash back claims have been redeemed and more than 3,000 tonnes of nappy waste have been avoided.

3.5.104 NLWA has won a number of awards for its waste prevention work:

a. 2012 Best Waste Minimisation Project (finalist);

b. 2012 Bronze Zero Waste Award;

c. 2013 Gold Zero Waste Award;

d. 2013 LARAC Best Waste Minimisation Project (finalist);

e. 2013 CIWM Best Waste Minimisation Programme (finalist);

f. 2013 Awards for Excellence, Best Waste Minimisation Initiative; and

g. 2014 LARAC Best Waste Minimisation Programme.

3.5.105 For 2015/16 the waste prevention activity will continue with a similar programme as for 2014/15 as 2015/16 is the second year of the two-year 2014-16 Waste Prevention Plan. The priority waste streams therefore remain the same and the level of activity is similar. Additional activities will be added if they add value or provide a different approach which has merit.

3.6 Joint recycling communications campaign

3.6.1 The sections below describe NLWA's activity and results for each targeted waste stream for the last three years. The activity is being described in line with the waste hierarchy as described in the revised Waste Framework Directive[12].

"Recycling (turning waste into a new substance or product, including composting)"

[12] Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/218586/l_31220081122en00030030.pdf.

3.6.2 Since 2012/13 NLWA has delivered joint recycling communications campaigns to support borough communications work to increase recycling, increasing the visibility of the benefits of recycling to north Londoners.

3.6.3 Communications campaigns at the NLWA level (as opposed to Constituent Borough level) can add value to boroughs' service-related communications. As an example, through the use of cross-borough transport and cinema advertising NLWA can add value, because NLWA is able to use media that individual boroughs could not justify on the basis of being too expensive and covering too high a proportion of non-borough residents. For example, an individual borough may not be able to justify advertising on a bus which is routed through three north London boroughs including its own on the grounds that it is not good value for money, whilst NLWA may be able to justify this cost because its area covers all three boroughs involved.

3.6.4 In other cases the cost of production of a promotional approach may be too great for a borough to warrant but may be justifiable by NLWA, e.g. the cost of producing a cinema advert that appears in only one or two cinemas in a borough may not be justifiable, but if NLWA produces the advert which is then shown at multiple cinemas throughout the seven boroughs then the cost of production relative to the impact of the advert (simply because it is shown in more places) may be justifiable. Animated videos produced by NLWA can also be used on the NLWA and Constituent Borough websites.

3.6.5 Continuing outreach work (attending community events and talking to people face to face), is also potentially a valuable activity going forwards, particularly if it can be delivered alongside NLWA's existing waste prevention activity and so bring economies in commissioning and delivery.

3.6.6 The key aim of NLWA's recycling campaigns has been to support the Constituent Boroughs' and NLWA's work towards achieving a 50 per cent recycling rate by 2020, by:

a. increasing the amount and accessibility of practical information and advice about recycling that is available to residents;

b. raising awareness of the waste challenges facing north London and how recycling will help;

c. demonstrating how easy recycling is and the all-round benefits of doing it for individuals, communities and councils (the financial benefits of recycling were in particular highlighted);

d. educating residents about what their recyclables are made into and where this happens;

e. encouraging residents to think positively about recycling across the boroughs and to take pride in recycling in their local area; and

f. mobilising residents of all seven boroughs who are trying (but finding it difficult) to recycle more, while also trying to encourage those who don't recycle very reliably to become more reliable recyclers.

3.6.7 The two-year campaign focussed on dry materials recycling and particularly kerbside services, rather than Re-use and Recycling Centres (RRCs).

3.6.8 In designing the campaign it was recognised that boroughs are best placed to deliver service specific communications messages, but that a NLWA-wide campaign could support borough activity and may be able to use

communications channels that individual boroughs may not be able to justify e.g. cinema or bus advertising.

3.6.9 The communications campaign delivered the following outputs:

Campaign Output	
2012/13	**2013/14**
Development of a shared partnership campaign concept tying information on recycling in north London together Campaign message/theme: **"R£CYCLE, CAN YOU AFFORD NOT TO?**"	Development of a new campaign creative and advertising offering practical advice on recycling, linked to case studies, recognition of locality and civic pride (this was a key finding from the segmentation research) Borough specific branding was included on advertising that had not been included in 2013/14 Campaign message/theme: **"R£CYCLE HERE – BENEFIT HERE"** Supported by advertising tips on 'how to' recycle
A new 'NLWA' website 'wise up to waste' acting as a centralised online point of access to information about recycling in north London, that also closely links to and interacts with borough council websites for local information on recycling	An updated campaign web presence Including 'where does your recycling go to?'
A three-month promotional campaign across a wide variety of media to support the launch of the web presence and promote recycling generally across the north London boroughs.	A "pulsed" communications campaign including events, media coverage and advertising focusing on overcoming the following barriers to improving recycling for recyclers in north London, providing information about: o Setting up effective recycling systems in the home o What can and can't be recycled (with a focus on plastics) o Maximising paper and card recycling
	A media relations campaign promoting the benefits of recycling for people and communities, and offering practical advice on recycling
Launch of social media platforms as elements of the campaign	An ongoing social media campaign offering practical advice on recycling

Target audience

2012/13

3.6.10 This year introduced the campaign and the need to recycle to north Londoners from a broad spectrum of backgrounds via a high visibility area-wide communications campaign that was designed to appeal to all north Londoners regardless of any segmentation.

2013/14

3.6.11 In 2013/14 and as a result of some 2012/13 research carried out by MEL Research, NLWA delivered a more segmented approach to communication with a programme of communications activity targeting two groups of 'committed recycler' levels, specifically the recyclers segmented as the 'unreliable' and 'trying their best' groups. And whilst NLWA was doing this, the Constituent Boroughs focussed their attention on the 'aware but inactive' and the 'contemplated but not engaged' groups because the communications channels available to the Constituent Boroughs were more suited to these audiences.

3.6.12 Both of the groups targeted by NLWA are characterised by the fact that they are engaged with recycling but could do more. Potentially they lack systems within the home to best organise their household recycling behaviour to maximum effect. They may also be unsure about the recyclability of particular materials and seek peer endorsement for their efforts.

Implementation approach

2012/13

3.6.13 The 2012/13 campaign was implemented under a 'big bang' approach that created a 'critical mass' of activity over a three month period, running from the launch in January 2013 to March 2013.

2013/14

3.6.14 The 2013/14 campaign built upon recommendations from MEL and used a phased, "pulsed" approach to provide smaller, but more intense, regular peaks of activity throughout the financial year, focusing on different messages and issues related to recycling in north London each time, all aimed at our target group of recyclers. The themes of practical advice and civic pride remained consistent across all pulses however.

3.6.15 Most pulsed activities consisted of public events, advertising, and press and media activity.

a. Pulse one – Launch and focus on recycling systems in the home – Recycle Week 2013 – June 2013

The first peak of activity in the campaign took place in June 2013, when the campaign was launched. A focus of communication was on how to create a good recycling "system" in busy north London homes. Freebies to help residents create effective recycling storage systems were handed out at events, and were available by request online.

b. Pulse two – Focus on range of materials you can recycle, including plastics – October 2013

This peak of activity coincided with the completion of LB Barnet's change from a 'dry' recycling collection service that used 55-litre boxes

that residents had to carry to the kerbside, to a service using 240-litre wheeled bins, which also meant that all boroughs in north London were operating a similar kerbside recycling collection system. Particular focus was placed on the range of materials that could be recycled, especially plastic items, where there can be confusion amongst residents as to which items other than bottles can be recycled.

c. Pulse three – Focus on paper and card – December 2013

This peak of activity coincided with the build up to Christmas when many residents generate higher volumes of card and paper waste, and focused on reminding residents that they can recycle a wide range of paper and card items.

d. Campaign tactics – activities and channels

- *Bus campaign:*

  2012/13 – Two week campaign – bus rear and interior panels

  2013/14 – Bus rears only – 70 to 100 'sites' approx per pulse one and two

- *Adshel campaign:*

  2012/13 – Two week campaign

  2013/14 – 72 sites in pulse two, 50 sites in pulse three

- *Station advertising site campaign:*

  2012/13 – National Rail and London Underground stations

  2013/14 – 45 sites at National Rail and London Underground stations approx per pulse

- *Newspaper print advertising:*

  2012/13 – Six week local press campaign plus advertising in one issue of each borough magazine

  2013/14 – One week campaign in pulse one

- *Road-shows:*

  2012/13 - a series of 14 road-shows took place in two areas of heavy footfall in each borough such as community venues, schools, shopping centres, local fairs and festivals, and borough council events.

  2013/14 - 21 road-shows were delivered at existing community and council events and fairs – one event per pulse of activity.

- *Cinema advertising using an animated information video:*

  2012/13 – 40 second animated video developed

  April 2013 - two week campaign of over 1,500 showings

2013/14 – updated 40 second animated information video

December 2013 - two week campaign showing the updated information video which reached 125,000 people ('admissions').

A new animation focussed on contamination was also produced and shown for a week

- *Schools campaign*

  2012/13 - 14 Recyclotory Laboratory Shows in March 2013

  2013/14 21 Recyclotory Laboratory Shows in February 2014

- *Targeted ('amplification') activity: (2013/14 only)*

  A schools plastics recycling competition tied in with pulse two of the campaign. The activity included weekly self-reporting, spot-checks, a schools' league table on the contractor's website showing which schools were recycling most plastic, road-shows (at schools, plus at local community events), an award ceremony, certificates and prizes and videoing of the winning school's award ceremony for further use on the 'wise up to waste' website. 16 schools took part in this 'Powerful Plastics' project to educate pupils about plastics recycling.

- *Media relations campaign and social media activity*

One of the community road-show events in 2013/14

Research

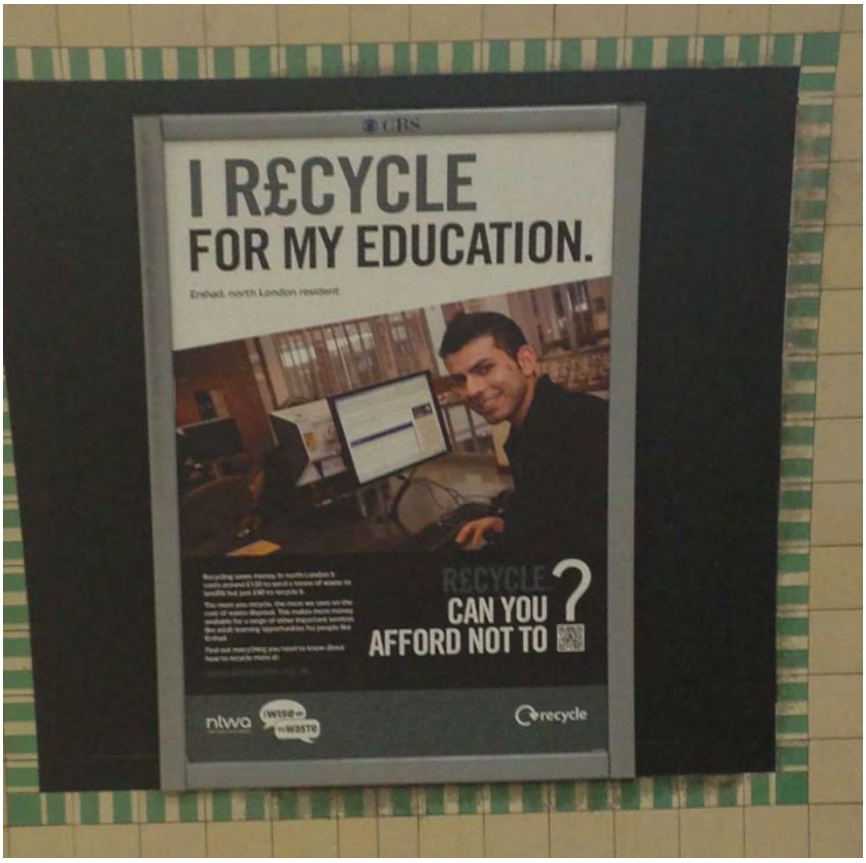
3.6.16 Both years of the campaign included a research element with a significant proportion of the 2012/13 budget allocated to a piece of qualitative research to assist in communications planning for 2013/14, on the basis of which the 2013/14 campaign targeted specific segments of the north London population as outlined above.

3.6.17 In 2013/14 socio-demographic (ACORN) data was purchased from CACI for further targeting of the next campaign. Other research was undertaken into RRC users and assessing the composition of residual waste containers at RRCs to assist in developing future communications to address RRC recycling as well.

3.6.18 Both years of the campaign also included creative concept testing to test the designs and messages that would be used in the campaign.

3.6.19 In 2012/13 the 'Recycle, can you afford not to?' concept and creative work was qualitatively tested with a focus group in Camden in December 2012. Focus group participants were recruited via existing waste and recycling social media network groups active in north London; accordingly there was an over-representation of informed recyclers in the focus group. Two concepts that were both used in the campaign were tested, with the testing looking at the adverts component by component, in order to assess if people understood the context and messages of the adverts. This 'build up' approach meant that the strapline, image and other elements were tested individually to build up to the final concepts that were used.

3.6.20 The exercise showed that the approach to the advertising that was proposed had merit and was likely to have a positive motivating impact on people. The group of participants were all well-informed about recycling, but all agreed that they were not aware of the scale of the financial impacts associated with recycling. The overwhelming consensus was that it was appropriate to use the approach proposed as the principal motivating factor to increase peoples' attitudes and behaviour towards waste and recycling. Money was cited as the one thing that most people are concerned about. No one questioned the specific positive impacts on other council services that might result as recycling rates increased. An example of one of the posters published is below:



3.6.21 For 2013/14 NLWA commissioned testing of two different creative concepts, both of which were designed to target the audiences identified in the segmentation research - namely those recyclers who are either 'intermittent' or 'trying their best' but who could recycle a lot more, more regularly. Alternative concepts were tested using a quantitative approach and an online survey with a sample of some 670 adults during June/July 2013 - nearly 100 respondents per borough. The sample was representative of adults in the UK and quotas were put in place for gender, age and postcode to ensure representation across the seven boroughs.

3.6.22 The design below was selected because while maintaining the link to financial benefits used in the previous campaign, it focussed more strongly and directly on community and civic pride, and the benefits that recycling can bring to local communities as a result of money saved on waste disposal. The 'benefits' that were shown changed throughout the campaign and included sports and activities centres, parks and play areas, youth services and adult learning and training as well as the more general benefits to 'your community'. The concept also introduced a top hint or tip to enable recycling and to act as a 'call to action'.

Campaign impact

3.6.23 A review of the two years of joint recycling communications campaigns was carried out with borough officers at the end of the 2013/14 campaign to assess the value. Independent research carried out with residents showed that awareness of the 2012/13 campaign was good, and that there was awareness of the 2013/14 campaign but that it had not built upon the 2012/13 level of awareness as much as had been anticipated.

3.6.24 The overall recycling rate for north London increased from 30 per cent in 2011/12 before the start of the campaign to 32 per cent in 2013/14 (later verified at 33 per cent) at the end of the campaign, although it is recognised that this increase is attributable to a number of factors, not least borough activity (collection services and promotion) as well as operational improvements such as the improvement in Re-use and Recycling Centre recycling rates and bulky waste recycling as well as the joint recycling communications campaign.

3.6.25 At the end of the 2013/14 campaign, borough officers in general reported that the joint communications activity was valued. Boroughs supported the continuation of the NLWA campaign to help achieve cross-borough improvements in recycling, being the principal communications activity in the NLWA area seeking to motivate existing recyclers to do more. Borough campaigns at the time were more targeted at encouraging non-recyclers to take part.

2014 onwards

3.6.26 In 2014/15 a different approach to securing high-quality support for the development of imaginative and effective joint communications was developed. It was also agreed that a long-term agency contract for the campaign would work better than an annual tendering and contract process as in the past, because a longer-term contract with a similar annual budget could be more attractive to

bidders and could also enable agencies to develop a campaign to build brand recognition over three years.

3.6.27 Because of the scale of the proposed work programme and the possibility of attracting creative companies that might not ordinarily work within the waste management sector, NLWA decided to appoint an external campaign adviser to assist in procuring the creative agency to develop and deliver the new three-year joint recycling communications campaign. NLWA has now appointed Ricardo AEA as its campaign adviser. It will be Ricardo AEA's objective to help NLWA with market and procurement advice and to write a specification that will attract a consumer-facing creative agency, which has experience of working with household brands, and a track record in behavioural change, to respond to the campaign tender. Ricardo AEA will also assist with evaluation of tenders received.

3.6.28 This work will be undertaken in partnership with the Constituent Boroughs, and regular progress updates will be provided to the NLWA Members' Recycling Working Group.

Schools recycling

3.6.29 The focus of the schools work was consistent with the 2013/14 campaign to promote dry kerbside recycling and the key themes of the range of materials you can recycle, including plastic, paper and card and recycling systems in the home. The work took place in primary schools, in partnership with ecoACTIVE who were successful in bidding competitively for the work.

3.6.30 By the time the ecoACTIVE contract is completed in 2015/16, ecoACTIVE will have visited 28 schools (4 in each borough) to promote recycling to parents and guardians through coffee mornings and family recycling competitions, and to children through assemblies and follow up sessions.

Recycling Outreach Activity

3.6.31 As noted above, outreach activity involving face-to-face communication with residents took place as part of both the 2012/13 and 2013/14 joint recycling communications campaigns:

- 2012/13 – a series of 14 road-shows took place in two areas of heavy footfall in each borough such as community venues, schools, shopping centres, local fairs and festivals, and borough council events; and
- 2013/14 – 21 road-shows were delivered at existing community and council events and fairs – one event per pulse of different communication activity.

3.6.32 All these events involved engaging with householders at an interactive information stall at community events, providing the advice, inspiration, tools and information to help residents recycle more at home. The road-shows were comprised of a fun, attractive and interactive mobile information stall situated at community events and in public spaces which were identified and selected for a high footfall of local people.

3.6.33 Each road-show was staffed by two trained recycling advisers, who engaged the public on recycling more at home, with particular reference to the theme of the road-show series. In 2013/14 the first series of road-shows focussed on 'creating a recycling system in the home.' The road-show display identified common materials to be recycled and featured a two-panel game which showed a cross-section graphic of a typical household layout. Passers- by were invited to stick icons of recyclable materials and recycling bins around the property in

the best order. The idea was to encourage residents to consider where recycling items are often produced at home, and to start conversations around the habit of recycling. The team also had supporting 'wise up to waste' leaflets and stickers to give to residents to take away.

3.6.34 The second series of road-shows focussed on 'recycling more materials more often', and had new display panels featuring a yes/no game. The aim of this game was to highlight the range of materials which can be recycled in north London, and encourage residents to think about recycling more of the less obvious items. The game again featured stick-on icons, which residents were encouraged to place under either the 'yes' or 'no' headings. In addition to the leaflets and stickers, the recycling advisers also had a supply of pens printed with the phrase 'I used to be a water bottle' to give away to residents.

3.6.35 The third series of road-shows focussed on recycling more at Christmas, and into the New Year. Two final specific display panels were produced, which showed typical seasonal and festive materials which can be recycled (wrapping paper, Christmas cards etc). In addition to the leaflets, stickers and pens the team also had a supply of reusable cotton tote bags to give away, which were printed with the 'wise up to waste' branding and the phrase 'A bag is for life, not just for Christmas.'

Christmas grotto, Sunshine Garden Centre, Haringey. 16 December 2013

3.6.36 In total 1,192 north London residents were engaged in recycling more at home over the 21 2013/14 recycling road-shows. The contact rate was unevenly spread across the series however, with the summer events being significantly busier than those during the autumn. Over the series 78 residents signed up to receive NLWA's e-newsletter.

3.6.37 On 7 November 2013, NLWA won the EPIC Media Communications Campaign Award at the Chartered Institution of Wastes Management Awards for Environmental Excellence 2013 for the joint recycling communications campaign.

3.6.38 For 2015/16 the campaign approach will be developed by the appointed creative agency outlined in paragraphs 3.6.26 to 3.6.28. NLWA is currently working with the external campaign adviser to assist in procuring the creative agency to develop and deliver the new three-year joint recycling communications campaign

Composting

Compost bin giveaway events

3.6.39 To encourage home composting, a series of nine compost bin giveaway events were held in 2012/13 targeting areas identified as having a previously low take-up of compost bins. With a compost bin, residents can use their own food and garden waste to make their own free compost.

3.6.40 489 compost bins were distributed at the events and the initiative received positive feedback from the public who felt that they were provided with sufficient information and advice to start composting at home. Furthermore, 17 tonnes of peat-free compost that had been made locally from north Londoners' food and garden waste by NLWA's contractor LondonWaste Ltd, was collected for free by north London residents at these events.

3.6.41 In Hackney, due to the large proportion of people living in homes without gardens, a community based composting scheme was implemented at the Samuel Lewis Estate.

3.6.42 In 2013/14 two compost bin giveaway events were delivered in Barnet and Waltham Forest, giving residents the opportunity to collect a free compost bin and receive free compost made from food and garden waste collected in north London. A total of 30 tonnes of compost was provided by LondonWaste Ltd and 92 compost bins were distributed to residents. All attendees provided feedback and said that they were either satisfied or very satisfied with the registration process for receiving a new compost bin.

Schools Composting Performances

3.6.43 A programme of composting education activity was delivered from 2012/13 to 2014/15 to mark national Compost Awareness Week in May. The theatre company Circus Takeaway was commissioned to deliver performances of its composting education show in 14 north London primary schools (two per Constituent Borough). The show was also advertised to parents, who were welcome to attend. Performances were followed by an immediate feedback questionnaire but half of the participating schools also provided unprompted feedback. Head teachers gave the show glowing praise for its ability to communicate composting messages to young pupils in a fun, engaging and memorable way.

Waste Electrical and Electronic Equipment (WEEE)

3.6.44 Under European legislation[13] producers and importers of electrical and electronic equipment (EEE) must pay for the re-use, recycling or disposal of waste electrical and electronic equipment (WEEE). A key part of how this has been transposed into national legislation is the establishment of a number of producer compliance schemes (PCSs) that have signed up various producers and importers of EEE on the basis that the PCS will make all necessary arrangements to discharge those companies of their obligations under European legislation in exchange for a fee.

[13] WEEE Directive (Directive 2002/96/EC) and then WEEE Directive 2012/19/EU.

3.6.45 NLWA's selected producer compliance scheme (DHL Envirosolutions), has provided and promoted WEEE collection services to north London residents since 2012 in order to achieve an increase in WEEE recycling tonnages in line with the WEEE Directives and the London Mayor's Municipal Waste Management Strategy.[14]

3.6.46 Under NLWA's contract with DHL there are physical treatment services that are set out later in this report. There are also promotional, awareness raising campaigns; these are set out immediately below.

Activity in 2012[15]

3.6.47 In 2012 preparatory work was carried out to enable more material to be collected and reused in the future, with the following results:

a. a competition was held to encourage residents to learn more about recycling WEEE and 378 entries were received;

b. 33 outdoor events were delivered where DHL or NLWA officers spoke directly to 4,300 residents about the importance of WEEE;

c. both DHL Envirosolutions and NLWA were partners in the innovative '1,001 Lights' exhibition which featured pioneering video artist David Hall who assembled 1,001 televisions in one space. The televisions were provided by DHL Envirosolutions and the exhibition took place during the digital switchover to highlight the importance of recycling old televisions; and

d. promotion of the pan-London '123 Recycle for Free' business WEEE collection scheme which collected 37.1 tonnes of WEEE from north London businesses (33 per cent of the London total).

Activity in 2013

3.6.48 The main aspects of the programme were:

a. 15 events were held where WEEE recycling was promoted;

b. a competition was run, encouraging residents to learn more about recycling WEEE;

c. DHL also held a stand at The Gadget Show where officers gained 2,000 contacts, spoke directly to 1,000 visitors and achieved positive publicity in trade press and social media; and

d. the '123 Recycle for Free' service continued to be promoted to households as well as to businesses.

Activity in 2014

3.6.49 NLWA and DHL worked with Wastebuster, a national environmental education programme, at education centres and an online recycling reward programme aiming to engage, inspire and empower children to make sustainable lifestyle choices. Through educational work that Wastebuster delivered to north London schools, 215 resources were downloaded by north London schools since January. Wastebuster also launched a promotional campaign to encourage more resource downloads and to promote recycling collections as well as a

[14] Available at https://www.london.gov.uk/sites/default/files/Municipal%20Waste_FINAL.pdf

[15] DHL reports by calendar year to NLWA so the outputs and impact of this programme are reported in this way too

competition to win a school assembly and a digital camera for the school that collected the most WEEE. Furthermore, 14 schools booked collections for WEEE and textiles.

3.6.50 DHL supported NLWA's intensive education project by funding WEEE sessions and providing the WEEE Education Pack to schools and also supported the NLWA's Give and Take Days. At the events, officers provided information to the public about electrical re-use and recycling and also supported the electrical repair workshops that took place, with DHL paying for a PAT tester to work at the event.

3.6.51 The end of September 2014 saw a targeted leaflet drop to the areas around the three lowest performing banks in each borough. Results show that there was a tonnage increase at a number of the banks, with Barnet, Camden, Hackney and Haringey being the boroughs where the difference was most noticeable.

3.6.52 Apart from outreach and educational interventions, a number of other operational activities took place with regards to re-use of WEEE.

3.6.53 Restore Community Projects received their Accredited Authorised Treatment Facility (AATF) registration from the Environment Agency, allowing them to take electrical items for re-use from Re-use and Recycling Centres.

3.6.54 Staff training was provided to help WEEE segregation at Re-use and Recycling Centres, informing site staff of what happens to the WEEE that is collected on site, and why it is important to properly segregate items.

4 Waste Services

4.1 Introduction

4.1.1 NLWA has been actively engaged in the recycling of separately collected wastes for many years, with a long history of recycling metals (around 45 years) and aggregates from the current energy-from-waste facility.

4.1.2 In 2001 NLWA and the Constituent Boroughs agreed a set of aims and objectives for the management of municipal wastes, and then went on to develop the North London Joint Waste Strategy (NLJWS).

Aims

- To promote and implement sustainable municipal wastes management policies in North London
- To minimise the overall environmental impacts of wastes management
- To engage residents, community groups, local business and any other interested parties in the development and implementation of the above policies
- To provide customer-focused, best value services

Objectives

- To minimise the amount of municipal wastes arising
- To maximise recycling and composting rates
- To reduce greenhouse gases by disposing of less organic waste in landfill sites
- To co-ordinate and continuously improve municipal wastes minimisation and management policies in North London
- To manage municipal wastes in the most environmentally benign and economically efficient ways possible through the provision and co-ordination of appropriate wastes management facilities and services
- To ensure that services and information are fully accessible to all members of the community
- To maximise all opportunities for local regeneration
- To ensure an equitable distribution of costs, so that those who produce or manage the waste pay for it

North London Joint Waste Strategy's agreed Aims and Objectives

4.1.3 NLWA first started providing organic waste treatment services to Constituent Boroughs in 2005, having lead a bid to the London Recycling Fund that secured a £4m grant, most of which was to assist funding borough collection services and the new composting facility at Edmonton. This composting facility was the first in the country to gain PAS100 accreditation for the quality of its compost.

4.1.4 Full year tonnages have risen from nearly 26,000 tonnes in 2006/07 to over 40,000 tonnes in 2013/14. In 2014/15 this dropped back to 32,000 as noted below.

4.1.5 The next year NLWA started providing Constituent Boroughs a recycling treatment service for their mixed paper, cardboard, bottle and container wastes. Full-year tonnages have risen from some 22,000 tonnes to almost 117,000 tonnes in 2014/15.

4.1.6 Then from 2007 NLWA started providing recycling services for waste electrical and electronic equipment (WEEE), and from 2008 it started arranging the composting of separately collected green garden waste (principally from RRCs).

4.1.7 The next significant change was in 2012 when NLWA took over the management of most of the RRCs in its area after a change in law. The recycling rates at the NLWA RRCs are now almost 72 per cent on average.

4.1.8 The above matters are set out in greater detail below.

4.2 Re-use and Recycling Centres

4.2.1 In the north London area, NLWA and the Constituent Boroughs provide nine RRCs. All residents in north London area have access to all of the RRCs. The level of provision has been approximately 1 site per 100,000 people since the North London Joint Waste Strategy (NLJWS)was implemented.

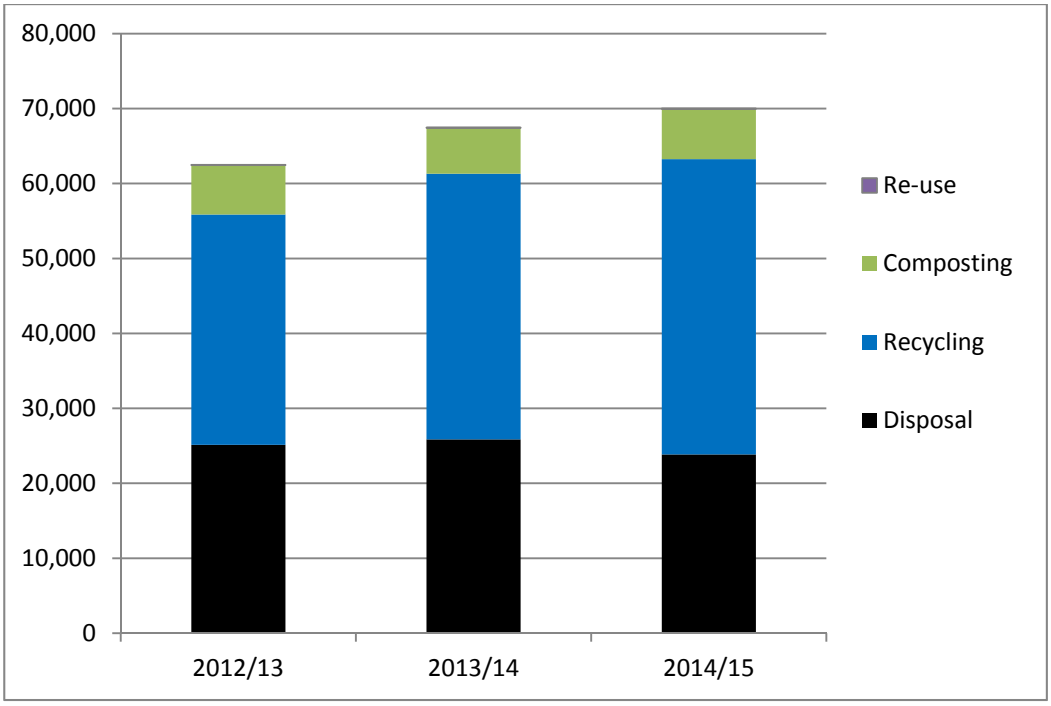
4.2.2 In 2010 NLWA adopted a policy to aim to have 95 per cent of residents within 2 miles (measured in a straight line) of a RRC as it seeks greater coverage and improved services. At present an estimated 76 per cent of residents fall within this distance.

4.2.3 The NLJWS sets a target to achieve 60 per cent recycling and composting diversion rates at all north London RRCs by 2015. This target has been reached and exceeded. The table below shows the improvement in performance of the RRCs over the past three years.

Recycling and composting rates at north London Re-use and Recycling Centres

	2012/13	**2013/14**	**2014/15 (provisional)**
Total tonnes of waste collected at RRCs	62,622	67,620	70,016
Re-use tonnes collected at RRCs	20	14	53
Recycling tonnes collected at RRCs	30,735	35,443	39,404
Composting tonnes collected at RRCs	6,616	6,129	6,713
Residual tonnes collected for disposal at RRCs	25,124	25,869	23,846
Re-use, recycling and composting rate at RRCs	60%	62%	66%
Number of RRCs	9	9	9
Number of RRCs per 100,000 people	1	1	1

4.2.4 The chart below graphically shows the improvements in recycling and composting tonnages performance at the RRCs (2014/15 is still provisional).



4.2.5 LondonWaste Ltd, NLWA's wholly owned company operates the following RRCs in north London under contract to NLWA:

a. Regis Road, Camden;
b. Park View Road, Haringey;
c. Western Road, Haringey (formerly at High Street Hornsey, Haringey);
d. Hornsey Street, Islington;
e. Kings Road, Waltham Forest; and
f. South Access Road, Waltham Forest.

4.2.6 NLWA directly manages a separate arrangement with Bywaters (Leyton) Ltd for the operation of the Gateway Road RRC in Waltham Forest

4.2.7 The other sites are operated under separate arrangements by the relevant Constituent Boroughs:

- **Activity in 2012/13** Summers Lane, Barnet; and
- Barrowell Green, Enfield.

4.2.8 In 2012/13 NLWA managed the staged transfer of seven RRCs from Constituent Boroughs to NLWA control during the year, following a change in law on 1st April 2012. NLWA delivered financial savings and improved RRC performance.

Activity in 2013/14

4.2.9 Research was carried out with RRC users to assess their awareness and understanding of the range of materials accepted for re-use and recycling on each of the sites, with the expectation that this would guide future communication activity. This research was coupled with some waste composition analysis to assess the composition of residual waste containers at

RRCs, so that if it was identified that there was a significant proportion of recyclable material in the residual waste containers, then this might indicate a need to provide more information and guidance to visitors.

4.2.10 Changes were made to the re-use corner at Regis Road RRC due to anti-social behaviour by a small number of people. As a result NLWA advised residents to give reusable items to RRC staff who then put the items aside to be stored securely for collection and re-use by Restore Community Projects, a local registered re-use charity in north London.

4.2.11 All seven north London boroughs operated collection or drop-off services for used Christmas trees during the festive season. The drop off points included all the north London RRCs as well as the Millfields Depot in Hackney. Trees were sent for shredding and turned into compost to be used on north London's parks, gardens and allotments.

Activity in 2014/15

4.2.12 A new RRC was opened in June at Western Road, Haringey. The new site replaced another site off Hornsey High Street. The Western Road site offers the following improvements in service:

a. it operates a 'drive-in, drive-out' one-way system which makes it safer for members of the public to use;

b. the site offers more recycling opportunities, including hard plastics such as broken garden chairs and children's toys;

c. there is also an extended area for items for re-use that are passed on to charitable organisations, such as tins of paint, bicycles and undamaged furniture; and

d. the new site also can accommodate up to 14 cars at a time, compared to seven at the old site.

4.2.13 Waste Electrical and Electronic Equipment (WEEE) information stalls were set up for half a day at each of the RRCs during the European Week for Waste Reduction in November. DHL Envirosolutions ran the events, providing members of the public with information about WEEE recycling and answering any questions that visitors had.

4.2.14 All seven north London boroughs continued to operate collection or drop-off services for used Christmas trees during the festive season. The drop off points included all the north London RRCs as well as the Millfields Depot in Hackney. Trees continued to be sent for shredding and turned into compost to be used on north London's parks, gardens and allotments.

Plans and achievements to date in 2015/16

4.2.15 Automatic number plate recognition (ANPR) systems were installed at all the RRCs – as a way of reducing the risk of trade waste abuse at the sites;

4.2.16 The South Access Road RRC in Waltham Forest was shortlisted for RRC of the Year[16] by LetsRecycle.com in its Award for Excellence scheme. In 2014 a recycling rate of 78.04 per cent was achieved at the site. This is a 12.09 per cent increase on the recycling rate in 2013.

[16] The award is "CA Site of the Year", Civic Amenity Site being an old formal name for RRCs.

4.2.17 A re-use shop at Kings Road RRC in Waltham Forest is being prepared to increase the proportion of RRC wastes reused; operational arrangements are currently being finalised.

4.2.18 Improved recycling rates were achieved across the RRCs operated by NLWA. The table below shows the (provisional) recycling performance for each site in 2014/15 with the 2011/12 rates shown for comparison.

SITE	**2011/12**	**2014/15 (Provisional)**
Regis Rd*	69%	68.56%
Hornsey St	63%	68.05%
High St, Hornsey/Western Road**	51%	68.30%
Park View Rd	51%	64.45%
Gateway Rd	} 60%	71.03%
Kings Rd***	}	100%
South Access Rd	}	78.64%
Weighted average of all sites****	**59%**	**71.76%**

*The reduced recycling rate at Regis Road was due to changes made in the acceptance criteria at the site which resulted in reduced amounts of green waste being received.

** Western Road replaced Hornsey High Street

***Kings Road does not accept residual waste.

****Includes rubble sent for recycling which does not count towards the national indicator.

4.3 Mixed Dry Recyclables (MDR)

4.3.1 NLWA first started arranging for the treatment of Constituent Boroughs' mixed dry recyclables[17] in 2006, with LWL bulking and transporting these materials to facilities in east and south London.

4.3.2 Since this time the Constituent Boroughs have all started to collect their MDR in wheeled bins such that they need mechanical separation at a materials recovery facility (MRF). This is as opposed to the use of relatively small boxes that residents and collectors have to lift and carry, the contents of which the collectors would then manually sort into a multi-compartment vehicle at the kerbside.

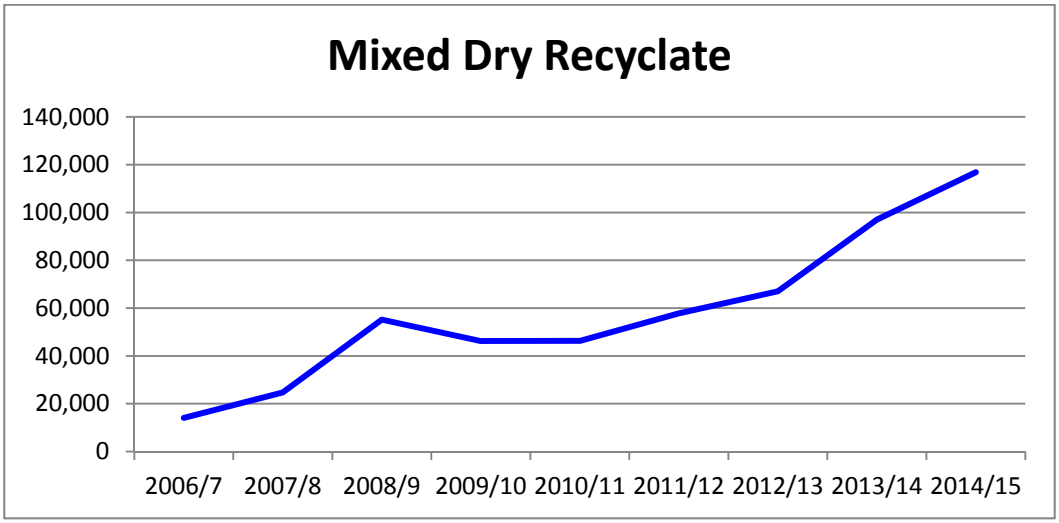
4.3.3 Since October 2009 the NLWA has been managing contracts with two Materials Recovery Facility (MRF) providers – they provide a service such that recyclables collected from households are separated into different materials such as paper and plastic and then these materials are sent on elsewhere to be recycled into new products.

[17] Mixed dry recyclables (MDR) comprise paper, cardboard, glass bottles and jars, steel and aluminium cans, aerosol cans, plastic bottles and, more recently, butter/margarine tubs, yoghurt pots, juice cartons and ready-meal food trays.

4.3.4 Provisional data shows that during 2014/15, approaching 117,000 tonnes of mixed dry recyclables (MDR) were delivered which was an increase of nearly 20,000 tonnes on the previous year.

4.3.5 The contracts for the treatment of MDR are expected to return an amount in excess of £2.6 million to the NLWA, because the recyclable material has a value, a proportion of which is passed back to NLWA. NLWA contributes to the constituent boroughs' additional costs of collection for recycling at a level that reflects the income NLWA receives in this way. The reject rates at the MRFs are also low at around 6-7 per cent.

4.3.6 From the October 2014 a new 'MRF Code of Practice' was introduced at a national level. This Code of Practice requires all MRF providers that process over 1,000 tonnes per annum to introduce more rigorous analysis and reporting systems for both inputs from each customer and outputs from each separated stream. The first reporting cycle of October to December has been submitted to the regulator but is yet to be made publicly available.



4.4 Food and Green Waste

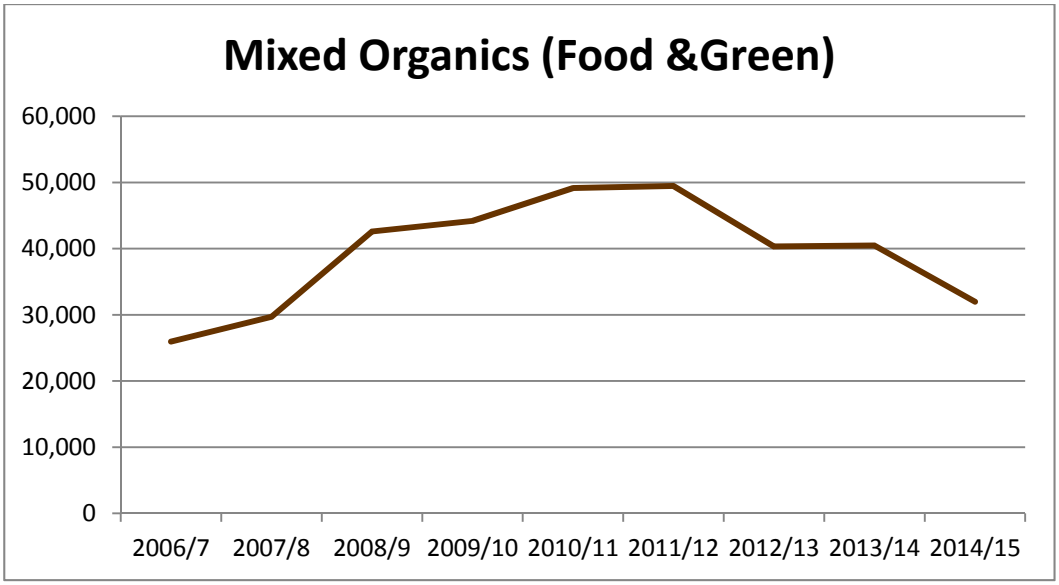
Mixed Food and Green Waste

4.4.1 The in-vessel composting facility at LWL's site at Edmonton has been receiving waste since September 2005, and had a formal opening ceremony in March 2006 when the first loads of finished compost were handed over to Constituent Boroughs for local use. The facility, although licensed for 45,000 tonnes per annum (tpa) processes around 35,000 tpa of organic waste.

4.4.2 The compost facility was the first of its type in the country to be accredited as making compost in accordance with the national 'Compost Quality Protocol' and meeting the Publicly Available Standard No. 100 (PAS 100) from the British Standards Institute.

4.4.3 NLWA has arranged for LWL to deliver quantities of organic waste that are beyond the LWL facility's treatment capacity to third party facilities as necessary. This arises as a result of improvements to Constituent Borough services, and is also accentuated by peak seasonal deliveries.

4.4.4 The chart below shows the amounts of mixed food and green (F&G) wastes delivered to LWL's composting facility since it opened.



4.4.5 The reduction in tonnes seen in 2011/12 was as a result of one borough deciding to make its own arrangements for food and green wastes recycling from 1 October 2011. The further reduction in 2013/14 was as a result of another borough deciding to separately collect its food and green wastes with the resulting increases more visible in the green waste chart below.

Green Garden Waste

4.4.6 NLWA first started making arrangements for pure green wastes on behalf of boroughs during 2007 with the material being sent to windrow composting sites in Hertfordshire and more recently to Ongar in Essex, by LondonWaste, unless it is needed to blend in with other wastes at LWL's own composting facility at Edmonton.

4.4.7 The chart below shows the amounts in tonnes since NLWA began these arrangements. The reduction seen in 2012 was due to improved site management procedures to turn away commercial green garden wastes at RRCs. The increase seen in 2013/14 was due to LB Barnet changing its collection systems (as mentioned previously), resulting in a significant increase in overall terms in the tonnages of food wastes and green wastes delivered by LB Barnet to NLWA.

4.5 Bulky Waste

4.5.1 In 2012 LWL installed a sorting facility to reclaim large, accessible recyclable materials from bulky municipal and commercial wastes. This worked well, but with the loss of commercial wastes in 2013/14 it appeared that this facility may not be economically viable to operate.

4.5.2 However, during 2014/15 NLWA, in discussion with LWL and the Constituent Boroughs arranged a trial to be undertaken in order to assess whether a greater proportion of bulky waste could be recycled. The trial involves an increased amount of deliveries to Edmonton of vehicles containing what the Boroughs categorise as 'bulky waste' in order to identify the amounts of recyclable material that can be recovered and to ascertain the costs of such recovery. The target is to recycle 50 per cent of such wastes.

4.5.3 At the time of writing this report the trial is still underway; it is expected to be reported to the June 2015 Authority meeting.

4.6 Waste electrical and electronic equipment (WEEE)

4.6.1 Under European legislation[18] producers and importers of electrical and electronic equipment (EEE) must pay for the re-use, recycling or disposal of waste electrical and electronic equipment (WEEE). A key part of how this has been transposed into national legislation is the establishment of a number of producer compliance schemes (PCSs) that have signed up various producers and importers of EEE on the basis that the PCS will make all necessary arrangements to discharge those companies of their obligations under European legislation in exchange for a fee.

4.6.2 NLWA's selected PCS (DHL Envirosolutions) arranges the collection of the five categories of WEEE including fridges, televisions, lamps and small and large domestic appliances from the nine RRCs in the NLWA's area and other designated collection facilities nominated by NLWA. This is funded entirely by the fees paid to the PCS by its member manufacturers and/or importers of EEE, i.e. it is free to NLWA.

[18] WEEE Directive (Directive 2002/96/EC) and then WEEE Directive 2012/19/EU.

4.6.3 As part of its bid to operate this service for NLWA, DHL offered to provide additional promotional activities as set out earlier in this document, and also some additional physical services as set out below:

a. DHL has installed over 60 small WEEE (sWEEE) on-street bring banks (like bottle banks), which provide a way for residents to recycle sWEEE at any time that suits them, and the current list of their locations is on the NLWA website.

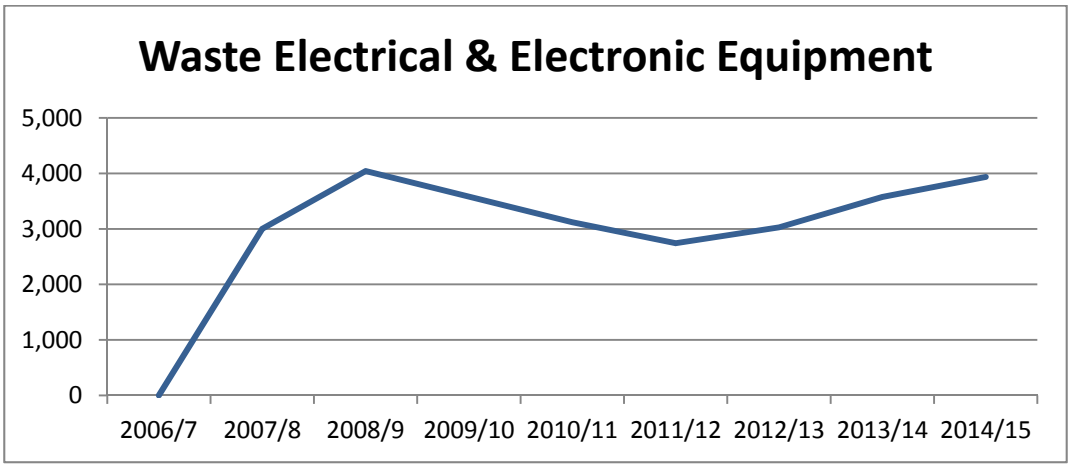
b. a "123 Recycle for Free" scheme is provided, through which all residential properties in the NLWA area are offered a free collection from their home. Residents can book a collection online at http://123recycleforfree.com/ or by phoning the London Re-use Hotline on 020 3142 8506. If necessary the collectors will even lift heavy items out of the resident's home;

c. the scheme "123 Recycle for Free" has been running since January 2012 and is also available for all businesses and charity organisations.

Overall, since 2012 -13 the following has been achieved:

Collection Method	2012/13 (tonnes)	2013/14 (tonnes)	2014/15 (tonnes)
RRCs	2,765	3,278	3,638
Door to door collections (domestic)	205	252	249
Small WEEE banks	56	47	49
Total	**3,026**	**3,577**	**3,936**

4.6.4 The tonnages of WEEE managed by NLWA are shown for a longer period than the principal three years of this report below for additional information.

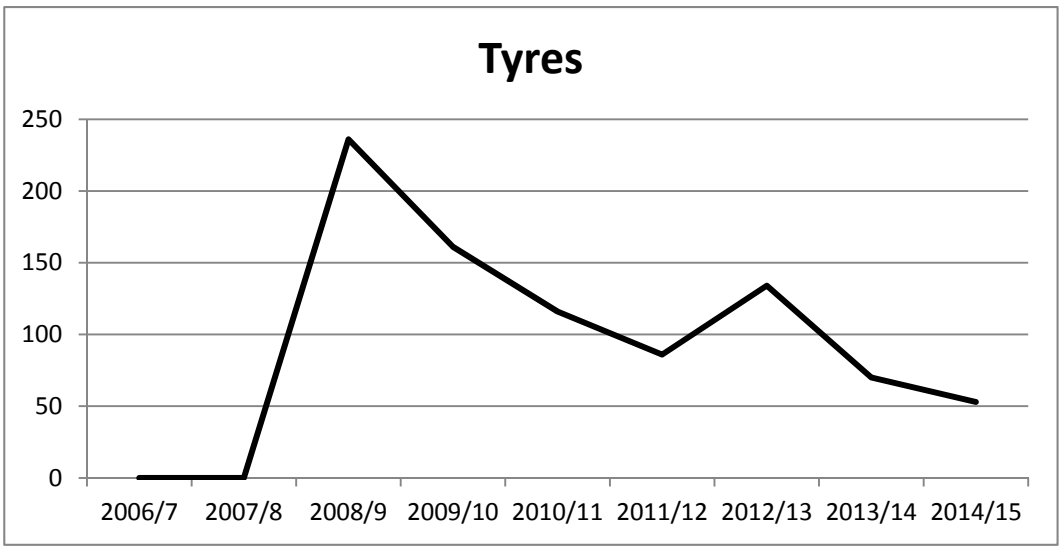


4.6.5 The amount of tonnes collected in 2014/15 is almost back to the levels achieved prior to the recession when there was a distinct reduction in the number of new white goods being purchased and therefore a reduction in the number of white goods being disposed of.

4.7 Tyres

4.7.1 NLWA also arranges for the recycling of waste tyres on behalf of the five boroughs that choose to dispose of these via the levy. Arrangements for tyre recycling are through McGrath Bros Ltd who have sites in Hackney and Barking where boroughs direct deliver their waste tyres. Tyres are 100 per cent recycled with the rubber being used as surfacing for equestrian arenas and playgrounds

as well as infill and drainage material for civil engineering projects, whilst metal wire and wheel rims are assimilated into McGrath's non ferrous recycling operations. The chart below shows the amount of tyres collected since the Authority began recycling arrangements.



4.7.2 The amounts collected have reduced significantly since the introduction of tyre take back schemes at motor vehicle garages in 2009.

4.8 Third-party Re-use and Recycling Credits

4.8.1 Re-use and Recycling Credits

4.8.2 NLWA financially rewards re-use and recycling by paying a credit to charities and other third sector organisations that divert waste from disposal either by recycling or re-use. Since 1st April 2006, NLWA has had the power to make re-use and recycling credit payments to third parties according to the amount of waste that is diverted from NLWA's waste stream. Government guidance expects NLWA to be predisposed to pay claims from third parties.

4.8.3 Credits are paid to organisations for the amounts of waste that are collected for re-use and recycling. The credits are paid on a per tonne basis with the level of the payment reflecting the savings made by NLWA from avoided disposal costs. Re-use and recycling credits are paid in respect of waste that is recycled by third parties as well as reused.

4.8.4 Government guidance suggests that the sale of second-hand books or clothes and the use of returnable or refillable bottles is not eligible for credit payments and that goods donated to charity shops are not classified as waste at the point of donation, so charity shops are not eligible to receive recycling credits on goods as they are donated to their shops. However, charity shops can claim re-use and recycling credits for items that cannot be sold and are then recycled or exported for re-use. Both the Environment Agency and community waste sector have produced guidance notes on re-use that contain advice for local authorities and third parties.

4.8.5 The number of organisations receiving support from the NLWA's re-use and recycling credits scheme has been relatively stable over the previous three years. However, because the tonnage that the registered organisations collectively anticipate diverting has increased and the rate paid is now greater to reflect the increasing savings made to the public sector by the work of these

organisations, the amount that the NLWA has budgeted for the payment of credits has also increased. Further details of applicant organisations are available in the NLWA report on re-use and recycling credits presented to the February Authority meeting each year and in the annual strategy monitoring reports available on the website[19].

Re-use and recycling credits uptake and payments

Year	No. of non-profit making orgs applying for and subsequently registered to receive credits in February	Anticipated tonnage diversion from disposal at time of registration	Budget set aside for paying re-use and recycling credits	Actual tonnage diverted as a result
2012/13	21	3,471	£216,035	2,413
2013/14	22	3,194	£204,767	2,514
2014/15	21	3,564	£235,331	2,675 (projected)
2015/16	21	3,567	£242,592	N/A

4.9 Financial Implications

4.9.1 As a result of the above services and developments, NLWA's expenditure for the principal areas set out above has grown over the years, as set out below.

[19] Available at: http://www.nlwa.gov.uk/governance-and-accountability/annual-strategy-monitoring-reports.

Initiative	**2012/13 (£000's)**	**2013/14 (£000's)**	**2014/15 * (£000's)**
Waste prevention (including 'real' nappy support)	£347	£331	£366
Joint recycling communications	£227	£289	£108 **
Re-use and recycling centre operations	£1,606 ***	£2,112	£2,691
Mixed dry recyclable initial cost Income share Net cost	£3,394 (£2,235) £1,159	£4,957 (£2,706) £2,251	£5,875 (£2,528) £3,347
Food and green garden waste	£2,608	£2,723	£2,721
Third party re-use and recycling credits	£150	£161	£194
Total	**£6,097**	**£7,867**	**£9,427**

***** Figures from NLWA's fourth budget review, February 2015

****** As noted in the report, activity initially planned for 2014/15 has been deferred to 2015/16

******* This is a part-year cost for some of the RRCs because their transfer to NLWA was phased

5 Conclusion

5.1.1 NLWA and the Constituent Councils first agreed joint aims and objectives for municipal wastes management in 2001. They have been making concerted efforts since then to minimise waste arisings and maximise re-use and recycling.

5.1.2 Some Constituent Boroughs can find it harder to recycle more, particularly in flats; and if making comparisons, especially with other parts of the country it would be important to bear in mind that with less green garden waste available per household, it will not be possible to match the much higher recycling rates seen elsewhere that rely on this element of the waste stream (see Need Assessment).

5.1.3 Nevertheless, NLWA and the Constituent Boroughs have agreed a target of re-using or recycling 50 per cent of household wastes by 2020, and are working hard to achieve this target as cost effectively as possible.

Appendix B – Waste Forecasting Report and Model

North London Waste Authority

North London Heat and Power Project

Waste Forecasting Report

AD05.04 Appendix B

The Planning Act 2008 The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 Regulation 5 (2)(q)

Issue | October 2015

Eunomia Research & Consulting

eunomia

nlwa
north london waste authority

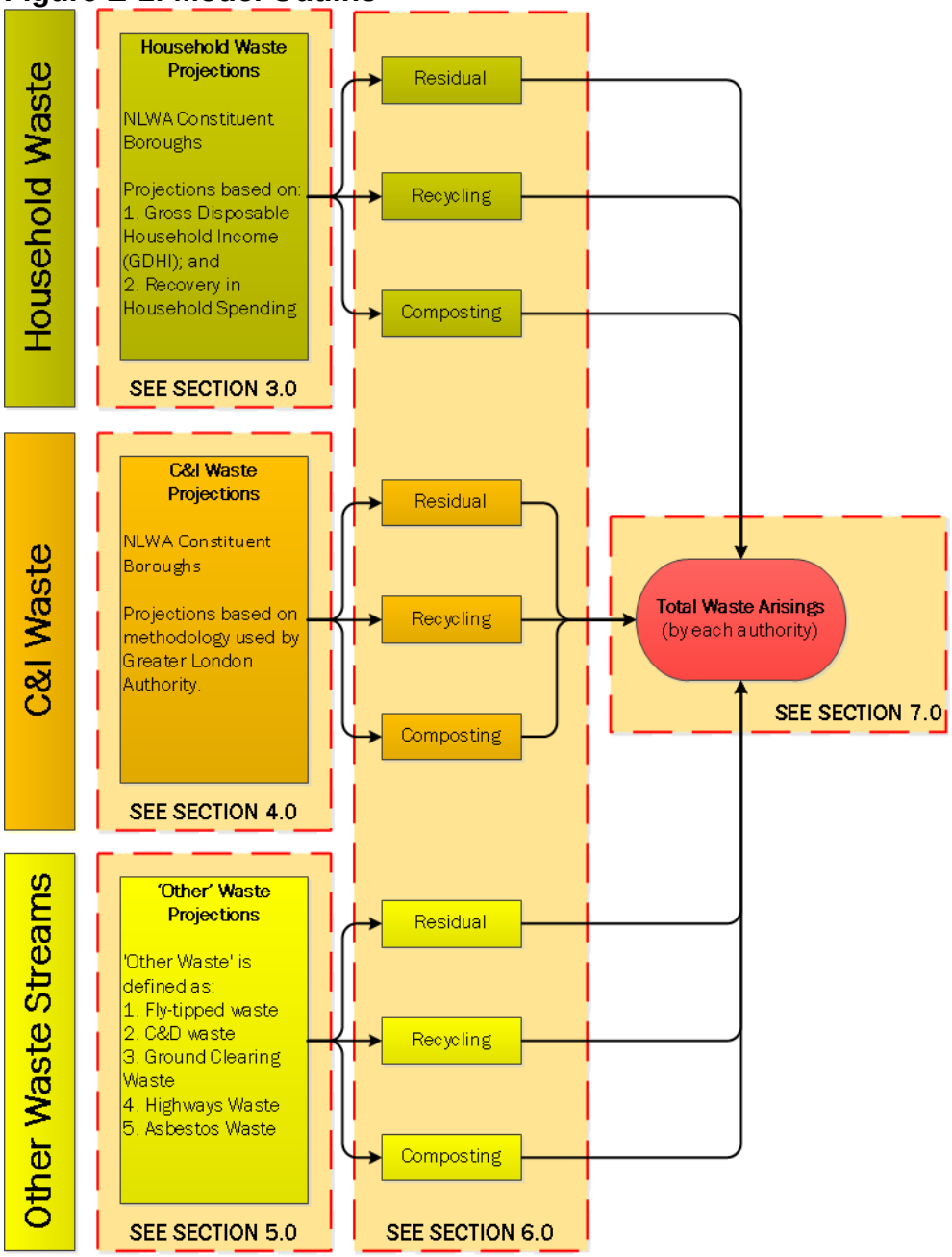
Executive Summary

i.i Introduction

i.i.i Eunomia Research & Consulting Ltd (Eunomia) is pleased to present this project report to the North London Waste Authority (NLWA); the report summarises the methodology and results of the waste forecasting modelling that has been undertaken to inform the needs case for the development of the Edmonton EcoPark Energy Recovery Facility (ERF) and associated Development Consent Order (DCO) process.

i.i.ii The main objective of the waste forecast model is to forecast the amount (in tonnes) of residual waste collected by the following London Borough Waste Collection Authorities (WCA): Barnet, Camden, Enfield, Islington, Hackney, Haringey, and Waltham Forest over a period beginning in the financial year 2012/13 and ending in 2050/51. An outline of the main model components is shown in Figure E-1 with references to the appropriate sections of the main project report for further information.

Figure E-1: Model Outline



i.ii Modelling Assumptions

Limitations

i.ii.i Providing forecasts of waste arisings for over thirty years in the future is extremely difficult given the myriad factors affecting both the generation of waste and how it is subsequently managed; in essence it is unknowable. Recognising that long-term plans for managing the waste generated within the Constituent Boroughs are needed however, we have developed a model based on the best data available at the time the modelling was completed, a robust analysis of historical trends, and a measured set of assumptions about what will happen to these trends in the future.

i.iii Household Waste Arisings

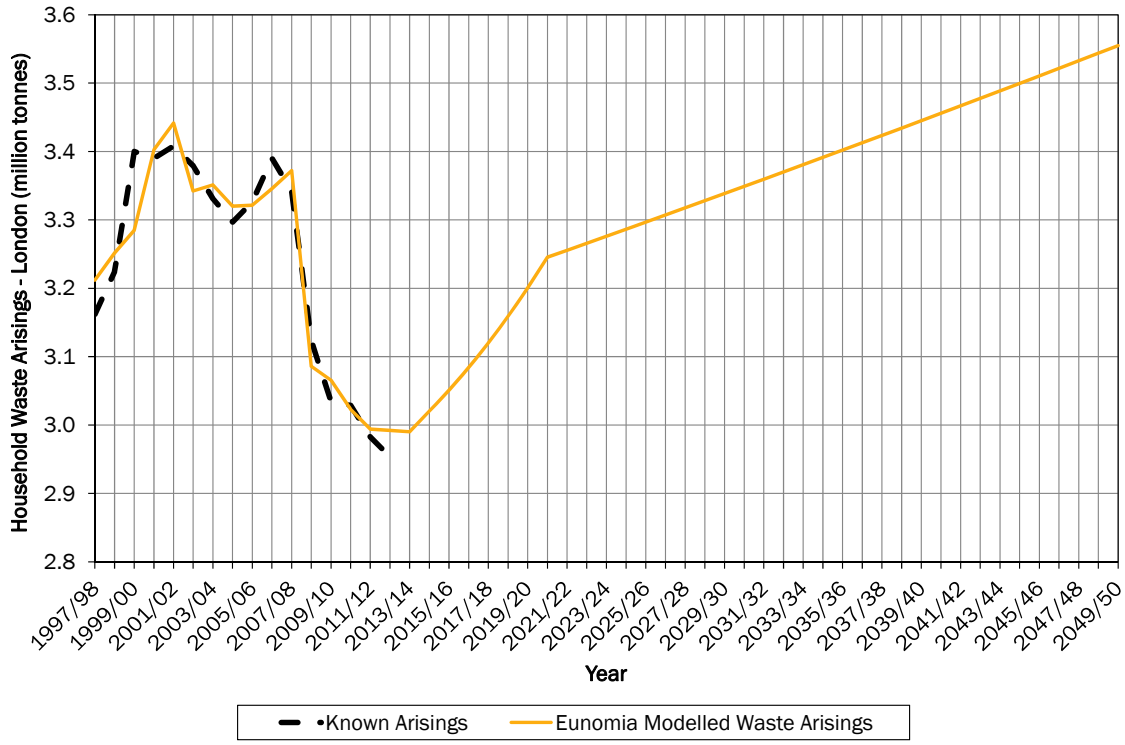
i.iii.i As part of earlier work undertaken by Eunomia for the London Environment Directors Network (LEDNET), we completed a detailed statistical analysis of historic household waste arisings in London to ascertain which social and economic factors (or combination thereof) were statistically most strongly correlated with the changing trends in waste arisings.[1]

i.iii.ii The best result from the regression analysis was produced using Gross Disposable Household Income (GDHI) as the independent variable, together with a 'time variable' to account for what we would speculate is the cumulative effect of waste prevention and minimisation measures (e.g. product light-weighting) on household waste arisings over time. In addition, we also included an 'indicator variable' to represent the impacts of the recession and the subsequent economic recovery.[2]

i.iii.iii The statistical correlations identified between historic household waste arisings, GDHI, and the two other independent variables yielded a regression equation which has been used to project forward changes in waste arisings based on estimated future changes in the independent variables.

The results of these projections are represented graphically in Figure E-2.

Figure E-2: Historic and Forecast Household Waste Arisings in London (1997/98–2050/51, million tonnes)



[1] Eunomia Research & Consulting (2012) *Waste Arisings in London*, Report for London Environment Directors Network, October 2012

[2] A 'indicator variable' is a statistical term used in regression analysis for a variable that is used to indicate the presence or absence of an unquantified effect that is assumed to have an impact on the dependent variable (in this case on waste arisings).

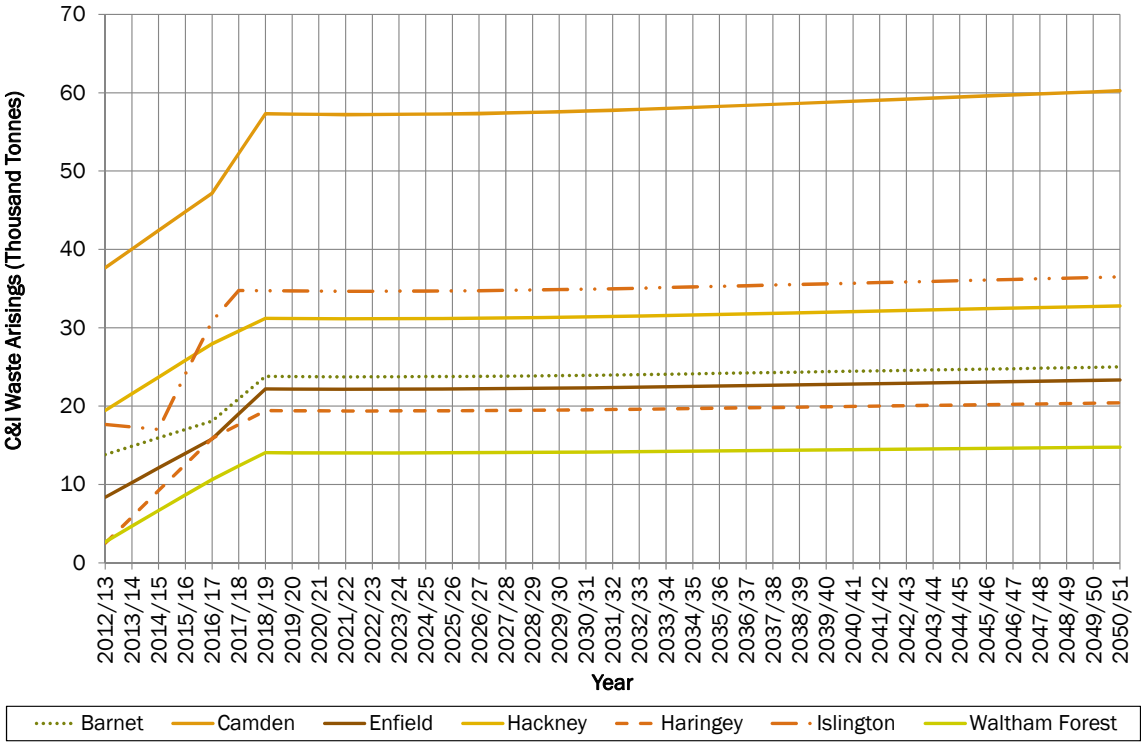
C&I Arisings

i.iii.iv In forecasting C&I waste arisings we have drawn on work undertaken by SLR Consulting Ltd on behalf of the GLA for the Draft Further Amendments to the London Plan (FALP). [3]

i.iii.v The draft plan includes a forecast of C&I waste arisings through to 2031 based on a 'waste per employee' figure from GLA employment figures and forecasts and Defra C&I waste data from 2009. We have used the C&I waste arisings forecast growth rate presented in the FALP on which to base our forecast. For the period beyond 2036 (i.e. the end point of the projections in the FALP) it is assumed that the calculated annual growth rate of 0.22% achieved between 2034/35 and 2036/37 would continue until 2050/51.

i.iii.vi Using data on the tonnages of C&I waste collected by each Constituent Borough reported via WasteDataFlow a 'market share' was calculated for each borough. Due to the lack of suitable data it is only possible to calculate the market share that each borough had back to 2009. Consequently, in our forecast we assume that each borough's market share recovers to 2009 levels by 2016/17, and then increases a further 2% in both 2017/18 and 2018/19. The results of this apportionment are shown in Figure 4-2 which outlines the forecast tonnages of local authority collected C&I waste for each of the Constituent Boroughs.

Figure 1-1: Local Authority Collected C&I Waste in NLWA's Constituent Boroughs (2009 – 2036)



[3] GLA 2014 Draft Further Alterations to the London Plan. January 2014. http://www.london.gov.uk/priorities/planning/london-plan/draft-further-alterations-to-the-london-plan

Recycling Rates

i.iii.vii The model developed for these projections has taken a 'target-led' approach, whereby different future recycling rates have been predefined in the model at specific years in the future, completed with a simple linear extrapolation of recycling rate for the intervening and following years.

i.iii.viii In each case three scenarios have been agreed with the NLWA for the purposes of developing the model presented in this report. Each of these scenarios represents a different level of achievement for future recycling efforts:

- Low recycling scenario – these scenarios represent limited levels of achievement;
- Central recycling scenario – these scenarios demonstrate moderate to high levels of achievement and allow for the achievement of national recycling targets; and
- High recycling scenario – these scenarios demonstrate very high levels of achievement with respect to recycling and are in line with the London Plan and the Mayor's Waste Strategies.[4,5,6]

i.iii.ix The recycling targets selected for household waste are as follows:

- Low recycling scenario – 40% recycling by 2020/21 and remaining static thereafter;
- Central recycling scenario – 50% recycling by 2020/21 and remaining static thereafter; and
- High recycling scenario – 50% recycling by 2020/21, rising to 60% in 2031/32 and remaining static thereafter.

i.iii.x Unlike with household waste, the proportion of local authority collected C&I waste sent for recycling is not defined in the model by set targets. Instead, the modelling assumes that the improvements in the recycling of C&I waste will increase at the same rate as the recycling rate for household waste under the three scenarios. For example, under the Low Recycling Scenario, the recycling of household waste will have to increase by 1.12% per annum in Camden if the 40% target is to be achieved by 2020/21 (see Table 6-1). Under the Low Recycling Scenario for C&I waste it is assumed that recycling of this waste stream will also increase by 1.12% per year, based on a starting point of 2012/13. The same logic has been applied for the Central and High Scenarios.

[4] Greater London Authority (2014) *The London Plan*, Date Accessed: 13th March 2014, Available at: www.london.gov.uk/priorities/planning/london-plan

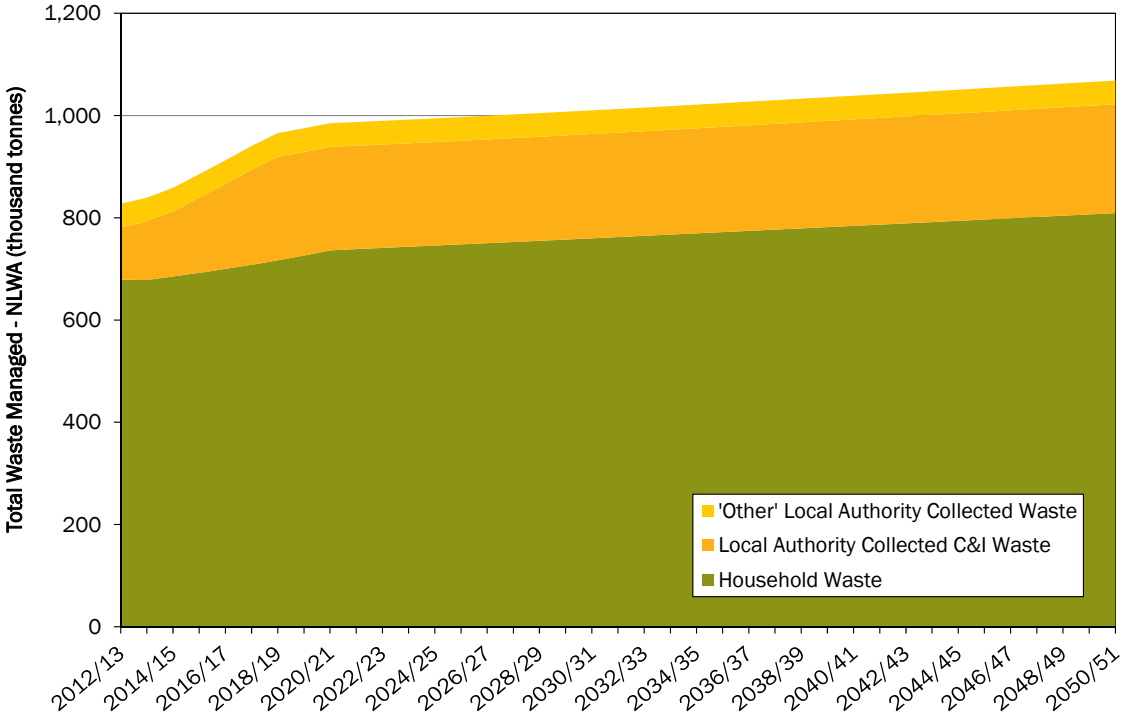
[5] Mayor of London, Greater London Authority (2011) *London's Wasted Resource: The Mayor's Municipal Waste Management Strategy,* November 2011, www.london.gov.uk/priorities/environment/publications/the-mayors-waste-management-strategies

[6] Mayor of London, Greater London Authority (2011) *Making Business Sense of Waste: The Mayor's Business Waste Management Strategy,* November 2011, www.london.gov.uk/priorities/environment/publications/the-mayors-waste-management-strategies

i.iv Summary of Results

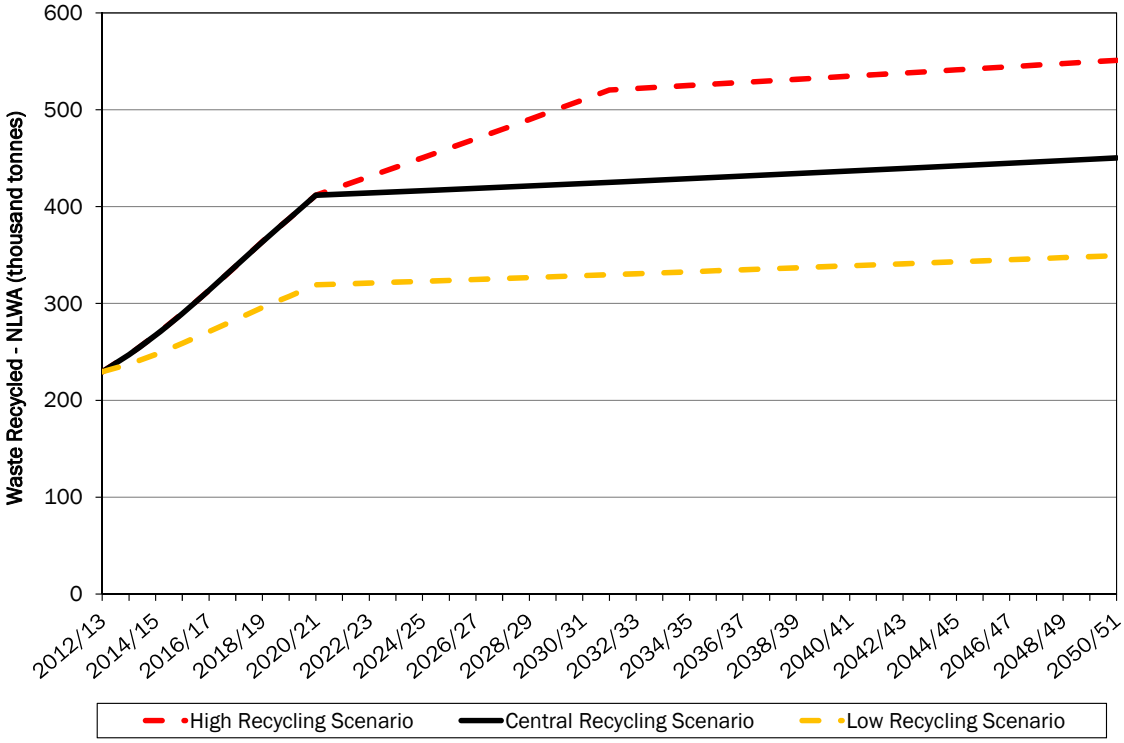
i.iv.i The projected amount of waste to be managed by the NLWA from its Constituent Boroughs is shown in Figure E-2. From this it can be seen that household waste makes up by far the largest proportion, followed by local authority collected C&I waste, and finally a small amount of 'other' waste. The combined total across NLWA rises from 827,000 tonnes in 2012/13 to 985,000 tonnes by 2020/21, and just over a million tonnes by 2050/51.

Figure E-2: Projected Waste Arisings for NLWA (2012/13 – 2050/51, thousand tonnes)



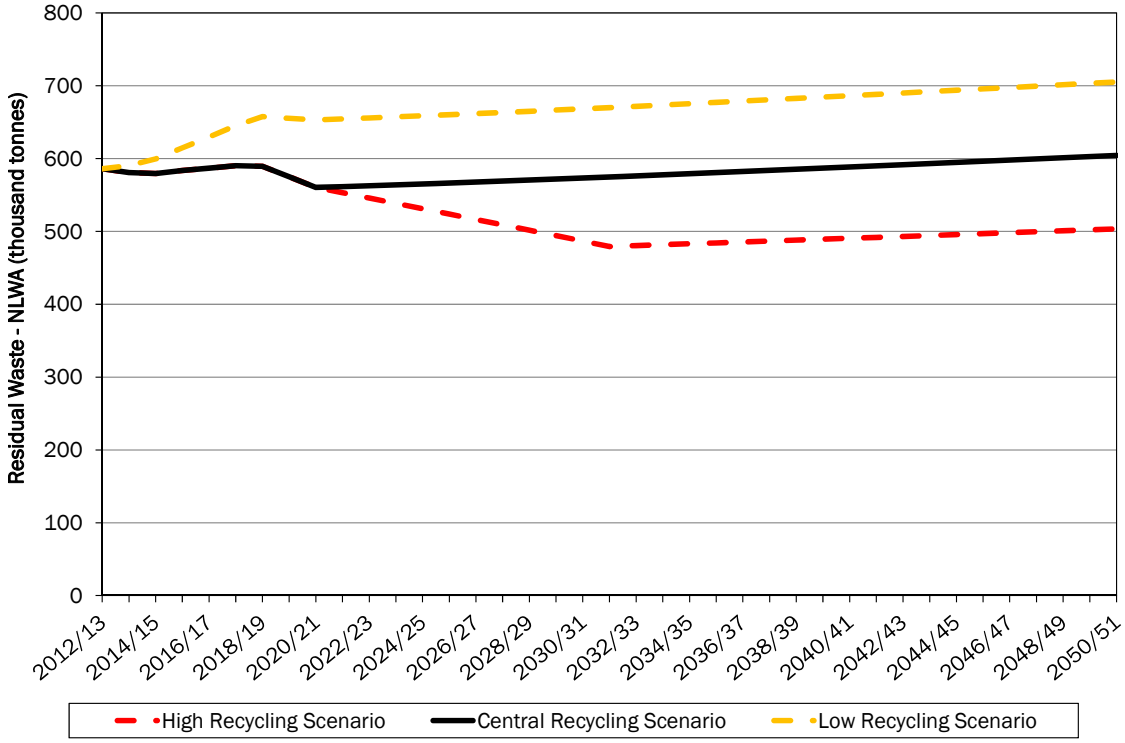
i.iv.ii The total quantity of recycling is projected to be between 355,000 tonnes (Low Recycling Scenario) and 559,000 tonnes (High Recycling Scenario) by 2050/51 (Figure E-3). Under the Central Recycling Scenario the quantity of recycling is expected to almost double, from 230,000 tonnes in 2012/13 to over 400,000 tonnes by 2020/21. After this point tonnages will continue to increase due to increases in the total amount of waste arising.

Figure E-3: Projected Quantity of Recycling under Three Recycling Scenarios (2012/13 – 2050/51, thousand tonnes)



i.iv.iii The total quantity of residual waste is projected to be between 713,000 tonnes (Low Recycling Scenario) and 509,000 tonnes (High Recycling Scenario) by 2050/51 (Figure E-4). Under the Central Recycling Scenario the quantity of residual waste is only expected to increase very slightly to approximately 611,000 tonnes by 2050/51.

Figure E-4: Projected Quantity of Residual Waste under Three Recycling Scenarios (2012/13 – 2050/51, thousand tonnes)



i.iv.iv The results for the three recycling scenarios are summarised in Tables E-1 to E-3 below.

TableE-1: Quantity of Recycling and Residual Waste Arising under the Low Recycling Scenario (thousand tonnes)

Year	2012/13	2020/21	2036/37	2050/51
Recycling	230	324	340	355
Residual	598	661	687	713
Total	827	985	1,027	1,068

Table E-2: Quantity of Recycling and Residual Waste Arising under the Central Recycling Scenario (thousand tonnes)

Year	2012/13	2020/21	2036/37	2050/51
Recycling	230	418	438	457
Residual	598	568	589	611
Total	827	986	1,027	1,068

Table E-3: Quantity of Recycling and Residual Waste Arising under the High Recycling Scenario (thousand tonnes)

Year	2012/13	2020/21	2036/37	2050/51
Recycling	230	418	536	559
Residual	598	567	491	509
Total	827	985	1,027	1,068

1 Introduction

1.1.1 Eunomia Research & Consulting Ltd (Eunomia) is pleased to present this project report to the North London Waste Authority (NLWA). This report summarises the methodology and results of the waste forecasting modelling that has been undertaken to inform the needs case for the development of the Edmonton EcoPark Energy Recovery Facility (ERF) and associated Development Consent Order (DCO) process.

1.2 Project Objectives and Scope

1.2.1 Eunomia has been commissioned by the NLWA:

"To provide advice and support on technical aspects associated with the development of waste forecasts and models for the development of waste treatment and disposal solutions".[7]

1.2.2 As part of this advice and support, this report outlines our approach to the development of an initial waste forecasting model including an explanation of the assumptions which underpin the modelling.

1.2.3 The waste forecast model produced includes all Local Authority-Collected (LAC) Waste that is collected by the following London Borough Waste Collection Authorities (WCA): Barnet, Camden, Enfield, Islington, Hackney, Haringey, and Waltham Forest (Constituent Boroughs).

1.2.4 The main objective of the model is to forecast the amount (in tonnes) of residual waste collected by the WCAs in scope that will be available for treatment in the proposed ERF.

1.2.5 The time period covered by the model begins in the financial year 2012/13 and ends in 2050/51.

1.3 Modelling Limitations

1.3.1 Providing forecasts of waste arisings for over thirty years in the future is extremely difficult given variable data quality and the myriad factors affecting both the generation of waste and how it is subsequently managed; in essence it is unknowable.

1.3.2 One limitation of this type of analysis is the number of historical data points which are available on which to carry out the regression analysis described in detail in Section 3. This restricts the opportunity for specifying multiple independent variables whilst still achieving the desired level of statistical significance. Although the quality of data has been steadily improving since 2000 (although vagaries remain), the time series for the datasets used are relatively short and the quality of data in the early years is not as strong as for later years.

[7] Extract from Invitation to Tender document.

1.3.3 The difficulty with any exercise of this kind, therefore, is that on the one hand, there is a demand for data covering a reasonable number of observations, but on the other, at present, the longer the dataset, the lower the average quality of the data becomes. Furthermore, one has to appreciate that some of the interest in this type of work stems from an interest in whether any 'decoupling' of waste arisings and economic output has and is occurring. Ideally, one would have a lengthy time series in advance of this period, enabling some break with pre-established trends to be observed.

1.3.4 In addition, since we have at most 15 years' worth of observations for household waste on which to base our projections, we would not normally advise forecasting for more than a very small number of years into the future on this basis; an important consideration that needs to be acknowledged is that the projections developed here are looking through to 2050/51 – that is, 36 years into the future and more than double the length of time for which we have reliable historical data on household waste arisings in London.

1.3.5 Forecasting C&I waste volumes for future years is notoriously difficult due to the distinct lack of data on historic and current volumes. This lack of data also means that it is not possible to develop projections of C&I waste arisings based on statistical correlations with other independent variables as we have done for household waste.

1.3.6 Recognising that long-term plans for managing the waste generated within the Constituent Boroughs are needed however, we have developed a model based on the data available, a robust analysis of historical trends, and a measured set of assumptions about what will happen to these trends in the future.

1.4 Structure of the Report

1.4.1 This report is broken down into seven sections. This introductory section is followed by Section 2, which provides an overview of the waste forecasting model. The assumptions and methodology behind Eunomia's projections of household waste arisings is presented in Section 3, whilst Section 0 provides an overview of the C&I waste projections, and Section 5 discusses the approach used for modelling 'other' waste streams. Section 6 presents the rationale for modelling different recycling rates across all waste streams as part of a number of different model scenarios, the results of which are summarised in Section 7.

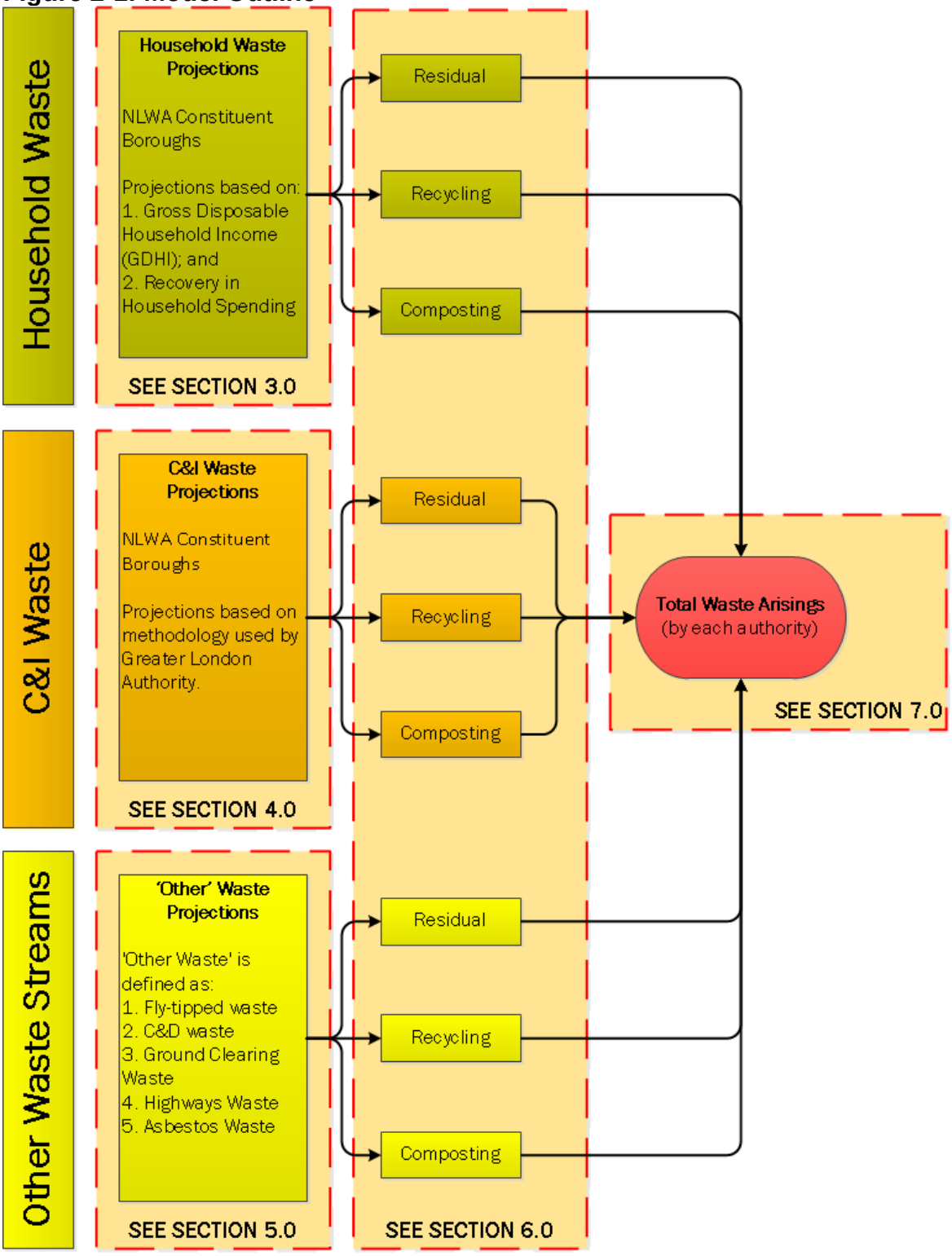
2 Model Overview

2.1.1 Before considering the detailed approach taken to modelling future waste arisings, it is helpful to consider the overall model structure in order to understand how the various component parts fit together. A high level outline of the model is presented in Figure 2-1. From this it can be seen that the model consists of three discreet parts:

- An element dealing with LAC household waste;
- An element dealing with C&I waste; and
- An element dealing with a number of 'other' waste streams.

2.1.2 Separate projections of these three sections are then provided, based on a range of modelled changes in dry recycling and composting rates in each of the Constituent Boroughs. Changes in recycling rates are critical for determining the quantity of residual waste remaining for treatment at the proposed ERF. The sections of the report under which each of the above elements are discussed is highlighted in Figure 2-1.

Figure 2-1: Model Outline



3 Forecasting Household Waste Arisings

3.1 Overview

3.1.1 In 2012/13, residents of the Constituent Boroughs produced, on average, 345 kg of waste per person,8 as a consequence of household consumption of both essential and non-essential goods.9 The amount of household waste that arises in a year depends on a number of economic, social and policy drivers which all act together to determine household behaviour when it comes to consumption, recycling and disposal. This section sets out how it is possible, using regression analysis, to identify statistically significant correlations between household waste arisings and a number of social and economic variables.

3.2 Historic Waste Arisings

3.2.1 As part of earlier work undertaken by Eunomia for the London Environment Directors Network (LEDNET), we completed a detailed statistical analysis of household waste arisings in London to ascertain which social and economic factors were statistically most strongly correlated with the changing trends in waste arisings.10 As part of this work we examined London's historic waste arisings data for the period 1997/98 to 2010/11 (arisings being the dependent variable), and used MS Excel's regression analysis tool to ascertain whether there were statistical correlations between household waste arisings and the following independent variables:

- Population;
- Number of households;
- Household size;
- Gross Value Added (GVA);
- Gross Disposable Household Income (GDHI);
- Unemployment rate; and
- Household expenditure.

3.2.2 The regression analysis was also applied to a number of combinations of the above variables to identify which combination had the best

[8] Defra (2013) *ENV18 - Local Authority Collected Waste: Annual Results Tables*, www.gov.uk/government/statistical-data-sets/env18-local-authority-collected-waste-annual-results-tables

[9] Although slightly fluid terms, an essential good is a physical item required by a consumer in order to sustain health or life. Non-essential goods include luxury items, or luxury versions of essential items, that are deemed to be non-essential for sustaining health and life.

[10] Eunomia Research & Consulting (2012) *Waste Arisings in London*, Report for London Environment Directors Network, October 2012

statistical relationship with the historic total household waste arisings for London.

3.2.3 The best result from the regression analysis, in terms of statistical correlation, was produced using Gross Disposable Household Income (GDHI) as the independent variable (see Box 1 for a definition of GDHI). Despite the prevailing economic conditions GDHI has continued to increase since 2008, albeit at a reduced rate (Table 3-1). This shows a negative correlation as household waste arisings have been falling over time, suggesting a degree of 'decoupling' from the increase in GDHI.

Box 1: What is Gross Disposable Household Income (GDHI)?

The Office for National Statistics (ONS) describes Gross Disposable Household Income as *"the amount of money that individuals (i.e. the household sector) have available for spending or saving. This is money left after expenditure associated with income, e.g. taxes and social contributions, property ownership and provision for future pension income. It is calculated gross of any deductions for capital consumption".*[11]

In this context the term 'households' includes all individuals living in an economy, whether they be in traditional households, or in institutions such as retirement homes or prisons. The method of calculation has been set out by the European System of Accounts 1995 (ESA 95) and further details can be found via the reference cited above or from the UK National Accounts Blue Book.[12]

[11] Office for National Statistics (undated) *Regional Accounts Methodology Guide*, www.ons.gov.uk/ons/guide-method/method-quality/specific/economy/regional-accounts/regional-accounts-methodology-guide.pdf

[12] Office for National Statistics (2012) *United Kingdom National Accounts Blue Book*, www.ons.gov.uk/ons/rel/naa1-rd/united-kingdom-national-accounts/the-blue-book--2012-edition/index.html

Table 3-1: Gross Disposable Household Income (GDHI) for London 1997–2011 (2013 Real Term Prices)

Year	**GDHI** (£ million in 2013 prices)	Annual Growth Rate (%)
1997	£115,129	-
1998	£119,989	4.22%
1999	£124,703	3.93%
2000	£133,855	7.34%
2001	£139,324	4.09%
2002	£137,659	-1.19%
2003	£141,712	2.94%
2004	£143,647	1.37%
2005	£147,440	2.64%
2006	£152,656	3.54%
2007	£158,202	3.63%
2008	£159,473	0.80%
2009	£162,219	1.72%
2010	£163,444	0.75%
2011	£165,632	1.34%

Source: Office for National Statistics (2013) Regional Household Income, Spring 2013, Accessed: 8th May 2014, www.ons.gov.uk/ons/publications/re-reference-tables.html?edition=tcm%3A77-298694

3.2.4 The analysis revealed additional underlying factors influencing arisings that could not be satisfactorily accounted for using GDHI alone. In order to address this, a 'time variable' was included in the analysis to account for what we would speculate is the cumulative effect of waste prevention and minimisation measures (e.g. product light-weighting) on household waste arisings over time.

3.2.5 In addition, scrutiny of the waste arisings data reveals a recessionary impact due to the protracted economic downturn which began in 2007/8. In order to allow for this impact in our analysis we also carried out the regression analysis including an 'indicator variable' – referred to here as the recessionary impact variable – to represent the impacts of the recession and the subsequent recovery.13 The recessionary impact variable complements GDHI as it more closely accounts for consumer spending and confidence in the economy. As described in Box 1, GDHI includes savings and therefore does not accurately account for household spending on consumer goods. Increased spending on

[13] A 'indicator variable' is a statistical term used in regression analysis for a variable that is used to indicate the presence or absence of an unquantified effect that is assumed to have an impact on the dependent variable (in this case on waste arisings).

consumer goods is generally associated with greater rates of disposal and therefore increases in waste arisings.

3.2.6 The fact that waste arisings decrease during the recessionary period even though the GHDI continued to increase can be explained in a number of ways. For example:

- A greater share of income was being saved (as opposed to spent) during the recession;[14,15] and
- The tendency to spend disposable income on discretionary items was lower during the recession.[16]

3.2.7 These behaviours are not captured by the GDHI variable itself, and therefore an indicator variable is used to indicate the magnitude of these recessionary effects on people's behaviour over time.

3.2.8 For the purpose of developing the model that is the subject of this report, we have used up-to-date data for both the dependent and independent variables and repeated the regression analysis to confirm the statistical correlation between the various parameters. It is important to note, that in the context of this work household waste includes kerbside collected waste, waste from bring banks, HWRCs and Schedule 2 waste. The most recent data that could be used was limited by the fact that at the time of writing the regional GDHI data only extended up to 2011. The methodology and results of this analysis are outlined in detail in Appendix 0.

3.2.9 Using the coefficients calculated from the regression analysis, Eunomia has predicted the total household waste arisings over the period from 1997/98 to 2011/12. The model output is compared with the actual data in Figure 3-1. The regression analysis produces a 'best fit' to the data. The model is, however, not perfect and there are some years (e.g. 1999/2000) where the error between the modelled arisings and the actual arisings is visibly larger than in other years. This difference may be due to other underlying factors that influence waste arisings that are not being captured by the three independent variables included in our model.

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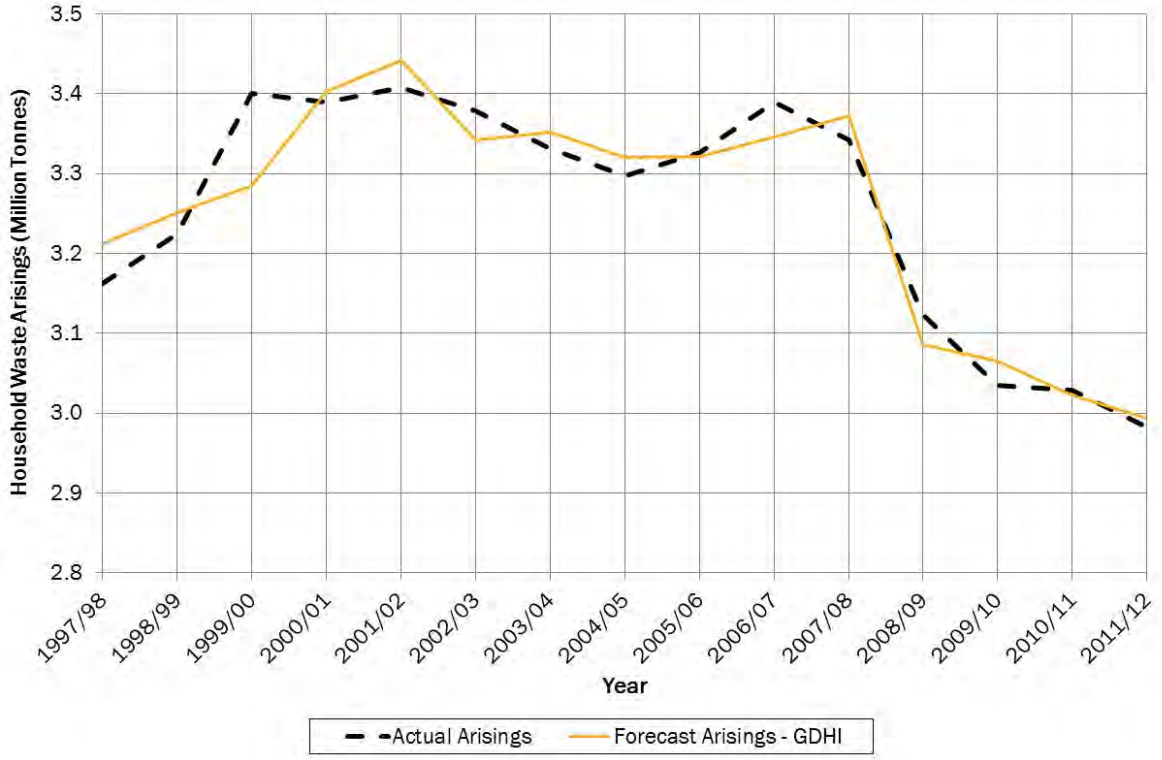
[14] Office for National Statistics (2013) *Chapter 4: Trends in Household Expenditure Over Time*, December 2013, www.ons.gov.uk/ons/dcp171776_341526.pdf

[15] This is borne out by the data; for example, see: Office for National Statistics (2013) *Household Saving Ratio and Gross Disposable Income - 2013 Quarter One*, www.ons.gov.uk/ons/about-ons/business-transparency/freedom-of-information/what-can-i-request/published-ad-hoc-data/econ/july-2013/saving-ratio-brief.doc

[16] See for example: Deloitte (2011) *Consumer 2020: Reading the Signs*, www.deloitte.com/assets/Dcom-CostaRica/Local%20Assets/Documents/Industrias/Consumo/110131-cr%28en%29_consumer-2020.pdf; and McKinsey Global Institute (2009) *Beating the Recession: Buying into New European Consumer Strategies*, April 2009

Figure 3-1: Comparison of Modelled and Actual Total Household Waste Arisings for London (Million Tonnes)



3.3 Looking Forward

3.3.1 The statistical correlations identified between historic household waste arisings, GDHI, and the two other independent variables yielded a regression equation which has been used to project forward changes in waste arisings based on future changes in the independent variables (see Appendix 0 for more details). However, this requires that one has a relatively good understanding of the likely changes that are going to occur with respect to the independent variables.

3.3.2 Historical data for GDHI in London suggests that it grew at an average rate of 3.25% per annum during the 10 years prior to 2007, and at slightly reduced rate of 2.8% per annum if only the period 2003 to 2007 is considered. The Office for Budget Responsibility has projected that nationally GDHI fell in 2013 by 0.1% in real terms, and it forecasts suggest that it will start to increase again in 2014 and continue to increase through to 2018 (Figure 3-2).17 Reliable and independent long term projections of GDHI for London are not available and given that the economic outlook in London is typically better than for the UK as a whole it has been assumed that GDHI will grow annually at 2.5% between 2012/13 and 2014/16, and thereafter rise steadily to reach 3% in

[17] HM Treasury (2014) *Budget 2014*, March 2014, www.gov.uk/government/publications/budget-2014-documents

2020/21 (see Table 3-3). For the period beyond 2020/21 it has been assumed that GDHI will continue to grow at 3.0% per annum (in line with average growth rates prior to the onset of the recession).

Table 3-2: Office for Budget Responsibility's Projected Real Household Disposable Income (2012/13 – 2018/19)

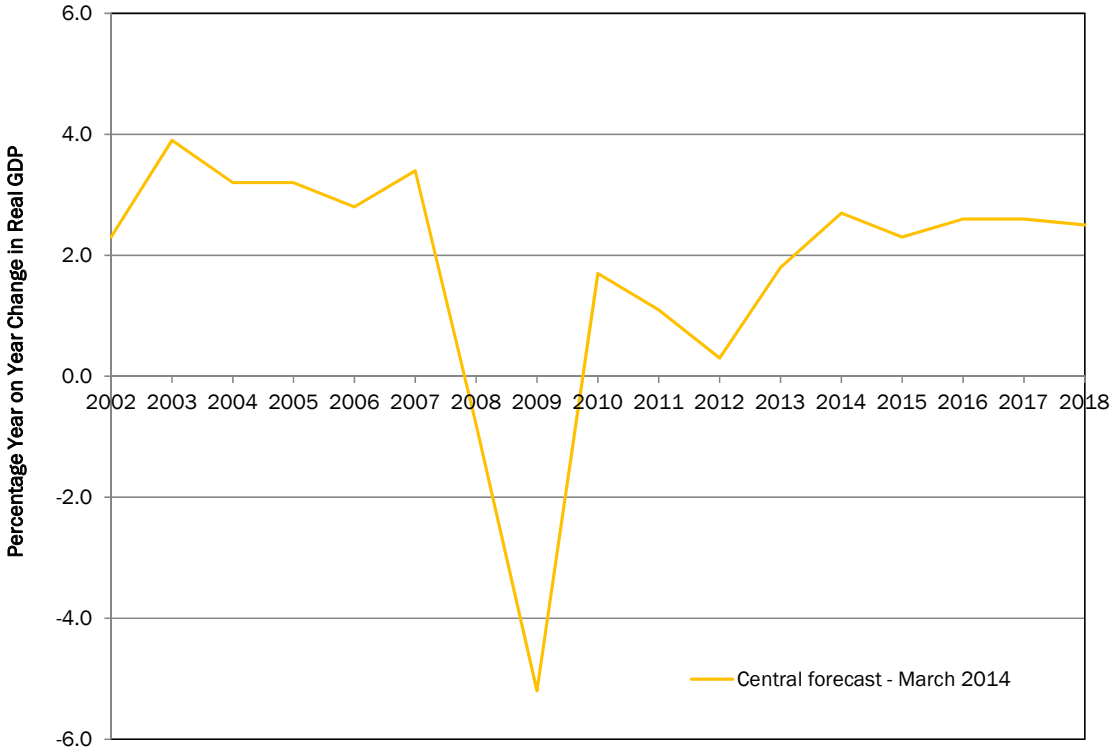
Year	Change in GDHI (%)
2012/13	2.3%
2013/14	-0.1%
2014/15	1.2%
2015/16	1.8%
2016/17	1.5%
2017/18	2.3%
2018/19	2.2%

Source: GDHI figures for the period 2012/13 to 2018/19 comes from OBR central projections of national GDHI provided in the Budget 2014 – see: HM Treasury (2014) Budget 2014, March 2014, www.gov.uk/government/publications/budget-2014-documents.

3.3.3 Turning to the other independent variables; the time variable is assumed to also continue as further efforts are made locally and in the wider economy to prevent and minimise waste generation. Drivers include the North London Waste Prevention Plan 2014 – 2016, Defra's National Waste Prevention Plan, as well as other national and European regulations. In addition, continued light weighting of materials in response both to consumer and regulatory pressure and to reduce costs in the face of rising input commodity prices as well as changing patterns of consumer behaviour driven partly by rising commodity prices but also by changing technology are also expected to continue to have an effect. However, it is important to note that a future waste prevention / minimisation effect may well exceed that which has taken place historically. It is therefore possible that this time variable may underestimate waste prevention effects going forward as it is given greater priority at both an operational and policy level.

3.3.4 As for the recessionary impact variable, there is a consensus amongst the majority of economic forecasters that the UK economy is strengthening, with the Office for Budget Responsibility forecasting in March of this year that annual GDP growth will likely exceed 2% for the period 2014 to 2018 (based on the central UK forecast – see Figure 3-2).

Figure 3-2: Office for Budget Responsibility Real GDP Forecast (%Year on Year Change)



Source: Office for Budget Responsibility (2014) Economic and Fiscal Outlook, March 2014, Accessed 12th May 2014, http://budgetresponsibility.org.uk/economic-fiscal-outlook-march-2014/

3.3.5 According to the GLA the economic outlook for London is also looking positive, but not without its challenges:

3.3.6 "Most recent economic data indicates that London's economy continues to outperform the UK as a whole as both economies continue to recover from the recession. The majority of economic indicators show a continuing improvement in the London economy, especially when compared to the beginning of 2013. However, uncertainty in a number of key trading areas, for example the on-going Eurozone problems […] may still dampen the economic recovery".18

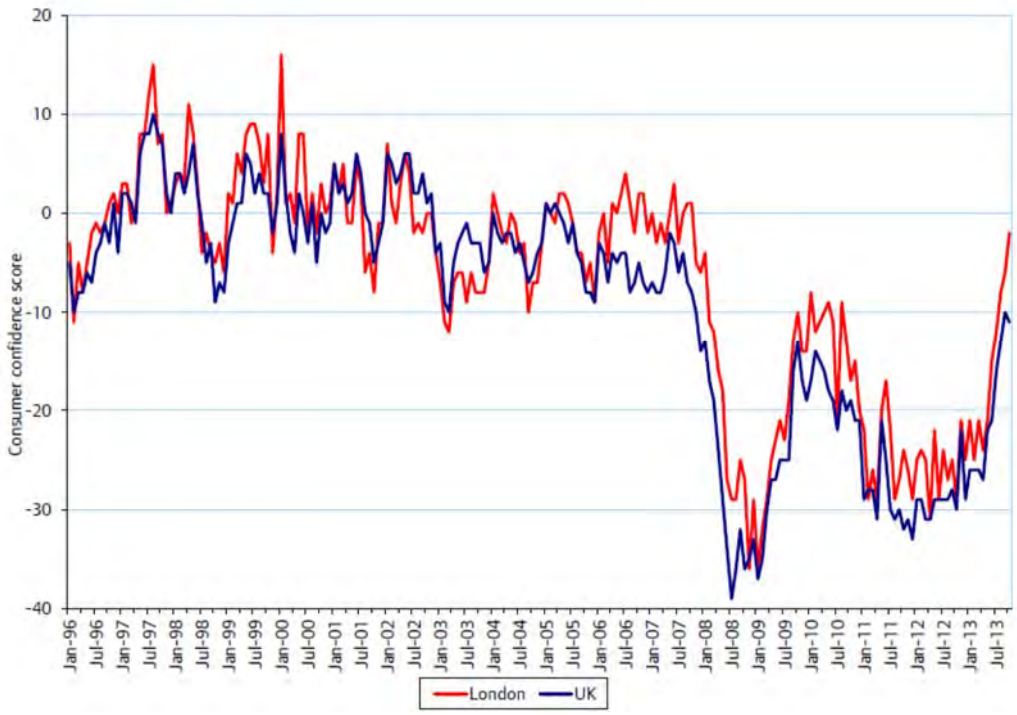
3.3.7 Consumer confidence is also reported to be improving "…but remains vulnerable to shocks and household incomes remain under pressure but are likely to gradually improve over the next few years although at a subdued rate".19 Historical changes in the confidence of London's consumers are shown in Figure 3-3, where it is contrasted against

[18] GLA Economics (2013) *London's Economic Outlook: Autumn 2013 – The GLA's Medium-Term Planning Projections*, November 2013, www.london.gov.uk/priorities/business-economy/publications/gla-economics/london-s-economic-outlook-autumn-2013

[19] GLA Economics (2013) *London's Economic Outlook: Autumn 2013 – The GLA's Medium-Term Planning Projections*, November 2013, www.london.gov.uk/priorities/business-economy/publications/gla-economics/london-s-economic-outlook-autumn-2013

consumer confidence in the UK as a whole. From this it can be seen that consumer confidence in the capital is typically higher than the UK average, but there have been significant fluctuations in recent years, with signs that confidence is improving again.

Figure 3-3: Changes in Consumer Confidence: UK Average vs London



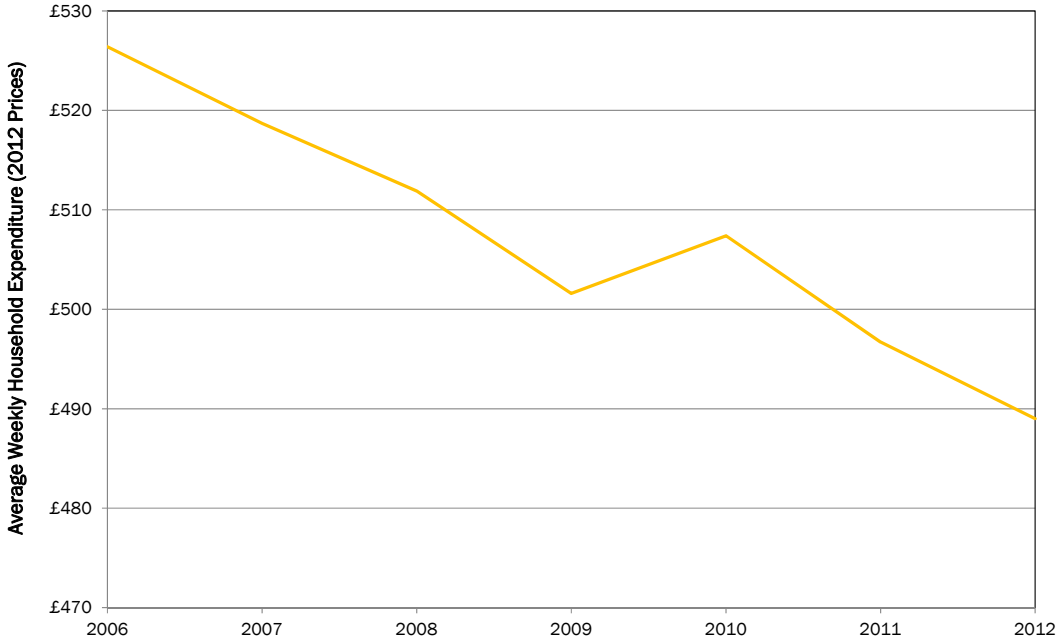
Source: GLA Economics (2013) London's Economic Outlook: Autumn 2013 – The GLA's Medium-Term Planning Projections, November 2013, www.london.gov.uk/priorities/business-economy/publications/gla-economics/london-s-economic-outlook-autumn-2013

3.3.8 Average weekly household expenditure in the UK fell by 7% between 2006 and 2012, reflecting the tough economic times faced by households during this period (Figure 3-4).20 Household expenditure in London has fallen significantly since 2001, but showed signs of growth in 2012 and GLA economists predicts that this will continue over the period 2013 to 2015.[21]

[20] Office for National Statistics (2013) *Chapter 4: Trends in Household Expenditure Over Time*, December 2013, www.ons.gov.uk/ons/dcp171776_341526.pdf

[21] GLA Economics (2013) *London's Economic Outlook: Autumn 2013 – The GLA's Medium-Term Planning Projections*, November 2013, www.london.gov.uk/priorities/business-economy/publications/gla-economics/london-s-economic-outlook-autumn-2013

Figure 3-4: UK Average Weekly Household Expenditure (2006 – 2012, in 2012 Prices)



Source: Office for National Statistics (2013) *Chapter 4: Trends in Household Expenditure Over Time*, December 2013, www.ons.gov.uk/ons/dcp171776_341526.pdf

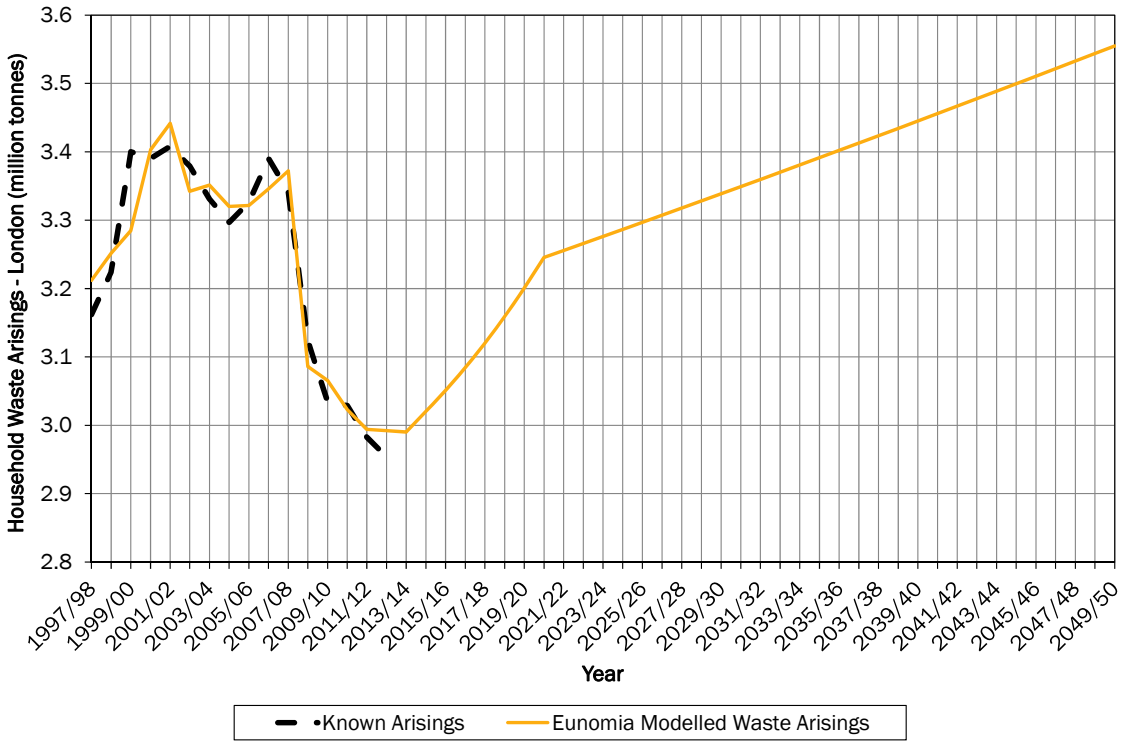
3.3.9 The independent variables used to project forward household waste arisings are presented in Table 3-3. The slow reduction in the recessionary impact/indicator variable is intended to reflect the above discussion which suggests that the economic recovery may remain sluggish for a number of years, with consumer spending and confidence returning gradually as the economic outlook improves. We have assumed that the full impacts of the recession on consumer spending/confidence have fully disappeared by 2020/21. The results of these projections are represented graphically in Figure 3-5.

Table 3-3: Parameters Used for Projecting Household Waste Arisings (2012/13 – 2050/51)

Year	Change in GDHI[1]	Time Variable	Recessionary Impact / Dummy Variable
2012/13	2.5%	2012	1.00
2013/14	2.5%	2013	1.00
2014/15	2.5%	2014	0.86
2015/16	2.5%	2015	0.71
2016/17	2.6%	2016	0.57
2017/18	2.7%	2017	0.43
2018/19	2.8%	2018	0.29
2019/20	2.9%	2019	0.14
2020/21	3.0%	2020	0.00
2021/22 to 2050/51	3.0%	+1 for each year	0.00

Note: 1. GDHI figures for the period 2012/13 to 2018/19 comes from OBR central projections of national GDHI provided in the Budget 2014 – see: HM Treasury (2014) Budget 2014*, March 2014, www.gov.uk/government/publications/budget-2014-documents.*

Figure 3-5: Historic and Forecast Household Waste Arisings in London (1997/98– 2050/51, million tonnes)

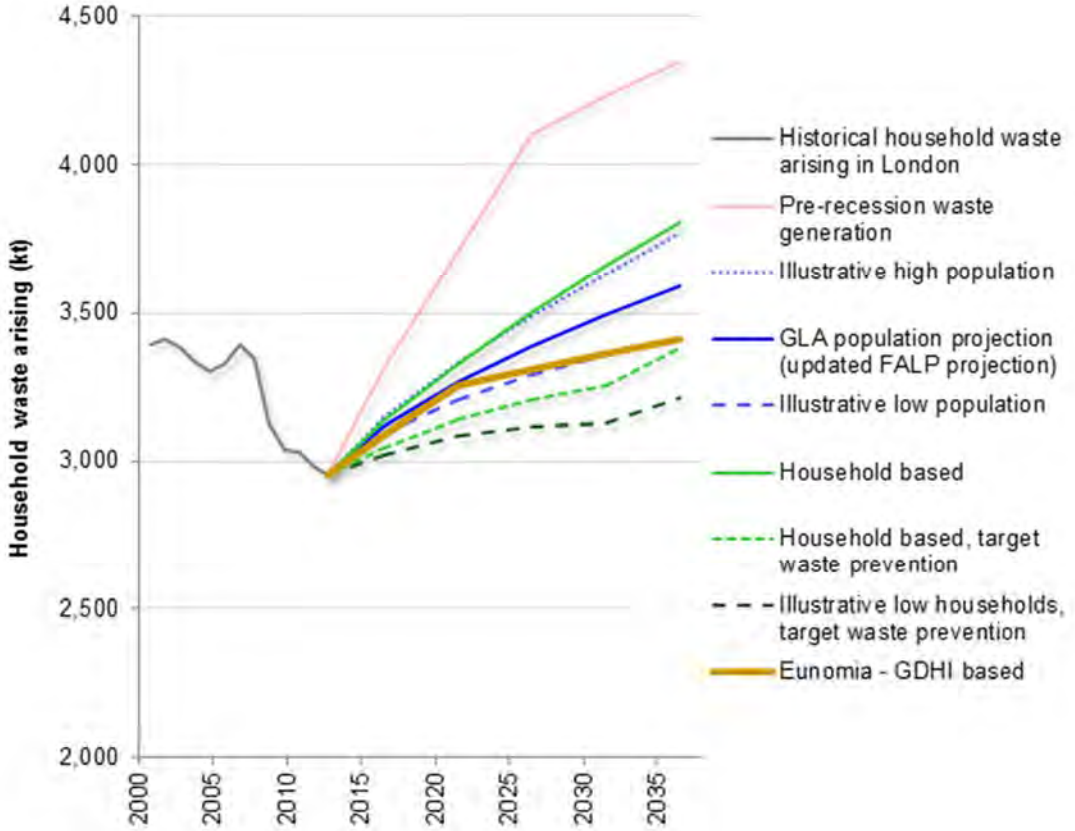


3.3.10 Figure 3-6 compares Eunomia's projections (solid brown line) to those developed as part of the Draft Further Alterations to the London Plan (FALP) published by the Mayor of London on 15 January 2014 (solid blue line) and projections of waste arisings based on other forecasting methodologies as compared by SLR in their review of the plan for the GLA.22 23 The forecast of household waste arisings in the FALP are based on a waste per household basis with population forecasts used to predict future arisings. It can be seen from this that the two projections are similar in the years leading up to 2020/21, after which point Eunomia's projections start to flatten off relative to those presented in the FALP. Both projections see London's household waste arisings increasing to just over 3.2 million tonnes by 2020/21 and then continuing to grow, albeit at different rates. Eunomia's projections estimate that total household waste arisings will be 3.4 million tonnes in 2036 compared to the FALP projection of 3.6 million tonnes in the same year (the final year in the FALP). Our model projects arisings of just less than 3.6 million by 2050/51, whilst the FALP (if extrapolated forward from 2036) predicts more consistent growth leading to waste arisings in excess of 3.8 million tonnes by the same point.

[22] GLA 2014 Draft Further Alterations to the London Plan. January 2014. http://www.london.gov.uk/priorities/planning/london-plan/draft-further-alterations-to-the-london-plan

[23] SLR 2014 Revised London Plan Waste Arisings Study Review for the Greater London Authority – Model Guide and task 4 Findings https://www.london.gov.uk/sites/default/files/Model%20Guide%20and%20Findings%20.pdf

Figure 3-6: Eunomia Forecast Household Waste Arisings compared with that presented in the Draft Further Alterations to the London Plan and other Comparator Forecasts



4 Forecasting C&I Waste Arisings

4.1 Overview

4.1.1 This section outlines the data and projections that have been used to forecast Local Authority Collected C&I arisings for the NLWA.

4.2 Historic Waste Arisings

4.2.1 There have recently been some attempts to demonstrate a decoupling between economic output and C&I waste arisings.24 However, given the paucity of robust, regular time-series data on arisings and the recent economic recession, it seems premature to make any definitive conclusions in this respect. Indeed, the lack of historical data makes it impossible to undertake the regression analysis carried out on household waste as described in Section 3 (estimates of C&I waste arisings are only available for 1999, 2003, and 2009). An alternative method for forecasting C&I waste arisings is therefore required and for this purpose we have drawn on work published in the FALP.

4.3 Looking Forward

4.3.1 Research undertaken by SLR Consulting Ltd in 2010 on behalf of the GLA for the London Plan included a forecast of C&I waste arisings through to 2031. This forecast was based on what was at the time the most recent (2003) figures on C&I waste arisings, and based on this calculated a 'waste per employee' figure from GLA employment figures. This baseline was then extrapolated through to 2031 by applying economic growth assumptions in the form of GLA employment forecasts to predict a total C&I tonnage for each London authority. The overall picture was one of an increase in total jobs overall in London, but less waste being produced (as 'heavy waste' jobs in industry are replaced by 'lighter waste' jobs in the service sector) resulting in a relatively constant amount of C&I waste through the period.[25]

4.3.2 This work was updated by SLR in late 2013 as part of the draft revisions to the London Plan published in January 2014.[26] This analysis uses updated employment data and forecasts as well as the C&I waste data from 2009. In addition, the projections were extended from 2031 to 2036. At present these projections are the most up-to-date projections of likely future C&I waste arising available at a borough by borough level.

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[24] For example, see: Defra (2011) *Commercial and Industrial Waste Arisings 2010 – Revised Final Results*, June 2011, www.gov.uk/government/publications/commercial-and-industrial-waste-generation-and-management

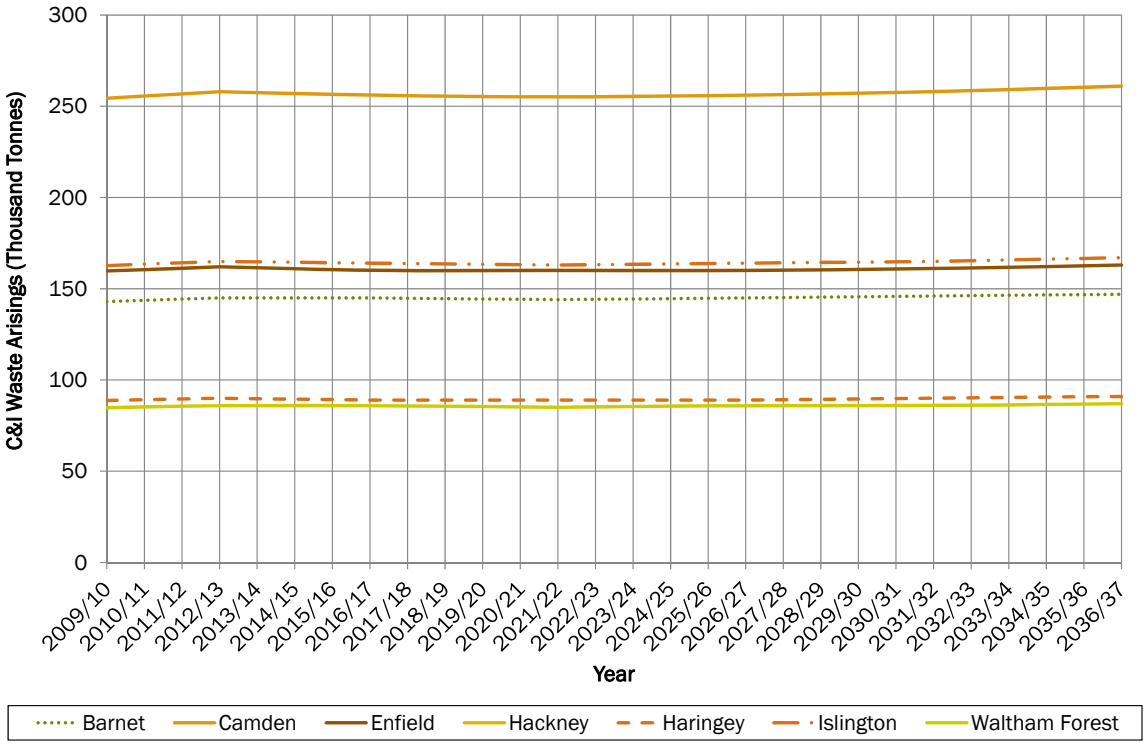
[25] GLA (2010) *Future Waste Arisings in London 2010-2031 – Summary Note*, March 2010, www.london.gov.uk/shaping-london/london-plan/docs/waste-arisings-note.pdf

[26] SLR (2014) *Revised London Plan Waste Arisings Study Review for the Greater London Authority – Model Guide and Task 4 Findings*, January 2014, www.london.gov.uk/sites/default/files/Model%20Guide%20and%20Findings%20.pdf

4.3.3 There are alternative methods of analysing and forecasting C&I waste arisings using C&I business classification (SIC) code data; however, in our view there is also an issue regarding the reliability of this data when used for forecasting purposes. There is also a danger in over-complicating matters with spurious levels of detail; detail which in and of itself is based on relatively high-level sampling and assumptions.

4.3.4 Therefore whilst there are options for a number of more complex modelling methods to be used for projecting future C&I waste arisings, given the absence of reliable trend data we have used the C&I waste arisings forecast growth rate presented in the FALP on which to base our forecast. These projections are shown for the Constituent Boroughs in Figure 4-1. As with the original projections in the London Plan, these projections show very little change in C&I waste arisings over time. For the period beyond 2036 (i.e. the end point of the projections in the FALP) it is assumed that the calculated annual growth rate of 0.22% achieved between 2034/35 and 2036/37 would continue until 2050/51.

Figure 4-1: Total C&I Arisings in NLWA's Constituent Boroughs (2009 – 2036)

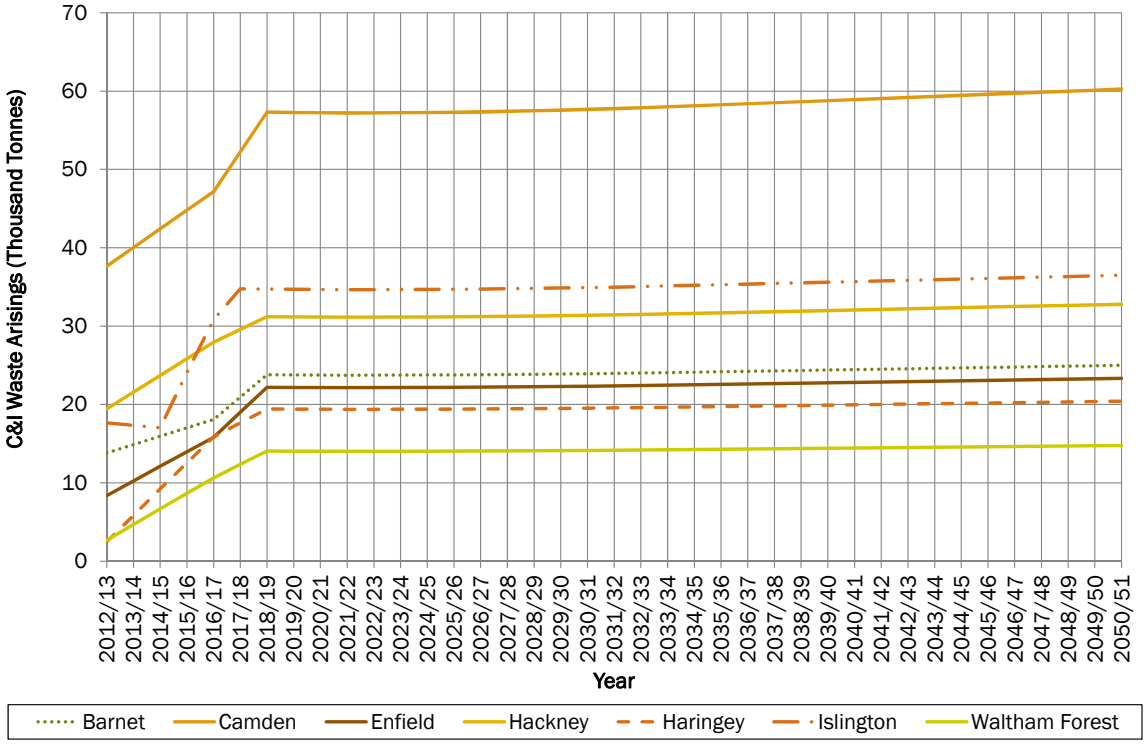


Source: Mayor of London, Greater London Authority (2014) Draft Further Alterations to the London Plan, January 2014, www.london.gov.uk/priorities/planning/london-plan/draft-further-alterations-to-the-london-plan

4.3.5 Using data on the tonnages of C&I waste collected by each Constituent Borough reported via WasteDataFlow a 'market share' was calculated for each borough. Due to the lack of suitable data it is only possible to calculate the market share that each borough had back to 2009. Consequently, in our forecast we assume that each borough's market share recovers to 2009 levels by 2016/17, and then increases a further

2% in both 2017/18 and 2018/19. The results of this apportionment are shown in **Figure 4-2** which outlines the amount of local authority collected C&I waste for each of the Constituent Boroughs.

Figure 4-2: Local Authority Collected C&I Waste in NLWA's Constituent Boroughs (2009 – 2036)



4.4 Assumptions

4.4.1 The projections of C&I waste in the FALP are based on assumptions about the amount of waste produced per employee in different business sectors. The arisings per employee were calculated based on Defra's 2009 survey data and this yielded much lower results than SLR's earlier work that used data from 2003. Explanatory notes for the FALP explain that:

"The reduction in projected C&I waste arisings is largely due to the use of Defra's 2009 survey to characterise baseline waste production. Previous C&I waste forecasts presented in the Alterations to the London Plan used the Environment Agency's 2002/3 C&I waste survey as a basis. The EA 2002/3 survey estimated a London's total C&IW

arising of 7.5 Mt, while the more recent Defra survey found a substantially reduced arising 4.6 Mt (39% lower)".[27]

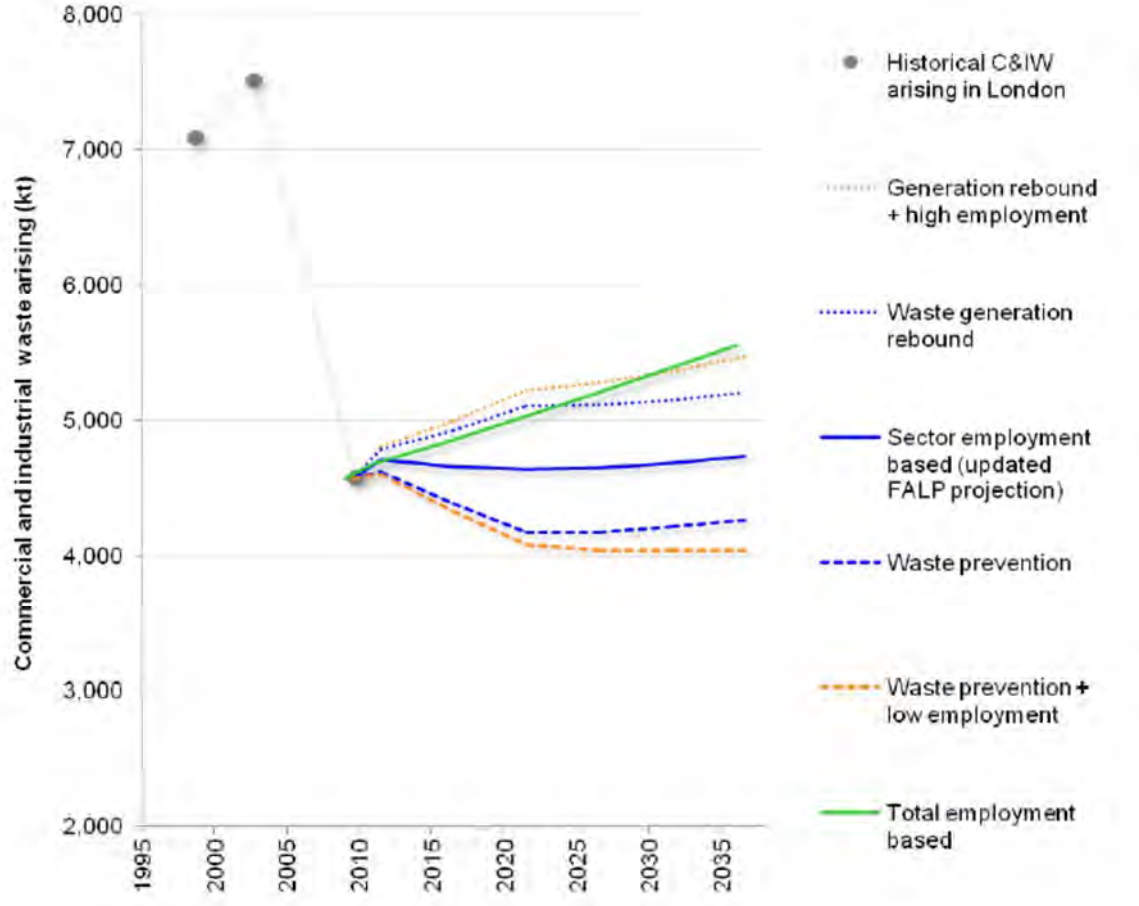
4.4.2 Given that the last C&I waste survey was only a year after the onset of the financial downturn in 2008 – the recovery from which we are only slowly beginning to see – it would seem reasonable that C&I waste arisings have fallen further since this point. This would, using SLR's methodology, act to further reduce the projections made in the FALP as waste per employee would be a lot lower.

4.4.3 It is also assumed that waste generation per employee remains constant over time, which may not necessarily prove to be true given significant financial pressures to make efficiency savings and the growing focus on waste prevention. SLR's analyses also apportions the London-wide C&I waste arising by borough based on Defra's 2009 survey. It was therefore assumed that the proportion of waste produced by each borough would remain constant for the period 2009 to 2036. Given the lack of data there is little that can be done about this crude assumption; however, it needs to be born in mind that changes within individual boroughs' approach to C&I waste and recycling collection service provision may lead to fairly significant shifts in these proportions.

4.4.4 Further details on the methodology used for the FALP projections can be found in the documents cited above. The projections provided by SLR should be seen as indicative only and are based on a number of key assumptions. Indeed, the analysis of a number of alternative scenarios show that waste arisings could vary significantly depending on the assumption made (Figure 4-3).

[27] SLR (2014) *Revised London Plan Waste Arisings Study Review for the Greater London Authority – Model Guide and Task 4 Findings*, January 2014, www.london.gov.uk/sites/default/files/Model%20Guide%20and%20Findings%20.pdf

Figure 4-3: SLR's Modelled C&I Waste Arising Scenarios for the London Plan



Source: SLR 2014 Revised London Plan Waste Arisings Study Review for the Greater London Authority – Model Guide and task 4 Findings

https://www.london.gov.uk/sites/default/files/Model%20Guide%20and%20Findings%20.pdf

5 Forecasting Waste Arisings from Other Waste Streams

5.1 Overview

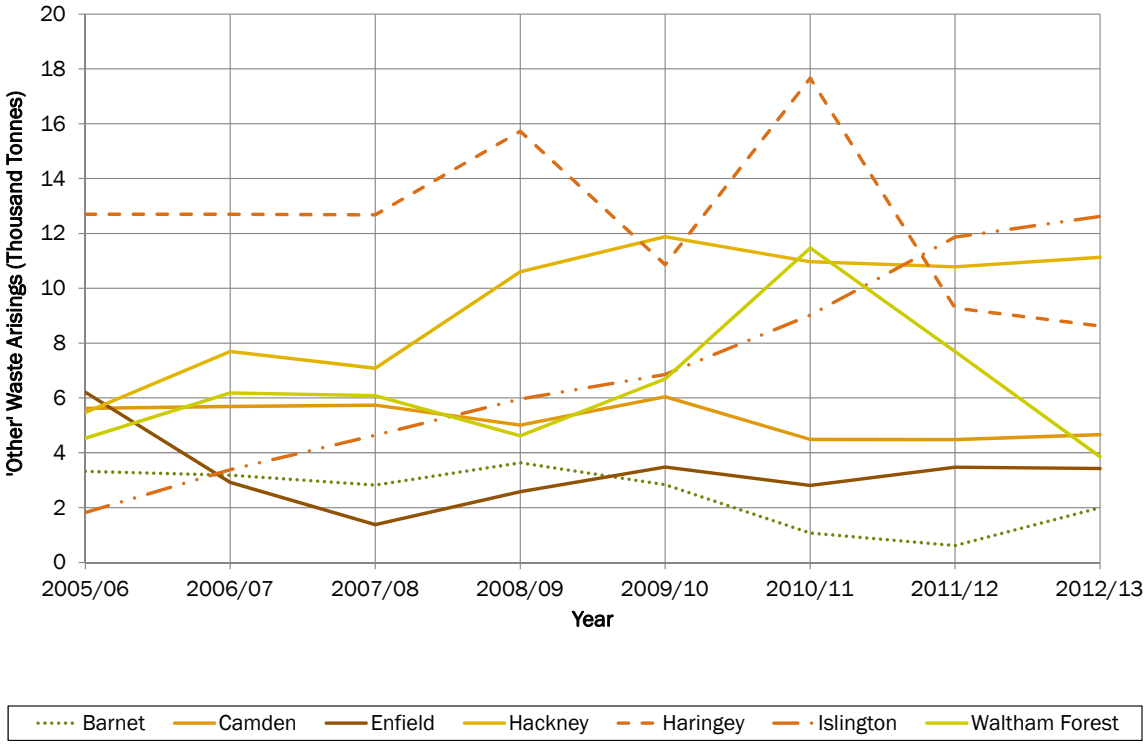
5.1.1 In addition to household and C&I waste, the model also includes a number of other local authority collected waste streams, namely:

- Fly-tipped waste;
- C&D waste;
- Ground clearing waste;
- Highways waste; and
- Asbestos waste.

5.2 Historic Waste Arisings

5.2.1 The model sums the arisings for the waste streams listed above as an 'other' category. The historic trends in these arisings are shown for each of the Constituent Boroughs in **Figure 5-1**. It can be seen from this figure that there are no obvious trends between the Constituent Boroughs and that as mentioned above, relative to the local authority collected household and C&I waste arisings these wastes make up only a very small proportion of total arisings.

Figure 5-1: Historic Arisings of 'Other' Waste Streams in NLWA (2005/06 – 2012/13, thousand tonnes)



5.3 Looking Forward

5.3.1 Given the uncertainty regarding changes in these waste streams in the future, and the relatively low proportion of the overall waste arisings represented, we have assumed that these ‘other’ waste arisings will remain static at 2012/13 levels for the duration of the modelling period (i.e. out to 2050/51).

6 Forecasting Future Recycling Rates

6.1.1 Anticipating likely future trends in dry recycling and composting is no easy task and is strongly linked to a number of factors, not least of all economic drivers such as landfill tax and the cost of recycling, alongside obligatory recycling targets. The model developed for these projections has taken a 'target-led' approach, whereby different future recycling rates have been predefined in the model at specific years in the future, completed with a simple linear extrapolation of recycling rate for the intervening and following years.

6.1.2 It is acknowledged that the drivers for household and C&I waste, while not dissimilar, are still worth separating out and we therefore discuss each in turn below. In each case three scenarios have been agreed with the NLWA for the purposes of developing the model presented in this report. Each of these scenarios represents a different level of achievement for future recycling efforts:

- Low recycling scenario – these scenarios represent limited levels of achievement;
- Central recycling scenario – these scenarios demonstrate moderate to high levels of achievement and allow for the achievement of national recycling targets; and
- High recycling scenario – these scenarios demonstrate very high levels of achievement with respect to recycling and are in line with the London Plan and the Mayor's Waste Strategies.[28,29,30]

6.1.3 The chosen recycling rates used in each scenario are outlined below.

6.2 Household Waste

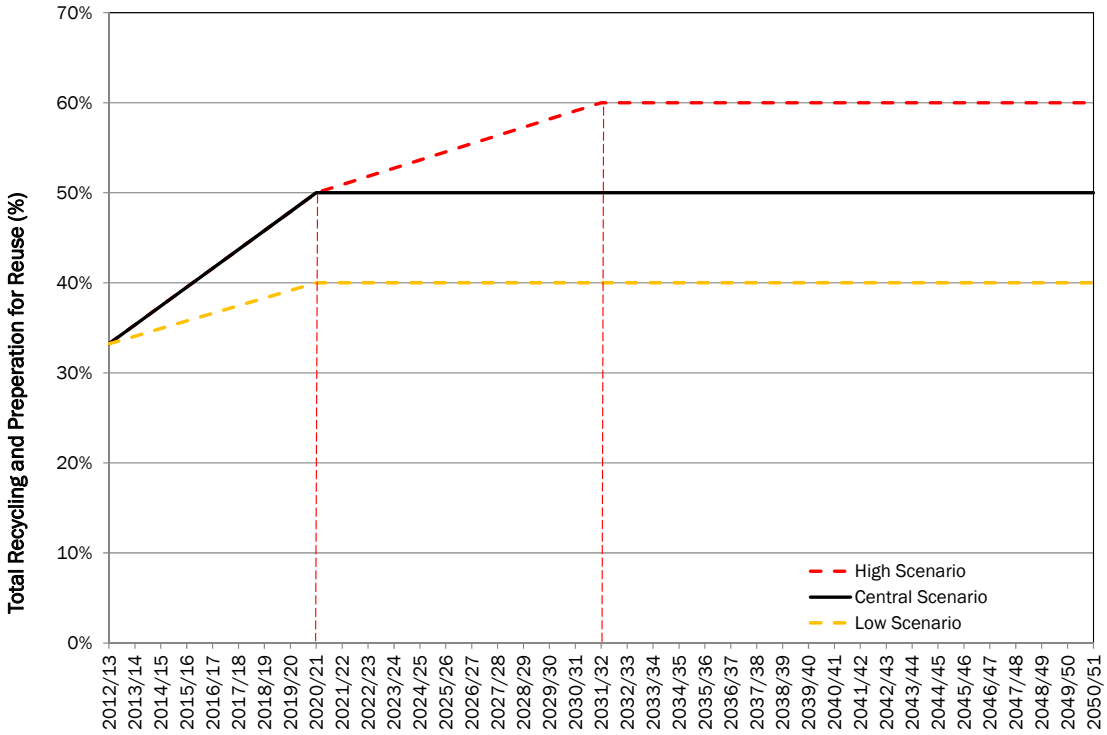
6.2.1 The recycling targets selected for household waste are as follows (see **Figure 6-1**):

- Low recycling scenario – 40% recycling by 2020/21 and remaining static thereafter;

[28] Greater London Authority (2014) *The London Plan*, Date Accessed: 13th March 2014, Available at: www.london.gov.uk/priorities/planning/london-plan
[29] Mayor of London, Greater London Authority (2011) *London's Wasted Resource: The Mayor's Municipal Waste Management Strategy,* November 2011, www.london.gov.uk/priorities/environment/publications/the-mayors-waste-management-strategies
[30] Mayor of London, Greater London Authority (2011) *Making Business Sense of Waste: The Mayor's Business Waste Management Strategy,* November 2011, www.london.gov.uk/priorities/environment/publications/the-mayors-waste-management-strategies

- Central recycling scenario – 50% recycling by 2020/21 and remaining static thereafter; and
- High recycling scenario – 50% recycling by 2020/21, rising to 60% in 2031/32 and remaining static thereafter.

Figure 6-1: Graphical Representation of Recycling Scenarios for Household Waste



Note: the recycling rate in 2012/13 is the NLWA average for household waste.

Low Recycling Scenario

6.2.2 The average recycling rate for household waste across the seven Constituent Boroughs was 32.8% in 2012/13, ranging from 23.7% in Hackney to 40.5% in Enfield. **Table 6-1** shows the required year on year increase in recycling rates required for each borough to reach a 40% recycling rate in 2020/21.

Table 6-1: Percentage Year on Year Increase in Household Recycling Rates Required in Order to Achieve 40% Recycling by 2020/21

Borough	Annual Change in Recycling Rate - 2006/7 to 2012/13	Actual Household Recycling Rate in 2012/13	Low Recycling Scenario Target for 2020/21	Required Year on Year Change in Recycling Rate
Barnet	0.70%	34.4%	40%	0.70%
Camden	0.83%	31.4%	40%	1.08%
Enfield	2.82%	40.5%	40%	0.00%
Hackney	0.93%	23.7%	40%	2.04%
Haringey	1.94%	33.3%	40%	0.83%
Islington	1.54%	34.0%	40%	0.75%

Waltham Forest	0.97%	32.2%	40%	0.97%
Average	1.39%	32.8%	40%	0.90%

Central Recycling Scenario

6.2.3 Article 11(2)a of the Waste Framework Directive (2008/98/EC) requires that Member States achieve 50% recycling of "household and similar waste" by 2020. This target was transposed into English law through the Waste (England and Wales) Regulations 2011 (amended 2012). England as a whole is therefore obliged to recycle 50% of its household waste by 2020.31 This is a national target and individual authorities are not legally bound by it; however, if it is to be achieved underperformance in one area will have to be matched by above target performance elsewhere in the country. The Central Recycling Scenario assumes that the Constituent Boroughs achieve this rate of recycling by the target year; this is also in line with the target included within the North London Joint Waste Strategy published in early 2009.32

6.2.4 Table 6-2 shows the required year on year increase in recycling rates required for each borough to reach a 50% recycling rate in 2020/21.

Table 6-2: Percentage Year on Year Increase in Household Recycling Rates Required in Order to Achieve 50% Recycling by 2020/21

Borough	Annual Change in Recycling Rate - 2006/7 to 2012/13	Actual Household Recycling Rate in 2012/13	Central Recycling Scenario Target for 2020/21	Required Year on Year Change in Recycling Rate
Barnet	0.70%	34.4%	50%	1.95%
Camden	0.83%	31.4%	50%	2.33%
Enfield	2.82%	40.5%	50%	1.19%
Hackney	0.93%	23.7%	50%	3.29%
Haringey	1.94%	33.3%	50%	2.08%
Islington	1.54%	34.0%	50%	2.00%
Waltham Forest	0.97%	32.2%	50%	2.22%
Average	1.39%	32.8%	50%	2.15%

High Recycling Scenario

[31] Under the Waste Framework Directive Member States are allowed to meet the 50% recycling target by using one of four calculation methods. These methods are set out in a 2011 Commission Decision and each varies quite significantly. At present the UK has chosen to meet the target by using Method 3, which calculates the recycling rate (%) of all household as being equal to: recycled amount of household waste divided by the total amount of household waste excluding certain waste categories. See: Commission Decision of 18 November 2011 Establishing Rules and Calculation Methods for Verifying Compliance with the Targets Set in Article 11(2) of Directive 2008/98/EC of the European Parliament and of the Council (notified under document C(2011) 8165) (2011/753/EU).

[32] North London Waste Authority (2009) *North London Joint Waste Strategy*, February 2009, www.nlwa.gov.uk/docs/nlwa-general-documents-and-plans/north-london-joint-waste-strategy.pdf, p. 53

6.2.5 As stated above, the targets in this scenario are based on those set out in the FALP and the Mayor's Waste Strategies. [33,34,35] This scenario also aims to reflect possible changes in European waste policy which is showing increasing commitment to the resource efficiency agenda.[36] Indeed, the principle has already been enshrined in a number of documents, such as:

1. The Roadmap to a Resource Efficient Europe including 2020 aspirational targets; [37]
2. The 7th Environmental Action Programme;[38]
3. The Raw Materials Initiative highlighting the importance of recycling to ensure safe access to raw materials;[39] and
4. The Report on the Thematic Strategy on Waste Prevention and Recycling summarising progress thus far, remaining challenges and proposals for the future.[40]

6.2.6 The above documents include a number of aspirations which the Commission is working to have enshrined in legislation as objective targets against which Member States' performance can be compared. Paragraph 40 of the recently published 7th Environmental Action Programme, for example, includes the following statement:

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[33] Greater London Authority (2014) *The London Plan*, Date Accessed: 13th March 2014, Available at: www.london.gov.uk/priorities/planning/london-plan

[34] Mayor of London, Greater London Authority (2011) *London's Wasted Resource: The Mayor's Municipal Waste Management Strategy,* November 2011, www.london.gov.uk/priorities/environment/publications/the-mayors-waste-management-strategies

[35] Mayor of London, Greater London Authority (2011) *Making Business Sense of Waste: The Mayor's Business Waste Management Strategy,* November 2011, www.london.gov.uk/priorities/environment/publications/the-mayors-waste-management-strategies

[36] See for example: Let's Recycle (2014) *Potočnik: Resource Efficiency Key to EU's Success*, Date Published: 9 May 2014, Date Accessed: 12 May 2014, Available at: www.letsrecycle.com/news/latest-news/waste-management/environment-and-economy-are-linked-says-commissioner; and Let's Recycle (2014) *Higher Recycling Targets Package 'Out in June'*, Date Published: 9 May 2014, Date Accessed: 12 May 2014, Available at: www.letsrecycle.com/news/latest-news/waste-management/eu-higher-recycling-targets-out-in-june

[37] European Commission (2011) *Roadmap to a Resource Efficient Europe*, COM(2011) 571 final, http://ec.europa.eu/environment/resource_efficiency/about/roadmap/index_en.htm

[38] Decision of the European Parliament and of the Council (2013) Decision of the European Parliament and of the Council on a General Union Environment Action Programme to 2020 "Living Well, Within the Limits of our Planet", November 2013, http://ec.europa.eu/environment/newprg/

[39] Communication from the Commission to the European Parliament and the Council (2012) *The Raw Materials Initiative — Meeting Our Critical Needs for Growth and Jobs in Europe*, COM(2008) 699 final, http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2008:0699:FIN:en:PDF

[40] Report from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions (2011) *Report on the Thematic Strategy on the Prevention and Recycling of Waste*, SEC(2011) 70 final, http://ec.europa.eu/environment/waste/strategy.htm

"Additional efforts are needed to reduce per capita waste generation and waste generation in absolute terms. *Limiting* energy recovery to non-recyclable [41] materials, *phasing* out landfilling *of recyclable or recoverable waste* [42], *ensuring* high quality recycling *where the use of the recycled material will not lead to overall adverse environmental or human health impacts,* and *developing* markets for secondary raw materials *are also necessary to achieve resource efficiency objectives"*.[43]

6.2.7 Objectives such as this clearly lay out the Commission's intentions with respect to improving resouce efficency and the intention is that future policy will allows for the concrete realisation of these aspirations. However, it is still very uncertain as to what may come of these ambitions and how they may materialise as formal targets.

6.2.8 In line with the 'aspiration' enshrined within the FALP, this scenario also assumes that authorities continue to invest in their services to the extent that 60% recycling can be achieved by 2031/32 (an annual increase of 0.91% between 2020/21 and 2031/32 - **Table 6-3**).

[41] 'recycling' defined in Article 3.17 of Directive 2008/98/EC as *"any recovery operation by which waste materials are reprocessed into products, materials or substances whether for the original or other purposes. It includes the reprocessing of organic material but does not include energy recovery and the reprocessing into materials that are to be used as fuels or for backfilling operations"*.

[42] 'recovery' defined in Article 3.15 of Directive 2008/98/EC as *"any operation the principal result of which is waste serving a useful purpose by replacing other materials which would otherwise have been used to fulfil a particular function, or waste being prepared to fulfil that function, in the plant or in the wider economy"*.

[43] Decision of the European Parliament and of the Council (2013) *Decision of the European Parliament and of the Council on a General Union Environment Action Programme to 2020 "Living Well, Within the Limits of our Planet",* November 2013, http://ec.europa.eu/environment/newprg/

Table 6-3: Percentage Year on Year Increase in Household Recycling Rates Required in Order to Achieve 50% Recycling by 2020/21

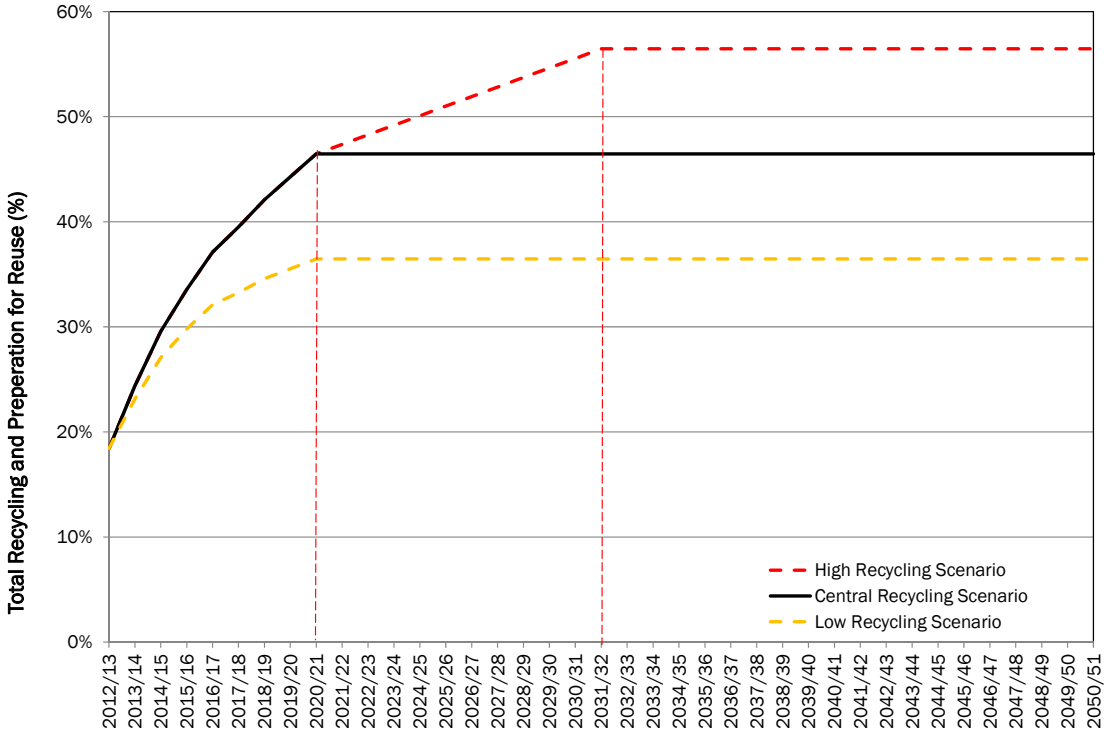
Borough	Annual Change in Recycling Rate - 2006/7 to 2012/13	Actual Household Recycling Rate in 2012/13	High Recycling Scenario Target for 2020/21	Yr on Yr Change in Recycling Rate (12/13-20/21)	High Recycling Scenario Target for 2031/32	Yr on Yr Change in Recycling Rate (20/21-31/32)
Barnet	0.70%	34.4%	50%	1.95%	60%	0.91%
Camden	0.83%	31.4%	50%	2.33%	60%	0.91%
Enfield	2.82%	40.5%	50%	1.19%	60%	0.91%
Hackney	0.93%	23.7%	50%	3.29%	60%	0.91%
Haringey	1.94%	33.3%	50%	2.08%	60%	0.91%
Islington	1.54%	34.0%	50%	2.00%	60%	0.91%
Waltham Forest	0.97%	32.2%	50%	2.22%	60%	0.91%
Average	1.39%	32.8%	50%	2.15%	60%	0.91%

6.3 C&I Waste

6.3.1 Unlike with household waste, the proportion of local authority collected C&I waste sent for recycling is not defined in the model by set targets. Instead, the modelling assumes that the improvements in the recycling of C&I waste will increase at the same rate as the recycling rate for household waste under the three scenarios. For example, under the Low Recycling Scenario, the recycling of household waste will have to increase by 1.12% per annum in Camden if the 40% target is to be achieved by 2020/21 (see **Table 6-1**). Under the Low Recycling Scenario for C&I waste it is assumed that recycling of this waste stream will also increase by 1.12% per year, based on a starting point of 2012/13. The same logic has been applied for the Central and High Scenarios.

6.3.2 The forecast recycling rates assumed for all local authority collected C&I waste is shown graphically in **Figure 6-2**.

Figure 6-2: Graphical Representation of Recycling Scenarios for Local Authority Collected C&I Waste



Note: the recycling rate in 2012/13 is the NLWA average for local authority collected C&I waste.

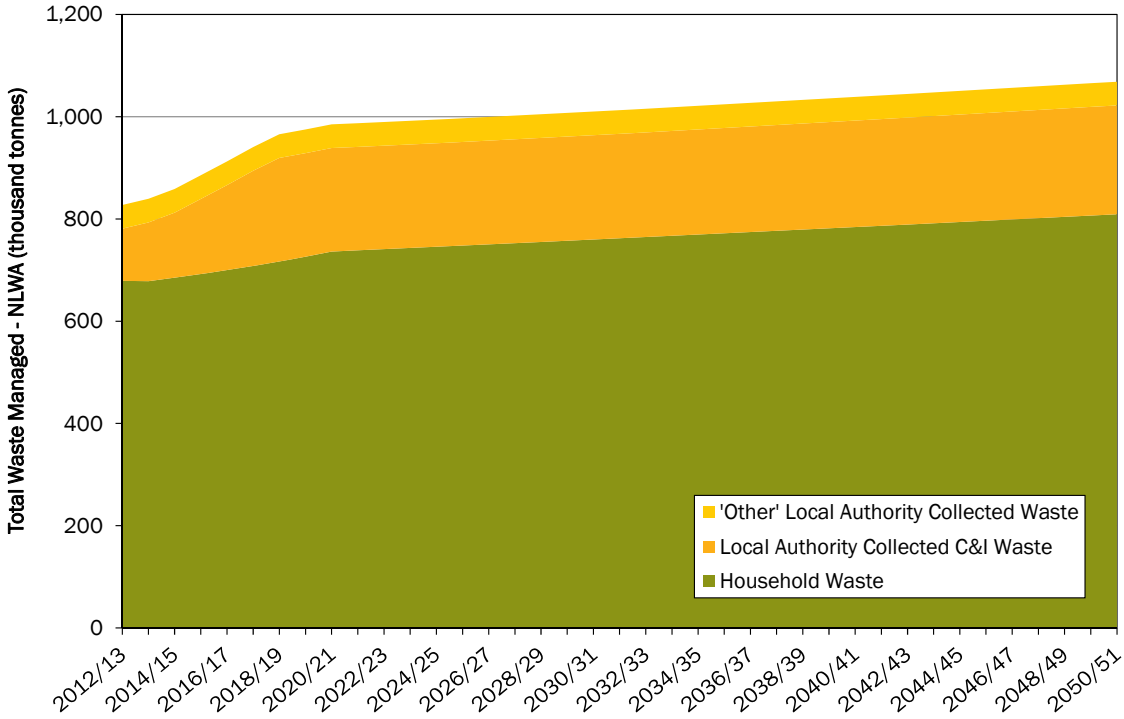
6.4 'Other' Waste

6.4.1 For the purpose of these projections it was assumed that none of the material included under the 'other' waste category would be separated out for recycling. Thus, zero percent recycling was assumed for the entire modelled period.

7 Results

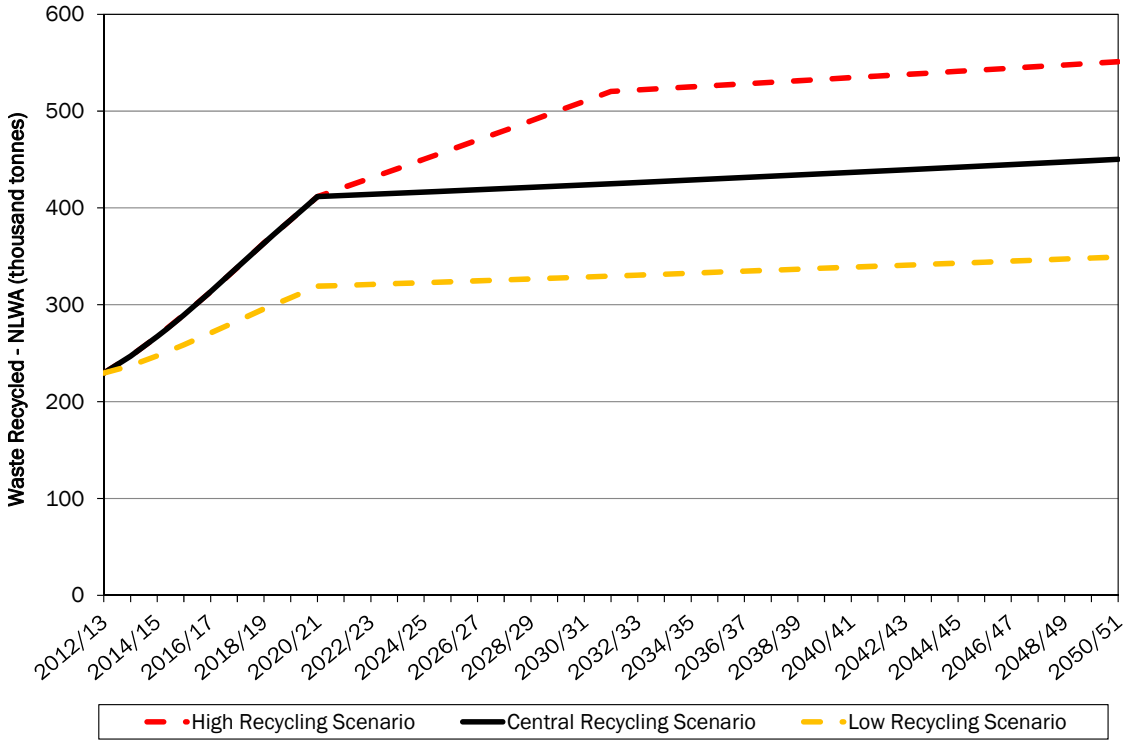
7.1.1 The projected amount of waste collected by Constituent Boroughs and requiring treatment or disposal by the NLWA is shown in **Figure 7-1**. From this it can be seen that household waste makes up by far the largest proportion of the total arisings, followed by local authority collected C&I waste, and finally a small quantity of 'other' waste. The combined total across NLWA rises from 827,000 tonnes in 2012/13 to 985,000 tonnes by 2020/21, and just over one million tonnes by 2050/51.

Figure 7-1: Projected Waste Arisings for NLWA (2012/13 – 2050/51, thousand tonnes)



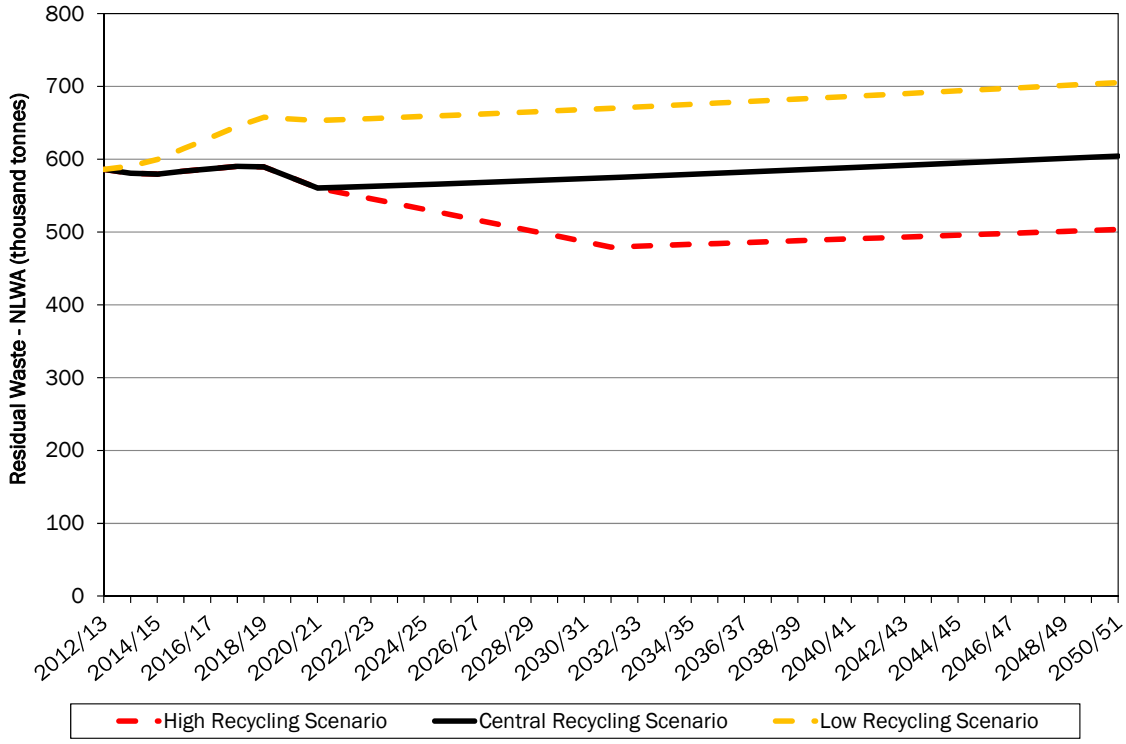
7.1.2 The total quantity of recycling is projected to be between 355,000 tonnes (Low Recycling Scenario) and 559,000 tonnes (High Recycling Scenario) by 2050/51 (**Figure 7-2**). Under the Central Recycling Scenario the quantity of recycling is expected to increase, from 230,000 tonnes in 2012/13 to over 400,000 tonnes by 2020/21. After this point tonnages will continue to gradually increase in line with increases in the total amount of waste arising.

Figure 7-2: Projected Quantity of Recycling under Three Recycling Scenarios (2012/13 – 2050/51, thousand tonnes)



7.1.3 The total quantity of residual waste is projected to be between 713,000 tonnes (Low Recycling Scenario) and 509,000 tonnes (High Recycling Scenario) by 2050/51 (**Figure 7-3**). Under the Central Recycling Scenario the quantity of residual waste is expected to increase to approximately 611,000 tonnes by 2050/51.

Figure 7-3: Projected Quantity of Residual Waste under Three Recycling Scenarios (2012/13 – 2050/51, thousand tonnes)



7.1.4 The results for the three recycling scenarios are summarised in Table 7-1 to Table 7-3 below.

Table 7-1: Quantity of Recycling and Residual Waste Arising under the Low Recycling Scenario (thousand tonnes)

Year	2012/13	2020/21	2036/37	2050/51
Recycling	230	324	340	355
Residual	598	661	687	713
Total	827	985	1,027	1,068

Table 7-2: Quantity of Recycling and Residual Waste Arising under the Central Recycling Scenario (thousand tonnes)

Year	2012/13	2020/21	2036/37	2050/51
Recycling	230	418	438	457
Residual	598	568	589	611
Total	827	986	1,027	1,068

Table 7-3: Quantity of Recycling and Residual Waste Arising under the High Recycling Scenario (thousand tonnes)

Year	2012/13	2020/21	2036/37	2050/51

Recycling	230	418	536	559
Residual	598	567	491	509
Total	827	985	1,027	1,068

Appendix: Household Waste Regression Analysis

Methodology

A.1. As part of earlier work carried out by Eunomia, multi-criteria regression analysis was used to determine the factors analysed that, in combination, have the strongest association to the level of household waste that arise in any given year. This work identified Gross Disposable Household Income (GDHI), a time variable, and an 'indicator' variable as having a statistically significant correlation with household waste arisings in London. This work builds on this earlier work and has rerun the analysis using the most recent data available for both the dependent and independent variables.

A.2. The most basic regression model is simple linear regression, for which we assume that the relationship between our variables x and y is linear:

$$y = ax + b$$

where a, the slope of the regression line, is calculated given a number of data points. In this case, the correlation coefficient can be used as a 'goodness-of-fit' indicator for regression lines. The hypothesis test is thus essentially the same as the test for the significance of correlations. The starting hypothesis is that there is no trend, i.e. $y = 0$. If the p-value of the result (which indicates the probability that the test result is at least as extreme as the result actually observed) is less than the significance threshold, then we reject this hypothesis and say the slope of the line, or the trend in the data, is statistically significant.

A.3. In the case of multiple independent variables, say x_1 and x_2, we assume that the relationship between our variables is:

$$y = a_1 x_1 + a_2 x_2 + b$$

The relationship between y and each of the independent variables is tested separately, and a p-value is calculated for each slope (in this example for both a_1 and a_2). Statistically significant relationships between pairs of variables will again have a p-value of less than 5%. Combinations of variables where the p-values for all independent variables are all less than 5% represent a combination that is highly related to the levels of waste produced.

A.4. As part of this work a 'time variable' (1, 2, 3, 4, 5, etc.) was included alongside GDHI in the analysis. The time variable was used to test for a change over time that may be present but would otherwise have no associated data, e.g. the on-going effect of waste prevention measures or public awareness/education over time.

A.5. The linear relationship between the logarithms of each variable was also tested, and eventually used in the forecasting model. In the equation above, instead of testing a linear relationship – in the form of $y = ax + b$ -Eunomia tested:

$$\log y = a \times \log(x) + b$$

This form of a relationship is common in econometric analysis.[44] The difference between this and the standard linear regression discussed above is that the coefficient a represents the percentage change in y that can be expected from a percentage change in x, rather than simply the unit change in y that can be expected from a unit change in x.

A.6. In choosing which variables should be included in a regression analysis, the potential for overlap between variables had to be taken into account to ensure certain areas were not being taken into consideration more than once through indirect paths, as this would result in the impacts being 'double-counted'. The selection of the independent variables used in our analysis here has therefore been careful to ensure that there is no overlap.

A.7. The historic data used for each of the independent variables is summarised in Table A-1. These data were used to run the regression analysis and formed the basis for the forward projections. Although data for household waste arisings is available for the year 2012/13, the current GDHI data provided by the Office for National Statistics only goes up to 2011, and thus this date forms the cut-off point for the analysis.[45]

Table A-1: Comparison of Modelled Total Household Arisings Based on Regression Analysis with Actuals

Year	Dependent Variable	Independent Variables		
	Historic Household Waste Arisings in London (Million Tonnes)	GDHI in London (Log)	Time Variable (Years)	Dummy Variable
1997/98	14.97	11.65	1997	0
1998/99	14.99	11.70	1998	0
1999/00	15.04	11.73	1999	0
2000/01	15.04	11.80	2000	0
2001/02	15.04	11.84	2001	0

[44] Annex IV of Copenhagen Resource Institute, umweltbundesamt and Technical University of Denmark (2011) *Projections of Municipal Waste Management and Greenhouse Gases: ETC/SCP Working Paper 4/2011*, Report for European Environment Agency, August 2011

[45] Office for National Statistics (2013) *Regional Household Income*, Spring 2013, Accessed: 8th May 2014, www.ons.gov.uk/ons/publications/re-reference-tables.html?edition=tcm%3A77-298694

2002/03	15.03	11.83	2002	0
2003/04	15.02	11.86	2003	0
2004/05	15.01	11.88	2004	0
2005/06	15.02	11.90	2005	0
2006/07	15.04	11.94	2006	0
2007/08	15.02	11.97	2007	0
2008/09	14.95	11.98	2008	1
2009/10	14.93	12.00	2009	1
2010/11	14.92	12.00	2010	1
2011/12	14.91	12.02	2011	1

Results

A.8. The statistical results of the regression analysis between historic waste arisings, GDHI[46], a time variable and the 'indicator' variable are shown in **Figure A-1**.

Figure A-1: Regression Analysis Results

Y Variable: Log of total household waste arisings in London

X Variable 1: Log of London GDHI

X Variable 2: Time variable (years)

X Variable 3: 'Indicator' variable (0 to 1)

Regression Statistics	
Multiple R	0.961378916
R Square	0.92424942
Adjusted R Square	0.903590171
Standard Error	0.014588009
Observations	15

ANOVA

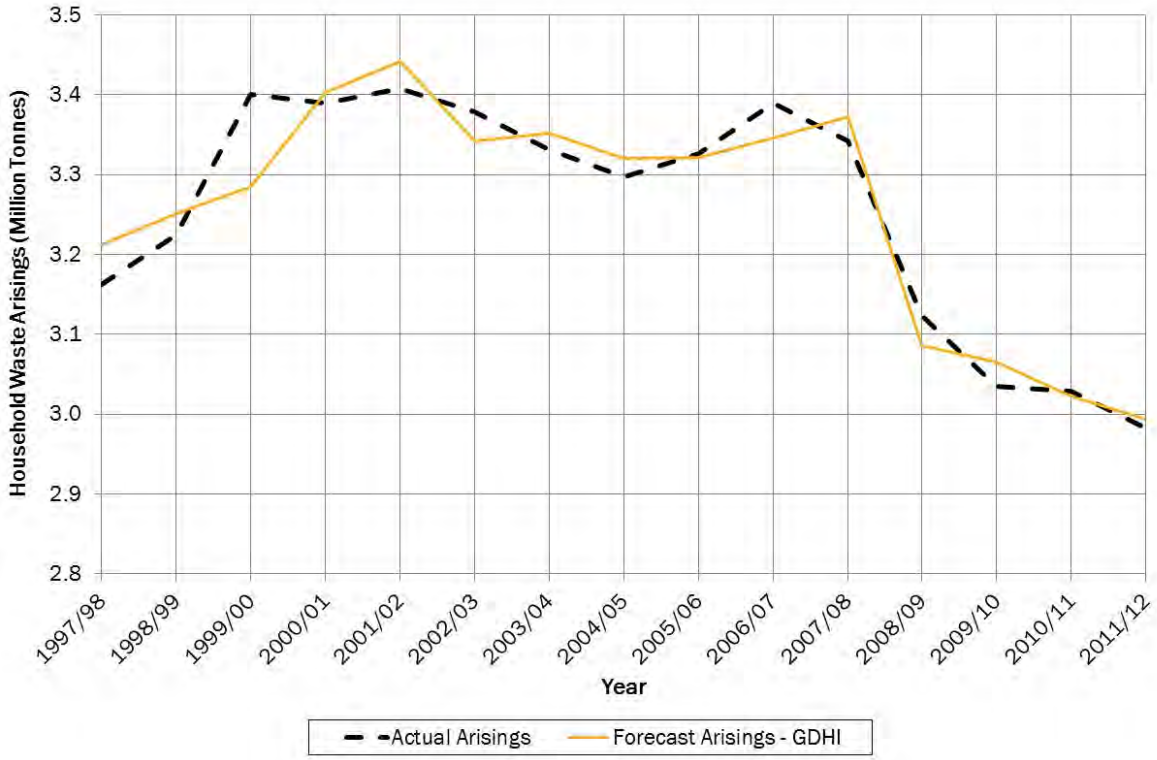
	df	*SS*	*MS*	*F*	*Significance F*
Regression	3	0.028561955	0.009520652	44.73780309	1.87413E-06
Residual	11	0.00234091	0.00021281		
Total	14	0.030902865			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	45.64746688	8.747795039	5.218168313	0.000286316	26.39369981	64.90123394	26.39369981	64.90123394
GDHI	0.779703285	0.184083283	4.235600726	0.00139918	0.374538712	1.184867859	0.374538712	1.184867859
Time	-0.019905678	0.005413672	-3.676927405	0.003645305	-0.03182109	-0.007990267	-0.03182109	-0.007990267
Dummy	-0.07504434	0.015386993	-4.877128491	0.000489116	-0.108910883	-0.041177798	-0.108910883	-0.041177798

A.9. The historic household waste arisings in London are compared to the modelled arisings using the regression equation in Figure A-2. From this it can be seen that in most years there is a good fit between actual and modelled waste arisings (R2 value is 92% - see Figure A-1).

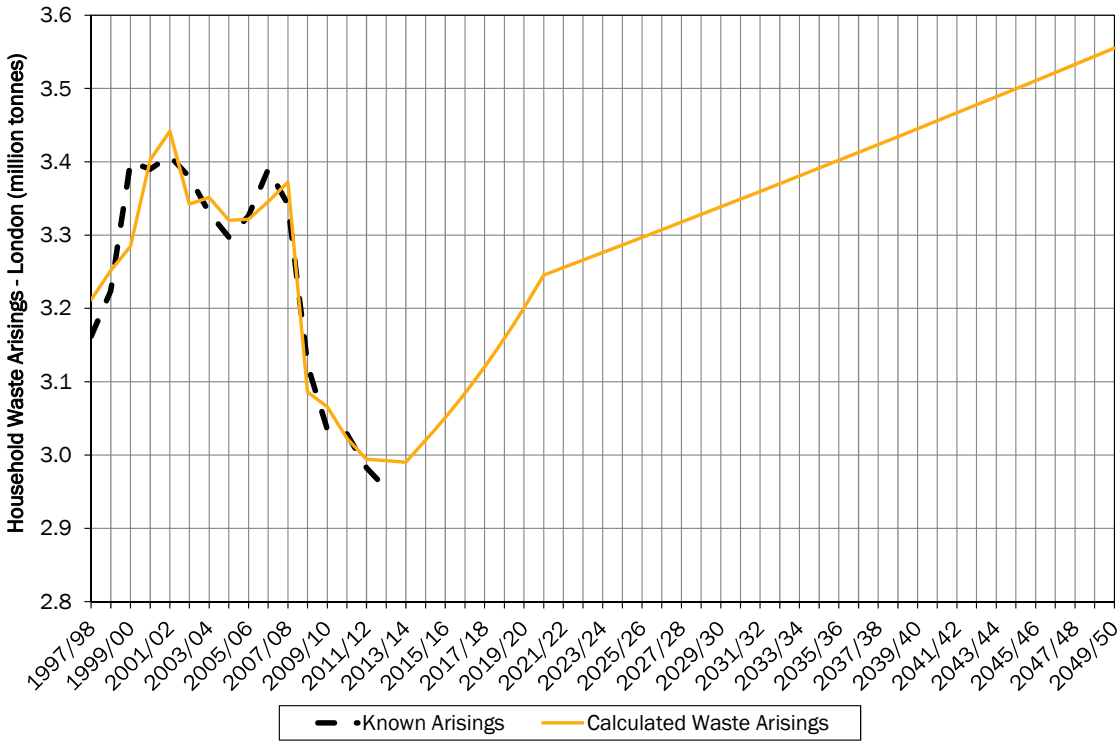
[46] Per calendar year in real terms adjusted with GDP deflator at market prices (ONS)

Figure A-2: Comparison of Modelled and Actual Total Household Waste Arisings for London (Million Tonnes)



A.10. For projecting forward total household waste arisings in London the values in Table 3-3 were used. Figure A-3 shows the projected household waste arisings for London for the period 2012/13 to 2050/51 based on the assumptions set out in this table. The growth rate in London's household waste arisings was assumed to apply equally to each of the Constituent Boroughs. In practice, however, each borough is likely to see household waste arisings grow at slightly different rates. Given that the GDHI data is not available at the borough level it is not possible to go into such detail using the current approach.

Figure A-3: Forecast of London's Total Household Arisings Based on Regression Analysis



NLWA Waste Forecasting Model

On behalf of: North London Waste Authority

Version: FINAL v8

Model Owner: Eunomia Research & Consulting

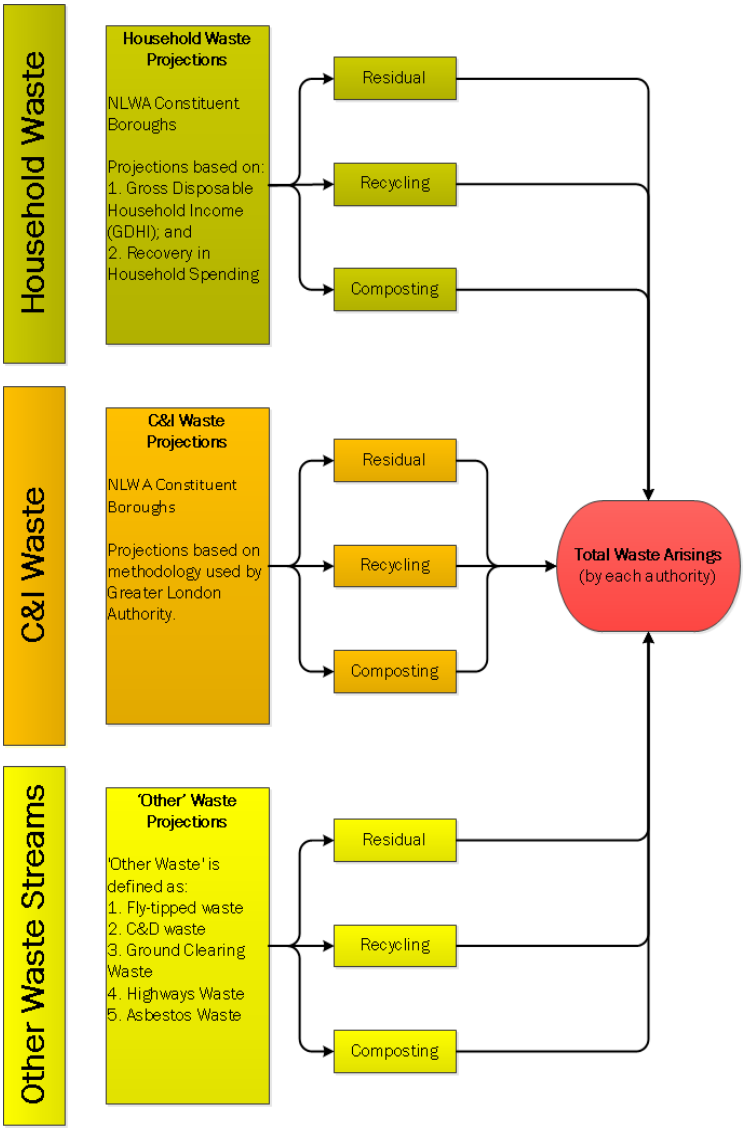
Project Summary

Development of waste arisings forecast for Local Authority Collected Waste in the seven North London boroughs comprising the North London Waste Authority (NLWA) to inform the needs case for the development of the Edmonton EcoPark Energy Recovery Facility (ERF) and associated Development Consent Order (DCO) process.
The main objective of the waste forecast model is to forecast the amount (in tonnes) of residual waste collected by the following London Borough Waste Collection Authorities (WCA): Barnet, Camden, Enfield, Islington, Hackney, Haringey, and Waltham Forest over a period beginning in the financial year 2012/13 and ending in 2050/51

Model Description

See: 'Model Summary' sheet

Model Overview



Cell Style Legend

Table headings

Data Table

Changeable Inputs (general, percent and comma formats are available)

Calculation - Do not Change

Calculation - Change with Caution

Totals

Cell not in use

Cells that link directly to another location

Tables that are linked to throughout the model (thick border, with italic name underneath)

Range Name: of table

Heading 1

Heading 2

Heading 3

Household Waste Arisings

This tab forms the basis for defining the future growth in household waste arisings (the methodology behind this is discussed in detail in the accompanying report). Comprehensive regression analyses of historical data has shown that household waste arisings in London are closely correlated to three factors:

1. Gross Disposable Household Income (GDHI);
2. A recessionary impact variable to account for the degree to which people are prepared to spend their income; and
3. A time variable to account for waste prevention and minimisation efforts over time (light-weighting of material).

Therefore, utilising this relationship, this tab calculates a future level of household waste arisings in London, and apportions the same growth rate to current levels of household waste in the North London Waste Authority to calculate a future level of household waste arisings across the 7 boroughs.

A portion of household waste arisings is managed by the NLWA, and is not attributable to the 7 boroughs. This waste has been categorised as 'Additional NLWA Waste', and a result of the difference between returns issued by the 7 boroughs in comparison to the total figure published by the waste disposal authority.

Known Household Waste Arisings - London

	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Known Arisings (tonnes)	3,162,000	3,224,000	3,400,000	3,390,000	3,408,000	3,379,000	3,331,000	3,297,000	3,326,000	3,390,000	3,342,000	3,123,000	3,035,000	3,028,743	2,982,689	2,954,000																																							
Growth Rate (%)		1.96%	5.46%	-0.29%	0.53%	-0.85%	-1.42%	-1.02%	0.88%	1.92%	-1.42%	-6.55%	-2.82%	-0.21%	-1.52%	-0.96%																																						

Forecast Variables

Gross Disposable Household Income (GDHI)

	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
GDHI (£ million, constant values))	£115,129	£119,989	£124,703	£133,855	£139,324	£137,659	£141,712	£143,647	£147,440	£152,656	£158,202	£159,473	£162,219	£163,444	£165,632	£169,772	£174,017	£178,367	£182,826	£187,580	£192,644	£198,038	£203,782	£209,895	£216,192	£222,678	£229,358	£236,239	£243,326	£250,626	£258,144	£265,889	£273,865	£282,081	£290,544	£299,260	£308,238	£317,485	£327,010	£336,820	£346,924	£357,332	£368,052	£379,094	£390,467	£402,181	£414,246	£426,673	£439,474	£452,658	£466,237	£480,225	£494,631	£509,470

	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
GDHI Growth Rate (%)		4.22%	3.93%	7.34%	4.09%	-1.19%	2.94%	1.37%	2.64%	3.54%	3.63%	0.80%	1.72%	0.75%	1.34%	2.5%	2.5%	2.5%	2.5%	2.6%	2.7%	2.8%	2.9%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%

Spending Recovery

	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Economic Recovery Factor	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0.86	0.71	0.57	0.43	0.29	0.14	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Coefficients and Scenarios

	Coefficient
Intercept	45.64746688
GDHI	0.779703285
Time	-0.019905678
Spending Recovery	-0.07504434

Note: These values were calculated through multi-criteria regression analysis on historic data. Please refer to the main report for more details.

Calculation of Waste Arisings, Historic and Future - London

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Waste Arisings (tonnes)	3,211,794	3,251,642	3,284,783	3,402,854	3,441,583	3,342,285	3,351,375	3,320,254	3,321,633	3,345,636	3,372,239	3,085,963	3,065,695	3,022,946	2,994,249	2,992,295	2,990,342	3,020,600	3,051,165	3,084,383	3,120,332	3,159,096	3,200,768	3,245,446	3,255,657	3,265,900	3,276,176	3,286,484	3,296,825	3,307,198	3,317,603	3,328,042	3,338,513	3,349,017	3,359,554	3,370,124	3,380,728	3,391,365	3,402,035	3,412,739	3,423,477	3,434,249	3,445,054	3,455,893	3,466,767	3,477,675	3,488,617	3,499,593	3,510,604	3,521,650	3,532,730	3,543,845	3,554,995	3,566,181
Growth Rate (%)		1.24%	1.02%	3.59%	1.14%	-2.89%	0.27%	-0.93%	0.04%	0.72%	0.80%	-8.49%	-0.66%	-1.39%	-0.95%	-0.07%	-0.07%	1.01%	1.01%	1.09%	1.17%	1.24%	1.32%	1.40%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%

Known and Forecast Waste Arisings - London

	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Waste Arisings (tonnes)	3,162,000	3,224,000	3,400,000	3,390,000	3,408,000	3,379,000	3,331,000	3,297,000	3,326,000	3,390,000	3,342,000	3,123,000	3,035,000	3,028,743	2,982,689	2,954,000	2,990,342	3,020,600	3,051,165	3,084,383	3,120,332	3,159,096	3,200,768	3,245,446	3,255,657	3,265,900	3,276,176	3,286,484	3,296,825	3,307,198	3,317,603	3,328,042	3,338,513	3,349,017	3,359,554	3,370,124	3,380,728	3,391,365	3,402,035	3,412,739	3,423,477	3,434,249	3,445,054	3,455,893	3,466,767	3,477,675	3,488,617	3,499,593	3,510,604	3,521,650	3,532,730	3,543,845	3,554,995	3,566,181

Historic Waste Arisings - NLWA

	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Waste Arisings (tonnes)										768,770	762,774	680,444	656,915	678,270	680,330	669,627	669,190	675,962	682,801	690,235	698,280	706,955	716,280	726,278	728,563	730,856	733,155	735,462	737,776	740,097	742,426	744,762	747,105	749,456	751,814	754,179	756,552	758,933	761,321	763,716	766,119	768,529	770,947	773,373	775,806	778,247	780,696	783,152	785,616	788,088	790,568	793,055	795,550	798,054
Growth Rate (%)											-0.78%	-10.79%	-3.46%	3.25%	0.30%	-1.57%	-0.07%	1.01%	1.01%	1.09%	1.17%	1.24%	1.32%	1.40%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%

Historic and Forecast Arisings - NLWA

(tonnes)	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet										142,486	144,736	145,871	143,793	147,628	145,918	144,430	144,335	145,796	147,271	148,875	150,610	152,481	154,492	156,649	157,141	157,636	158,132	158,629	159,129	159,629	160,131	160,635	161,141	161,648	162,156	162,667	163,178	163,692	164,207	164,723	165,242	165,762	166,283	166,806	167,331	167,858	168,386	168,916	169,447	169,980	170,515	171,052	171,590	172,130
Camden										74,565	72,292	72,122	70,163	76,478	76,206	68,033	67,988	68,676	69,371	70,127	70,944	71,825	72,773	73,788	74,021	74,253	74,487	74,721	74,957	75,192	75,429	75,666	75,904	76,143	76,383	76,623	76,864	77,106	77,349	77,592	77,836	78,081	78,327	78,573	78,820	79,068	79,317	79,567	79,817	80,068	80,320	80,573	80,826	81,080
Enfield										137,276	120,594	115,667	109,198	112,229	114,633	118,699	118,622	119,822	121,035	122,352	123,778	125,316	126,969	128,741	129,147	129,553	129,960	130,369	130,780	131,191	131,604	132,018	132,433	132,850	133,268	133,687	134,108	134,530	134,953	135,378	135,804	136,231	136,660	137,090	137,521	137,954	138,388	138,823	139,260	139,698	140,138	140,578	141,021	141,464
Hackney										85,847	79,409	76,470	73,985	76,023	78,181	81,157	81,104	81,925	82,754	83,655	84,630	85,681	86,812	88,023	88,300	88,578	88,857	89,136	89,417	89,698	89,980	90,263	90,547	90,832	91,118	91,405	91,692	91,981	92,270	92,561	92,852	93,144	93,437	93,731	94,026	94,322	94,619	94,916	95,215	95,514	95,815	96,116	96,419	96,722
Haringey										80,663	82,759	88,024	89,729	86,143	90,883	91,271	91,211	92,134	93,067	94,080	95,176	96,359	97,630	98,993	99,304	99,617	99,930	100,244	100,560	100,876	101,194	101,512	101,831	102,152	102,473	102,796	103,119	103,443	103,769	104,095	104,423	104,752	105,081	105,412	105,743	106,076	106,410	106,745	107,080	107,417	107,755	108,094	108,435	108,776
Islington										79,305	75,035	68,980	65,029	64,753	61,733	63,865	63,823	64,469	65,122	65,831	66,598	67,425	68,315	69,268	69,486	69,705	69,924	70,144	70,365	70,586	70,808	71,031	71,255	71,479	71,704	71,929	72,156	72,383	72,610	72,839	73,068	73,298	73,528	73,760	73,992	74,225	74,458	74,693	74,928	75,163	75,400	75,637	75,875	76,114
Waltham Forest										107,004	101,021	102,242	99,320	99,964	102,154	99,681	99,616	100,624	101,642	102,748	103,946	105,237	106,626	108,114	108,454	108,795	109,138	109,481	109,825	110,171	110,518	110,865	111,214	111,564	111,915	112,267	112,620	112,975	113,330	113,687	114,045	114,403	114,763	115,124	115,487	115,850	116,214	116,580	116,947	117,315	117,684	118,054	118,426	118,798
Total of Boroughs										**707,146**	**675,848**	**669,375**	**651,216**	**663,219**	**669,708**	**667,136**	**666,701**	**673,447**	**680,261**	**687,667**	**695,682**	**704,325**	**713,615**	**723,576**	**725,853**	**728,137**	**730,428**	**732,726**	**735,031**	**737,344**	**739,664**	**741,991**	**744,326**	**746,668**	**749,017**	**751,374**	**753,738**	**756,109**	**758,488**	**760,875**	**763,269**	**765,670**	**768,079**	**770,496**	**772,920**	**775,352**	**777,792**	**780,239**	**782,694**	**785,156**	**787,627**	**790,105**	**792,591**	**795,085**
Additional NLWA Waste										61,624	86,926	11,069	5,700	15,051	10,623	11,762	11,754	11,873	11,993	12,124	12,265	12,417	12,581	12,757	12,797	12,837	12,878	12,918	12,959	13,000	13,041	13,082	13,123	13,164	13,205	13,247	13,289	13,330	13,372	13,414	13,457	13,499	13,541	13,584	13,627	13,670	13,713	13,756	13,799	13,843	13,886	13,930	13,974	14,018
NLWA										**768,770**	**762,774**	**680,444**	**656,915**	**678,270**	**680,330**	**678,898**	**678,455**	**685,320**	**692,255**	**699,791**	**707,947**	**716,742**	**726,197**	**736,333**	**738,650**	**740,974**	**743,306**	**745,644**	**747,990**	**750,344**	**752,705**	**755,073**	**757,449**	**759,832**	**762,223**	**764,621**	**767,026**	**769,440**	**771,861**	**774,289**	**776,726**	**779,169**	**781,621**	**784,080**	**786,547**	**789,022**	**791,504**	**793,995**	**796,493**	**798,999**	**801,513**	**804,035**	**806,565**	**809,102**

C&I Waste Arisings

This tab forms the basis for defining the future growth in commercial and industrial (C&I) waste arisings across the 7 NLWA boroughs. Data on C&I waste arisings is poor in comparison to household waste, and consequently for the purposes of this modelling exercise we have used the results of the forecasting undertaken on behalf of the London Plan.

Historical Local Authority Collected (LAC) C&I waste is then compared to the historical levels of C&I arisings across the 7 boroughs. A market share is then calculated for each borough based on data reported to WDF on the quantities of non-household waste managed.

To forecast future levels of C&I waste managed by each borough, it is assumed that each borough regains a market share similar to that which they experienced prior to the recession, i.e. 2007 levels. However, due to the lack of suitable data, we are only able to calculate the market share that each borough had back to 2009. Consequently, we assume that each borough's market share recovers to 2009 levels by 2016/17, and then increases a further 2 percentage points in both 2017/18 and 2018/19. The result of this is that the 7 NLWA boroughs manage a similar level of C&I tonnage as they did back in 2007.

In the case of Islington, we have used the results of separate modelling work being undertaken on their C&I waste collection services, and, for the purpose of this modelling exercise, have selected the most aggressive option presented. Please refer to the main report for further detail.

C&I Waste Arisings - London Plan

	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
London Plan (tonnes)					4,573,590	4,638,840	4,704,089	4,694,154	4,684,219	4,674,285	4,664,350	4,654,415	4,650,918	4,647,421	4,643,924	4,640,427	4,636,931	4,638,988	4,641,046	4,643,103	4,645,161	4,647,218	4,653,922	4,660,626	4,667,331	4,674,035	4,680,739	4,691,339	4,701,939	4,712,540	4,723,140	4,733,740	4,744,364	4,755,012	4,765,684	4,776,380	4,787,100	4,797,844	4,808,612	4,819,404	4,830,220	4,841,061	4,851,926	4,862,815	4,873,729	4,884,667
Growth Rate (%)						1.43%	1.41%	-0.21%	-0.21%	-0.21%	-0.21%	-0.21%	-0.08%	-0.08%	-0.08%	-0.08%	-0.08%	0.04%	0.04%	0.04%	0.04%	0.04%	0.14%	0.14%	0.14%	0.14%	0.14%	0.23%	0.23%	0.23%	0.22%	0.22%	0.22%	0.22%	0.22%	0.22%	0.22%	0.22%	0.22%	0.22%	0.22%	0.22%	0.22%	0.22%	0.22%	0.22%

(tonnes)	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet					140,864	142,873	144,883	144,577	144,271	143,965	143,659	143,353	143,245	143,138	143,030	142,922	142,815	142,878	142,941	143,005	143,068	143,131	143,338	143,544	143,751	143,957	144,164	144,490	144,817	145,143	145,470	145,796	146,123	146,451	146,780	147,110	147,440	147,771	148,102	148,435	148,768	149,102	149,436	149,772	150,108	150,445
Camden					251,726	255,317	258,908	258,361	257,815	257,268	256,721	256,174	255,982	255,789	255,597	255,404	255,212	255,325	255,438	255,552	255,665	255,778	256,147	256,516	256,885	257,254	257,623	258,206	258,790	259,373	259,957	260,540	261,125	261,711	262,298	262,887	263,477	264,068	264,661	265,255	265,850	266,447	267,045	267,644	268,245	268,847
Enfield					157,587	159,835	162,083	161,741	161,398	161,056	160,714	160,372	160,251	160,131	160,010	159,890	159,769	159,840	159,911	159,982	160,053	160,124	160,355	160,586	160,817	161,048	161,279	161,644	162,009	162,374	162,740	163,105	163,471	163,838	164,205	164,574	164,943	165,314	165,685	166,056	166,429	166,803	167,177	167,552	167,928	168,305
Hackney					81,067	82,223	83,380	83,204	83,028	82,852	82,676	82,500	82,438	82,376	82,314	82,252	82,190	82,226	82,263	82,299	82,336	82,372	82,491	82,610	82,728	82,847	82,966	83,154	83,342	83,530	83,718	83,906	84,094	84,283	84,472	84,661	84,851	85,042	85,233	85,424	85,616	85,808	86,000	86,193	86,387	86,581
Haringey					87,600	88,849	90,099	89,909	89,719	89,528	89,338	89,148	89,081	89,014	88,947	88,880	88,813	88,852	88,892	88,931	88,971	89,010	89,138	89,267	89,395	89,524	89,652	89,855	90,058	90,261	90,464	90,667	90,871	91,075	91,279	91,484	91,689	91,895	92,101	92,308	92,515	92,723	92,931	93,139	93,348	93,558
Islington					161,175	163,474	165,774	165,423	165,073	164,723	164,373	164,023	163,900	163,777	163,653	163,530	163,407	163,479	163,552	163,624	163,697	163,769	164,006	164,242	164,478	164,714	164,951	165,324	165,698	166,071	166,445	166,818	167,193	167,568	167,944	168,321	168,699	169,077	169,457	169,837	170,218	170,600	170,983	171,367	171,752	172,137
Waltham Forest					84,168	85,369	86,570	86,387	86,204	86,021	85,838	85,655	85,591	85,527	85,462	85,398	85,334	85,372	85,409	85,447	85,485	85,523	85,646	85,770	85,893	86,016	86,140	86,335	86,530	86,725	86,920	87,115	87,311	87,507	87,703	87,900	88,097	88,295	88,493	88,692	88,891	89,090	89,290	89,491	89,691	89,893
NLWA					**964,185**	**977,941**	**991,697**	**989,602**	**987,508**	**985,413**	**983,319**	**981,225**	**980,487**	**979,750**	**979,013**	**978,276**	**977,539**	**977,972**	**978,406**	**978,840**	**979,274**	**979,707**	**981,121**	**982,534**	**983,947**	**985,361**	**986,774**	**989,009**	**991,243**	**993,478**	**995,713**	**997,948**	**1,000,187**	**1,002,432**	**1,004,682**	**1,006,937**	**1,009,197**	**1,011,462**	**1,013,732**	**1,016,007**	**1,018,287**	**1,020,572**	**1,022,863**	**1,025,159**	**1,027,459**	**1,029,765**

Growth Rate

(%)	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet						1.4%	1.4%	-0.2%	-0.2%	-0.2%	-0.2%	-0.2%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%
Camden						1.4%	1.4%	-0.2%	-0.2%	-0.2%	-0.2%	-0.2%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%
Enfield						1.4%	1.4%	-0.2%	-0.2%	-0.2%	-0.2%	-0.2%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%
Hackney						1.4%	1.4%	-0.2%	-0.2%	-0.2%	-0.2%	-0.2%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%
Haringey						1.4%	1.4%	-0.2%	-0.2%	-0.2%	-0.2%	-0.2%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%
Islington						1.4%	1.4%	-0.2%	-0.2%	-0.2%	-0.2%	-0.2%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%
Waltham Forest						1.4%	1.4%	-0.2%	-0.2%	-0.2%	-0.2%	-0.2%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%
NLWA						**1.4%**	**1.4%**	**-0.2%**	**-0.2%**	**-0.2%**	**-0.2%**	**-0.2%**	**-0.1%**	**-0.1%**	**-0.1%**	**-0.1%**	**-0.1%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.1%**	**0.1%**	**0.1%**	**0.1%**	**0.1%**	**0.2%**	**0.2%**	**0.2%**	**0.2%**	**0.2%**	**0.2%**	**0.2%**	**0.2%**	**0.2%**	**0.2%**	**0.2%**	**0.2%**	**0.2%**	**0.2%**	**0.2%**	**0.2%**	**0.2%**	**0.2%**	**0.2%**

Proportion of NLWA C&I Arisings

(%)	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet					14.6%	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%	14.6%
Camden					26.1%	26.1%	26.1%	26.1%	26.1%	26.1%	26.1%	26.1%	26.1%	26.1%	26.1%	26.1%	26.1%	26.1%	26.1%	26.1%	26.1%	26.1%	26.1%	26.1%	26.1%	26.1%	26.1%	26.1%	26.1%	26.1%	26.1%	26.1%	26.1%	26.1%	26.1%	26.1%	26.1%	26.1%	26.1%	26.1%	26.1%	26.1%	26.1%	26.1%	26.1%	26.1%
Enfield					16.3%	16.3%	16.3%	16.3%	16.3%	16.3%	16.3%	16.3%	16.3%	16.3%	16.3%	16.3%	16.3%	16.3%	16.3%	16.3%	16.3%	16.3%	16.3%	16.3%	16.3%	16.3%	16.3%	16.3%	16.3%	16.3%	16.3%	16.3%	16.3%	16.3%	16.3%	16.3%	16.3%	16.3%	16.3%	16.3%	16.3%	16.3%	16.3%	16.3%	16.3%	16.3%
Hackney					8.4%	8.4%	8.4%	8.4%	8.4%	8.4%	8.4%	8.4%	8.4%	8.4%	8.4%	8.4%	8.4%	8.4%	8.4%	8.4%	8.4%	8.4%	8.4%	8.4%	8.4%	8.4%	8.4%	8.4%	8.4%	8.4%	8.4%	8.4%	8.4%	8.4%	8.4%	8.4%	8.4%	8.4%	8.4%	8.4%	8.4%	8.4%	8.4%	8.4%	8.4%	8.4%
Haringey					9.1%	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%
Islington					16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%
Waltham Forest					8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%
NLWA					**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Market Share of C&I Waste Arisings

Historical Management of LAC C&I Waste

(tonnes)	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet		29,084	28,308	18,973	17,776	16,410	15,616	13,806																																						
Camden		54,386	54,175	50,290	46,342	39,672	36,638	37,661																																						
Enfield		20,161	19,609	15,362	15,539	12,872	11,143	8,362																																						
Hackney		41,229	39,122	29,553	27,461	22,877	20,492	19,441																																						
Haringey		26,743	25,409	16,039	15,608	10,235	3,192	2,489																																						
Islington		29,435	28,813	26,677	24,926	19,389	19,100	17,649	17,340	17,032	24,099	30,852	34,749																																	
Waltham Forest		16,387	16,025	10,912	10,457	8,335	4,855	2,663																																						
NLWA		**217,425**	**211,462**	**167,805**	**158,108**	**129,789**	**111,036**	**102,071**																																						

Historical and Projected Market Share of LAC C&I Waste

(%)	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet					12.6%	11.5%	10.8%	9.5%	10.3%	11.1%	11.9%	12.6%	14.6%	16.6%	16.6%	16.6%	16.6%	16.6%	16.6%	16.6%	16.6%	16.6%	16.6%	16.6%	16.6%	16.6%	16.6%	16.6%	16.6%	16.6%	16.6%	16.6%	16.6%	16.6%	16.6%	16.6%	16.6%	16.6%	16.6%	16.6%	16.6%	16.6%	16.6%	16.6%	16.6%	16.6%
Camden					18.4%	15.5%	14.2%	14.6%	15.5%	16.5%	17.5%	18.4%	20.4%	22.4%	22.4%	22.4%	22.4%	22.4%	22.4%	22.4%	22.4%	22.4%	22.4%	22.4%	22.4%	22.4%	22.4%	22.4%	22.4%	22.4%	22.4%	22.4%	22.4%	22.4%	22.4%	22.4%	22.4%	22.4%	22.4%	22.4%	22.4%	22.4%	22.4%	22.4%	22.4%	22.4%
Enfield					9.9%	8.1%	6.9%	5.2%	6.3%	7.5%	8.7%	9.9%	11.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%
Hackney					33.9%	27.8%	24.6%	23.4%	26.0%	28.6%	31.2%	33.9%	35.9%	37.9%	37.9%	37.9%	37.9%	37.9%	37.9%	37.9%	37.9%	37.9%	37.9%	37.9%	37.9%	37.9%	37.9%	37.9%	37.9%	37.9%	37.9%	37.9%	37.9%	37.9%	37.9%	37.9%	37.9%	37.9%	37.9%	37.9%	37.9%	37.9%	37.9%	37.9%	37.9%	37.9%
Haringey					17.8%	11.5%	3.5%	2.8%	6.5%	10.3%	14.1%	17.8%	19.8%	21.8%	21.8%	21.8%	21.8%	21.8%	21.8%	21.8%	21.8%	21.8%	21.8%	21.8%	21.8%	21.8%	21.8%	21.8%	21.8%	21.8%	21.8%	21.8%	21.8%	21.8%	21.8%	21.8%	21.8%	21.8%	21.8%	21.8%	21.8%	21.8%	21.8%	21.8%	21.8%	21.8%
Islington					15.5%	11.9%	11.5%	10.7%	10.5%	10.3%	14.7%	18.8%	21.2%	21.2%	21.2%	21.2%	21.2%	21.2%	21.2%	21.2%	21.2%	21.2%	21.2%	21.2%	21.2%	21.2%	21.2%	21.2%	21.2%	21.2%	21.2%	21.2%	21.2%	21.2%	21.2%	21.2%	21.2%	21.2%	21.2%	21.2%	21.2%	21.2%	21.2%	21.2%	21.2%	21.2%
Waltham Forest					12.4%	9.8%	5.6%	3.1%	5.4%	7.8%	10.1%	12.4%	14.4%	16.4%	16.4%	16.4%	16.4%	16.4%	16.4%	16.4%	16.4%	16.4%	16.4%	16.4%	16.4%	16.4%	16.4%	16.4%	16.4%	16.4%	16.4%	16.4%	16.4%	16.4%	16.4%	16.4%	16.4%	16.4%	16.4%	16.4%	16.4%	16.4%	16.4%	16.4%	16.4%	16.4%
NLWA					**16.4%**	**13.3%**	**11.2%**	**10.3%**	**11.6%**	**12.9%**	**14.9%**	**17.0%**	**19.0%**	**20.7%**	**20.7%**	**20.7%**	**20.7%**	**20.7%**	**20.7%**	**20.7%**	**20.7%**	**20.7%**	**20.7%**	**20.7%**	**20.7%**	**20.7%**	**20.7%**	**20.7%**	**20.7%**	**20.7%**	**20.7%**	**20.7%**	**20.7%**	**20.7%**	**20.7%**	**20.7%**	**20.7%**	**20.7%**	**20.7%**	**20.7%**	**20.7%**	**20.7%**	**20.7%**	**20.7%**	**20.7%**	**20.7%**

Historical and Projected Market Share of LAC C&I Waste

(tonnes)	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet				18,973	17,776	16,410	15,616	13,806	14,884	15,957	17,026	18,090	20,941	23,788	23,770	23,753	23,735	23,745	23,756	23,766	23,777	23,787	23,822	23,856	23,890	23,925	23,959	24,013	24,067	24,122	24,176	24,230	24,285	24,339	24,394	24,448	24,503	24,558	24,613	24,669	24,724	24,780	24,835	24,891	24,947	25,003
Camden				50,290	46,342	39,672	36,638	37,661	40,052	42,432	44,802	47,161	52,245	57,321	57,278	57,235	57,192	57,217	57,243	57,268	57,294	57,319	57,402	57,484	57,567	57,650	57,732	57,863	57,994	58,125	58,255	58,386	58,517	58,648	58,780	58,912	59,044	59,177	59,310	59,443	59,576	59,710	59,844	59,978	60,113	60,248
Enfield				15,362	15,539	12,872	11,143	8,362	10,237	12,104	13,962	15,813	19,006	22,195	22,178	22,161	22,145	22,154	22,164	22,174	22,184	22,194	22,226	22,258	22,290	22,322	22,354	22,404	22,455	22,506	22,556	22,607	22,658	22,708	22,759	22,810	22,862	22,913	22,964	23,016	23,068	23,119	23,171	23,223	23,275	23,328
Hackney				29,553	27,461	22,877	20,492	19,441	21,581	23,712	25,834	27,946	29,574	31,199	31,176	31,152	31,129	31,142	31,156	31,170	31,184	31,198	31,243	31,288	31,333	31,378	31,423	31,494	31,565	31,636	31,707	31,779	31,850	31,921	31,993	32,065	32,137	32,209	32,281	32,354	32,426	32,499	32,572	32,645	32,718	32,792
Haringey				16,039	15,608	10,235	3,192	2,489	5,859	9,215	12,556	15,884	17,653	19,420	19,406	19,391	19,376	19,385	19,394	19,402	19,411	19,419	19,447	19,475	19,503	19,531	19,559	19,604	19,648	19,692	19,737	19,781	19,825	19,870	19,914	19,959	20,004	20,049	20,094	20,139	20,184	20,229	20,275	20,320	20,366	20,412
Islington				26,677	24,926	19,389	19,100	17,649	17,340	17,032	24,099	30,852	34,749	34,723	34,697	34,671	34,644	34,660	34,675	34,691	34,706	34,721	34,771	34,822	34,872	34,922	34,972	35,051	35,130	35,209	35,289	35,368	35,447	35,527	35,606	35,686	35,766	35,847	35,927	36,008	36,089	36,170	36,251	36,332	36,414	36,495
Waltham Forest				10,912	10,457	8,335	4,855	2,663	4,671	6,670	8,660	10,642	12,346	14,047	14,037	14,026	14,016	14,022	14,028	14,034	14,041	14,047	14,067	14,087	14,108	14,128	14,148	14,180	14,212	14,244	14,276	14,308	14,340	14,373	14,405	14,437	14,470	14,502	14,535	14,567	14,600	14,633	14,665	14,698	14,731	14,764
NLWA	**0**	**217,425**	**211,462**	**167,805**	**158,108**	**129,789**	**111,036**	**102,071**	**114,624**	**127,122**	**146,939**	**166,388**	**186,515**	**202,694**	**202,542**	**202,389**	**202,236**	**202,326**	**202,416**	**202,506**	**202,595**	**202,685**	**202,978**	**203,270**	**203,562**	**203,855**	**204,147**	**204,609**	**205,072**	**205,534**	**205,996**	**206,459**	**206,922**	**207,387**	**207,852**	**208,318**	**208,786**	**209,255**	**209,724**	**210,195**	**210,667**	**211,139**	**211,613**	**212,088**	**212,564**	**213,041**

Other Waste Arisings

This tab forms the basis for defining the future quantity of 'Other Waste' managed by the 7 NLWA boroughs.

'Other Waste' is defined as:
- Fly-tipped waste;
- C&D waste;
- Ground Clearing Waste
- Highways Waste
- Asbestos Waste

A growth rate can then be applied to the historical Local Authority Collected (LAC) managed 'Other' waste. For this modelling exercise we have assumed a zero growth rate, as it is difficult to ascertain whether the level of 'Other' waste will increase or fall over time.

Other Waste Managed

Historical Other Waste Managed

(tonnes)	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet	3,324	3,183	2,824	3,636	2,834	1,076	616	1,995																																							
Camden	5,621	5,688	5,736	5,006	6,041	4,491	4,482	4,663																																						
Enfield	6,211	2,922	1,382	2,582	3,482	2,808	3,474	3,429																																						
Hackney	5,474	7,692	7,084	10,603	11,881	10,972	10,782	11,128																																						
Haringey	12,698	12,696	12,674	15,726	10,862	17,663	9,278	8,624																																						
Islington	1,822	3,384	4,640	5,961	6,855	9,021	11,862	12,624																																						
Waltham Forest	4,530	6,180	6,084	4,620	6,694	11,471	7,696	3,855																																						
NLWA	**39,679**	**41,746**	**40,425**	**48,133**	**48,649**	**57,502**	**48,191**	**46,319**																																						

Growth Rate of Other Waste Managed

(%)	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet		-4.2%	-11.3%	28.8%	-22.1%	-62.0%	-42.8%	224.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Camden		1.2%	0.8%	-12.7%	20.7%	-25.7%	-0.2%	4.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Enfield		-53.0%	-52.7%	86.8%	34.9%	-19.3%	23.7%	-1.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Hackney		40.5%	-7.9%	49.7%	12.1%	-7.7%	-1.7%	3.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Haringey		0.0%	-0.2%	24.1%	-30.9%	62.6%	-47.5%	-7.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Islington		85.7%	37.1%	28.5%	15.0%	31.6%	31.5%	6.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Waltham Forest		36.4%	-1.5%	-24.1%	44.9%	71.4%	-32.9%	-49.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
NLWA		**5.2%**	**-3.2%**	**19.1%**	**1.1%**	**18.2%**	**-16.2%**	**-3.9%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**

Historic and Forecast Other Waste Managed

(tonnes)	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet	3,324	3,183	2,824	3,636	2,834	1,076	616	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995
Camden	5,621	5,688	5,736	5,006	6,041	4,491	4,482	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663
Enfield	6,211	2,922	1,382	2,582	3,482	2,808	3,474	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429
Hackney	5,474	7,692	7,084	10,603	11,881	10,972	10,782	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128
Haringey	12,698	12,696	12,674	15,726	10,862	17,663	9,278	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624
Islington	1,822	3,384	4,640	5,961	6,855	9,021	11,862	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624
Waltham Forest	4,530	6,180	6,084	4,620	6,694	11,471	7,696	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855
NLWA	**39,679**	**41,746**	**40,425**	**48,133**	**48,649**	**57,502**	**48,191**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**

Recycling - Household Waste

This tab forms the basis for calculating the remaining residual waste that will require treatment after recycling has occurred. The level of recycling achieved is calculated on a target-led approach, such that if 50% recycling is assumed to be achieved in year X, then there remains 50% of residual waste that will require treatment.

For this modelling exercise there are three recycling scenarios, a high, medium, and low. These are described as follows:
- High: recycling is assumed to reach 50% by 2020/21, and then increases to reach 60% by 2031/32, in line with the Mayoral targets;
- Central: recycling is assumed to reach 50% by 2020/21, at which point it flat lines out to 2050/51; and
- Low: recycling is assumed to reach 40% by 2020/21, at which point it flat lines out to 2050/51.

Arisings

(tonnes)	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet	142,486	144,736	145,871	143,793	147,628	145,918	144,430	144,335	145,796	147,271	148,875	150,610	152,481	154,492	156,649	157,141	157,636	158,132	158,629	159,129	159,629	160,131	160,635	161,141	161,648	162,156	162,667	163,178	163,692	164,207	164,723	165,242	165,762	166,283	166,806	167,331	167,858	168,386	168,916	169,447	169,980	170,515	171,052	171,590	172,130
Camden	74,565	72,292	72,122	70,163	76,478	76,206	68,033	67,988	68,676	69,371	70,127	70,944	71,825	72,773	73,788	74,021	74,253	74,487	74,721	74,957	75,192	75,429	75,666	75,904	76,143	76,383	76,623	76,864	77,106	77,349	77,592	77,836	78,081	78,327	78,573	78,820	79,068	79,317	79,567	79,817	80,068	80,320	80,573	80,826	81,081
Enfield	137,276	120,594	115,667	109,198	112,229	114,633	118,699	118,622	119,822	121,035	122,352	123,778	125,316	126,969	128,741	129,147	129,553	129,960	130,369	130,780	131,191	131,604	132,018	132,433	132,850	133,268	133,687	134,108	134,530	134,953	135,378	135,804	136,231	136,660	137,090	137,521	137,954	138,388	138,823	139,260	139,698	140,138	140,578	141,021	141,466
Hackney	85,847	79,409	78,470	73,985	76,023	78,181	81,157	81,104	81,925	82,754	83,655	84,630	85,681	86,812	88,023	88,300	88,579	88,857	89,136	89,417	89,698	89,980	90,263	90,547	90,832	91,118	91,405	91,692	91,981	92,270	92,561	92,852	93,144	93,437	93,731	94,026	94,322	94,619	94,916	95,215	95,514	95,815	96,116	96,419	96,722
Haringey	80,663	82,759	88,024	89,729	86,143	90,883	91,271	91,211	92,134	93,067	94,080	95,176	96,359	97,630	98,993	99,304	99,617	99,930	100,244	100,560	100,876	101,194	101,512	101,831	102,152	102,473	102,796	103,119	103,443	103,769	104,095	104,423	104,752	105,081	105,412	105,743	106,076	106,410	106,745	107,080	107,417	107,755	108,094	108,435	108,778
Islington	79,305	75,035	68,980	65,029	64,753	61,733	63,865	63,823	64,469	65,122	65,831	66,598	67,425	68,315	69,268	69,486	69,705	69,924	70,144	70,365	70,586	70,808	71,031	71,255	71,478	71,704	71,929	72,156	72,383	72,610	72,839	73,068	73,298	73,528	73,760	73,992	74,225	74,458	74,693	74,928	75,163	75,400	75,637	75,875	76,114
Waltham Forest	107,004	101,021	102,242	99,320	99,964	102,154	99,681	99,616	100,624	101,642	102,748	103,946	105,237	106,626	108,114	108,454	108,795	109,138	109,481	109,825	110,171	110,518	110,865	111,214	111,564	111,915	112,267	112,620	112,975	113,330	113,687	114,045	114,403	114,763	115,124	115,487	115,850	116,214	116,580	116,947	117,315	117,684	118,054	118,426	118,798
Total of Boroughs	707,146	675,848	669,375	651,216	663,219	669,708	667,136	666,701	673,447	680,261	687,667	695,682	704,325	713,615	723,576	725,853	728,137	730,428	732,726	735,031	737,344	739,664	741,991	744,326	746,668	749,017	751,374	753,738	756,109	758,488	760,875	763,269	765,670	768,079	770,496	772,920	775,352	777,792	780,239	782,694	785,156	787,627	790,105	792,591	795,085
Additional NLWA Waste	61,624	86,926	11,069	5,700	15,051	10,623	11,762	11,754	11,873	11,993	12,124	12,265	12,417	12,581	12,757	12,797	12,837	12,878	12,918	12,959	13,000	13,041	13,082	13,123	13,164	13,205	13,247	13,289	13,330	13,372	13,414	13,457	13,499	13,541	13,584	13,627	13,670	13,713	13,756	13,799	13,843	13,886	13,930	13,974	14,018
NLWA	768,770	762,774	680,444	656,915	678,270	680,330	678,898	678,455	685,320	692,255	699,791	707,947	716,742	726,197	736,333	738,650	740,974	743,306	745,644	747,990	750,344	752,705	755,073	757,449	759,832	762,223	764,621	767,026	769,440	771,861	774,289	776,726	779,169	781,621	784,080	786,547	789,022	791,504	793,995	796,493	798,999	801,513	804,035	806,565	809,102

Historic Recycling Data

Reuse / Dry Recycling

(tonnes)	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet	26,619	27,950	27,414	29,782	30,451	30,695	30,044	24,527																																					
Camden	15,382	16,781	17,675	16,762	17,127	16,833	16,746	13,625																																					
Enfield	20,873	22,914	21,171	22,862	24,633	26,205	29,418	23,706																																					
Hackney	10,935	12,663	13,123	13,619	14,461	14,313	15,586	12,485																																					
Haringey	13,818	15,289	16,013	17,714	19,208	19,079	23,811	20,760																																					
Islington	15,967	17,746	18,434	17,342	17,409	17,551	17,664	13,267																																					
Waltham Forest	18,279	21,430	19,839	19,915	19,255	20,637	23,047	19,471																																					
Total of Boroughs	**121,875**	**134,773**	**133,668**	**137,996**	**142,545**	**145,312**	**156,315**	**127,841**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Additional NLWA Waste	0	0	0	0	0	0	0	0																																					
NLWA	**121,875**	**134,773**	**133,668**	**137,996**	**142,545**	**145,312**	**156,315**	**127,841**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Rate (%)	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet	18.7%	19.3%	18.8%	20.7%	20.6%	21.0%	20.8%	17.0%																																					
Camden	20.6%	23.2%	24.5%	23.9%	22.4%	22.1%	24.6%	20.0%																																					
Enfield	15.2%	19.0%	18.3%	20.9%	21.9%	22.9%	24.8%	20.0%																																					
Hackney	12.7%	15.9%	17.2%	18.4%	19.0%	18.3%	19.2%	15.4%																																					
Haringey	17.1%	18.5%	18.2%	19.7%	22.3%	21.0%	26.1%	22.8%																																					
Islington	20.1%	23.7%	26.7%	26.7%	26.9%	28.4%	27.7%	20.8%																																					
Waltham Forest	17.1%	21.2%	19.4%	20.1%	19.3%	20.2%	23.1%	19.5%																																					
Total of Boroughs	**17.2%**	**19.9%**	**20.0%**	**21.2%**	**21.5%**	**21.7%**	**23.4%**	**19.2%**																																					
Additional NLWA Waste	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%																																					
NLWA	**15.9%**	**17.7%**	**19.6%**	**21.0%**	**21.0%**	**21.4%**	**23.0%**	**18.8%**																																					

AD / Compost

(tonnes)	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet	16,397	18,295	19,344	19,471	20,253	21,278	19,644	18,644																																					
Camden	4,298	2,324	4,230	5,149	7,561	8,344	4,601	2,986																																					
Enfield	11,491	12,006	12,427	12,144	13,942	16,680	18,630	17,081																																					
Hackney	4,567	5,199	4,337	4,345	4,105	4,034	3,617	3,378																																					
Haringey	3,664	4,206	5,086	6,031	5,894	5,937	6,620	5,940																																					
Islington	3,642	4,074	3,645	4,192	4,095	4,381	4,046	3,538																																					
Waltham Forest	9,957	10,186	10,547	9,690	8,791	8,883	9,058	8,473																																					
Total of Boroughs	**54,016**	**56,290**	**59,615**	**61,021**	**64,642**	**69,536**	**66,216**	**60,040**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Additional NLWA Waste	0	0	0	0	0	0	0	0																																					
NLWA	**54,016**	**56,290**	**59,615**	**61,021**	**64,642**	**69,536**	**66,216**	**60,040**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Rate (%)	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet	11.5%	12.6%	13.3%	13.5%	13.7%	14.6%	13.6%	12.9%																																					
Camden	5.8%	3.2%	5.9%	7.3%	9.9%	10.9%	6.8%	4.4%																																					
Enfield	8.4%	10.0%	10.7%	11.1%	12.4%	14.6%	15.7%	14.4%																																					
Hackney	5.3%	6.5%	5.7%	5.9%	5.4%	5.2%	4.5%	4.2%																																					
Haringey	4.5%	5.1%	5.8%	6.7%	6.8%	6.5%	7.3%	6.5%																																					
Islington	4.6%	5.4%	5.3%	6.4%	6.3%	7.1%	6.3%	5.5%																																					
Waltham Forest	9.3%	10.1%	10.3%	9.8%	8.8%	8.7%	9.1%	8.5%																																					
Total of Boroughs	**7.6%**	**8.3%**	**8.9%**	**9.4%**	**9.7%**	**10.4%**	**9.9%**	**9.0%**																																					
Additional NLWA Waste	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%																																					
NLWA	**7.0%**	**7.4%**	**8.8%**	**9.3%**	**9.5%**	**10.2%**	**9.8%**	**8.8%**																																					

Total Reuse / Recycling / AD / Compost

(tonnes)	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet	43,016	46,245	46,758	49,252	50,703	51,973	49,688	43,171																																					
Camden	19,680	19,105	21,905	21,911	24,688	25,177	21,347	16,612																																					
Enfield	32,364	34,920	33,597	35,006	38,575	42,885	48,047	40,788																																					
Hackney	15,502	17,862	17,460	17,964	18,567	18,347	19,203	15,862																																					
Haringey	17,483	19,494	21,098	23,745	25,103	25,016	30,431	26,700																																					
Islington	19,609	21,821	22,078	21,534	21,504	21,932	21,711	16,805																																					
Waltham Forest	28,237	31,616	30,385	29,605	28,047	29,520	32,105	27,943																																					
Total of Boroughs	**175,891**	**191,063**	**193,283**	**199,017**	**207,187**	**214,849**	**222,532**	**187,881**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Additional NLWA Waste	0	0	0	0	0	0	0	0																																					
NLWA	**175,891**	**191,063**	**193,283**	**199,017**	**207,187**	**214,849**	**222,532**	**187,881**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Rate (%)	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet	30.2%	32.0%	32.1%	34.3%	34.3%	35.6%	34.4%	29.9%																																					
Camden	26.4%	26.4%	30.4%	31.2%	32.3%	33.0%	31.4%	24.4%																																					
Enfield	23.6%	29.0%	29.0%	32.1%	34.4%	37.4%	40.5%	34.4%																																					
Hackney	18.1%	22.5%	22.8%	24.3%	24.4%	23.5%	23.7%	19.6%																																					
Haringey	21.7%	23.6%	24.0%	26.5%	29.1%	27.5%	33.3%	29.3%																																					
Islington	24.7%	29.1%	32.0%	33.1%	33.2%	35.5%	34.0%	26.3%																																					
Waltham Forest	26.4%	31.3%	29.7%	29.8%	28.1%	28.9%	32.2%	28.1%																																					
Total of Boroughs	**24.9%**	**28.3%**	**28.9%**	**30.6%**	**31.2%**	**32.1%**	**33.4%**	**28.2%**																																					
Additional NLWA Waste	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%																																					
NLWA	**22.9%**	**25.0%**	**28.4%**	**30.3%**	**30.5%**	**31.6%**	**32.8%**	**27.7%**																																					

High Recycling Scenario

Recycling Rate Forecast

Total Recycling (%)	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet	30.2%	32.0%	32.1%	34.3%	34.3%	35.6%	34.4%	36.4%	38.3%	40.3%	42.2%	44.2%	46.1%	48.1%	50.0%	50.9%	51.8%	52.7%	53.6%	54.5%	55.5%	56.4%	57.3%	58.2%	59.1%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%
Camden	26.4%	26.4%	30.4%	31.2%	32.3%	33.0%	31.4%	33.7%	36.0%	38.4%	40.7%	43.0%	45.3%	47.7%	50.0%	50.9%	51.8%	52.7%	53.6%	54.5%	55.5%	56.4%	57.3%	58.2%	59.1%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%
Enfield	23.6%	29.0%	29.0%	32.1%	34.4%	37.4%	40.5%	41.7%	42.9%	44.0%	45.2%	46.4%	47.6%	48.8%	50.0%	50.9%	51.8%	52.7%	53.6%	54.5%	55.5%	56.4%	57.3%	58.2%	59.1%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%

Hackney	18.1%	22.5%	22.8%	24.3%	24.4%	23.5%	23.7%	27.0%	30.2%	33.5%	36.8%	40.1%	43.4%	46.7%	50.0%	50.9%	51.8%	52.7%	53.6%	54.5%	55.5%	56.4%	57.3%	58.2%	59.1%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%
Haringey	21.7%	23.6%	24.0%	26.5%	29.1%	27.5%	33.3%	35.4%	37.5%	39.6%	41.7%	43.8%	45.8%	47.9%	50.0%	50.9%	51.8%	52.7%	53.6%	54.5%	55.5%	56.4%	57.3%	58.2%	59.1%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%
Islington	24.7%	29.1%	32.0%	33.1%	33.2%	35.5%	34.0%	36.0%	38.0%	40.0%	42.0%	44.0%	46.0%	48.0%	50.0%	50.9%	51.8%	52.7%	53.6%	54.5%	55.5%	56.4%	57.3%	58.2%	59.1%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%
Waltham Forest	26.4%	31.3%	29.7%	29.8%	28.1%	28.9%	32.2%	34.4%	36.7%	38.9%	41.1%	43.3%	45.6%	47.8%	50.0%	50.9%	51.8%	52.7%	53.6%	54.5%	55.5%	56.4%	57.3%	58.2%	59.1%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%
Total of Boroughs	24.9%	28.3%	28.9%	30.6%	31.2%	32.1%	33.4%	35.4%	37.5%	39.6%	41.7%	43.8%	45.8%	47.9%	50.0%	50.9%	51.8%	52.7%	53.6%	54.5%	55.5%	56.4%	57.3%	58.2%	59.1%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%
Additional NLWA Waste	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.3%	12.5%	18.8%	25.0%	31.3%	37.5%	43.8%	50.0%	50.9%	51.8%	52.7%	53.6%	54.5%	55.5%	56.4%	57.3%	58.2%	59.1%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%
NLWA	22.9%	25.0%	28.4%	30.3%	30.5%	31.6%	32.8%	34.9%	37.1%	39.2%	41.4%	43.5%	45.7%	47.8%	50.0%	50.9%	51.8%	52.7%	53.6%	54.5%	55.5%	56.4%	57.3%	58.2%	59.1%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%

Total Recycling (tonnes)	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet	43,016	46,245	46,758	49,252	50,703	51,973	49,688	52,469	55,843	59,279	62,827	66,496	70,295	74,234	78,324	79,999	81,684	83,379	85,083	86,797	88,522	90,256	92,000	93,755	95,519	97,294	97,600	97,907	98,215	98,524	98,834	99,145	99,457	99,770	100,084	100,399	100,715	101,031	101,349	101,668	101,988	102,309	102,631	102,954	103,278
Camden	19,680	19,105	21,905	21,911	24,688	25,177	21,347	22,916	24,746	26,612	28,534	30,518	32,569	34,692	36,894	37,683	38,477	39,275	40,078	40,885	41,698	42,515	43,336	44,163	44,994	45,830	45,974	46,119	46,264	46,409	46,555	46,702	46,849	46,996	47,144	47,292	47,441	47,590	47,740	47,890	48,041	48,192	48,344	48,496	48,648
Enfield	32,364	34,920	33,597	35,006	38,575	42,885	48,047	49,428	51,354	53,314	55,351	57,469	59,675	61,973	64,371	65,747	67,132	68,525	69,925	71,334	72,751	74,177	75,610	77,052	78,502	79,961	80,212	80,465	80,718	80,972	81,227	81,482	81,739	81,996	82,254	82,513	82,772	83,033	83,294	83,556	83,819	84,083	84,347	84,612	84,879
Hackney	15,502	17,862	17,460	17,964	18,567	18,347	19,203	21,861	24,779	27,755	30,811	33,956	37,199	40,548	44,012	44,953	45,900	46,852	47,809	48,773	49,742	50,716	51,696	52,682	53,674	54,671	54,843	55,015	55,189	55,362	55,536	55,711	55,886	56,062	56,239	56,416	56,593	56,771	56,950	57,129	57,309	57,489	57,670	57,851	58,033
Haringey	17,483	19,494	21,098	23,745	25,103	25,016	30,431	32,310	34,556	36,843	39,204	41,642	44,166	46,782	49,496	50,555	51,619	52,690	53,767	54,851	55,940	57,036	58,139	59,247	60,362	61,484	61,677	61,871	62,066	62,261	62,457	62,654	62,851	63,049	63,247	63,446	63,646	63,846	64,047	64,248	64,450	64,653	64,857	65,061	65,265
Islington	19,609	21,821	22,078	21,534	21,504	21,932	21,711	22,973	24,496	26,046	27,647	29,302	31,015	32,791	34,634	35,375	36,120	36,869	37,623	38,381	39,143	39,910	40,681	41,457	42,237	43,022	43,158	43,293	43,430	43,566	43,703	43,841	43,979	44,117	44,256	44,395	44,535	44,675	44,816	44,957	45,098	45,240	45,382	45,525	45,668
Waltham Forest	28,237	31,616	30,385	29,605	28,047	29,520	32,105	34,299	36,884	39,518	42,233	45,038	47,938	50,941	54,057	55,213	56,376	57,545	58,722	59,905	61,095	62,292	63,496	64,706	65,924	67,149	67,360	67,572	67,785	67,998	68,212	68,427	68,642	68,858	69,075	69,292	69,510	69,729	69,948	70,168	70,389	70,610	70,833	71,055	71,279
Total of Boroughs	175,891	191,063	193,283	199,017	207,187	214,849	222,532	236,257	252,658	269,367	286,607	304,421	322,856	341,961	361,788	369,525	377,307	385,135	393,008	400,926	408,891	416,902	424,959	433,062	441,213	449,410	450,824	452,243	453,666	455,093	456,525	457,961	459,402	460,848	462,298	463,752	465,211	466,675	468,143	469,616	471,094	472,576	474,063	475,555	477,051
Additional NLWA Waste	0	0	0	0	0	0	0	735	1,484	2,249	3,031	3,833	4,657	5,504	6,378	6,515	6,652	6,790	6,929	7,068	7,209	7,350	7,492	7,635	7,779	7,923	7,948	7,973	7,998	8,023	8,049	8,074	8,099	8,125	8,150	8,176	8,202	8,228	8,254	8,279	8,306	8,332	8,358	8,384	8,411
NLWA	175,891	191,063	193,283	199,017	207,187	214,849	222,532	236,991	254,142	271,616	289,638	308,254	327,512	347,465	368,167	376,040	383,959	391,925	399,936	407,995	416,100	424,252	432,451	440,697	448,992	457,334	458,772	460,216	461,664	463,116	464,574	466,035	467,502	468,973	470,448	471,928	473,413	474,903	476,397	477,896	479,399	480,908	482,421	483,939	485,461

Remaining Residual

Residual (tonnes)	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet	99,470	98,492	99,113	94,540	96,924	93,944	94,742	91,866	89,953	87,992	86,047	84,114	82,186	80,258	78,324	77,142	75,952	74,753	73,546	72,331	71,108	69,876	68,635	67,386	66,129	64,863	65,067	65,271	65,477	65,683	65,889	66,097	66,305	66,513	66,723	66,932	67,143	67,354	67,566	67,779	67,992	68,206	68,421	68,636	68,852
Camden	54,885	53,186	50,216	48,252	51,790	51,030	46,686	45,073	43,930	42,760	41,593	40,426	39,256	38,080	36,894	36,337	35,777	35,212	34,644	34,071	33,495	32,914	32,330	31,742	31,149	30,553	30,649	30,746	30,842	30,939	31,037	31,134	31,232	31,331	31,429	31,528	31,627	31,727	31,827	31,927	32,027	32,128	32,229	32,331	32,432
Enfield	104,913	85,674	82,070	74,192	73,653	71,748	70,652	69,194	68,468	67,720	67,001	66,309	65,641	64,996	64,371	63,399	62,421	61,436	60,444	59,445	58,440	57,427	56,408	55,381	54,348	53,307	53,475	53,643	53,812	53,981	54,151	54,321	54,492	54,664	54,836	55,008	55,181	55,355	55,529	55,704	55,879	56,055	56,231	56,408	56,586
Hackney	70,344	61,548	59,010	56,021	57,457	59,834	61,954	59,243	57,146	54,999	52,844	50,674	48,482	46,264	44,012	43,347	42,679	42,005	41,327	40,644	39,956	39,264	38,567	37,865	37,159	36,447	36,562	36,677	36,792	36,908	37,024	37,141	37,258	37,375	37,492	37,610	37,729	37,847	37,967	38,086	38,206	38,326	38,447	38,568	38,689
Haringey	63,180	63,265	66,926	65,984	61,040	65,867	60,840	58,901	57,579	56,223	54,876	53,534	52,193	50,848	49,496	48,749	47,997	47,240	46,477	45,709	44,936	44,157	43,373	42,584	41,789	40,989	41,118	41,248	41,377	41,508	41,638	41,769	41,901	42,032	42,165	42,297	42,430	42,564	42,698	42,832	42,967	43,102	43,238	43,374	43,510
Islington	59,696	53,215	46,902	43,495	43,250	39,801	42,155	40,850	39,974	39,075	38,184	37,296	36,411	35,524	34,634	34,111	33,585	33,055	32,521	31,984	31,443	30,898	30,350	29,797	29,241	28,681	28,772	28,862	28,953	29,044	29,136	29,227	29,319	29,411	29,504	29,597	29,690	29,783	29,877	29,971	30,065	30,160	30,255	30,350	30,445
Waltham Forest	78,767	69,405	71,857	69,715	71,917	72,634	67,576	65,316	63,739	62,124	60,515	58,908	57,300	55,684	54,057	53,241	52,420	51,592	50,759	49,921	49,076	48,226	47,370	46,508	45,640	44,766	44,907	45,048	45,190	45,332	45,475	45,618	45,761	45,905	46,050	46,195	46,340	46,486	46,632	46,779	46,926	47,074	47,222	47,370	47,519
Total of Boroughs	531,255	484,785	476,093	452,199	456,031	454,859	444,605	430,444	420,789	410,894	401,061	391,261	381,469	371,654	361,788	356,328	350,830	345,293	339,718	334,105	328,453	322,763	317,033	311,264	305,455	299,607	300,550	301,495	302,444	303,395	304,350	305,308	306,268	307,232	308,198	309,168	310,141	311,117	312,096	313,078	314,063	315,051	316,042	317,036	318,034
Additional NLWA Waste	61,624	86,926	11,069	5,700	15,051	10,623	11,762	11,020	10,389	9,744	9,093	8,432	7,761	7,077	6,378	6,282	6,185	6,088	5,989	5,890	5,791	5,690	5,589	5,488	5,385	5,282	5,299	5,315	5,332	5,349	5,366	5,383	5,400	5,417	5,434	5,451	5,468	5,485	5,502	5,520	5,537	5,554	5,572	5,589	5,607
NLWA	592,879	571,711	487,161	457,898	471,082	465,482	456,366	441,463	431,178	420,638	410,153	399,694	389,230	378,731	368,167	362,610	357,015	351,381	345,708	339,996	334,244	328,453	322,622	316,751	310,840	304,889	305,848	306,811	307,776	308,744	309,716	310,690	311,668	312,648	313,632	314,619	315,609	316,602	317,598	318,597	319,600	320,605	321,614	322,626	323,641

Central Recycling Scenario

Recycling Rate Forecast

Total Recycling (%)	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet	30.2%	32.0%	32.1%	34.3%	34.3%	35.6%	34.4%	36.4%	38.3%	40.3%	42.2%	44.2%	46.1%	48.1%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Camden	26.4%	26.4%	30.4%	31.2%	32.3%	33.0%	31.4%	33.7%	36.0%	38.4%	40.7%	43.0%	45.3%	47.7%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Enfield	23.6%	29.0%	29.0%	32.1%	34.4%	37.4%	40.5%	41.7%	42.9%	44.0%	45.2%	46.4%	47.6%	48.8%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Hackney	18.1%	22.5%	22.8%	24.3%	24.4%	23.5%	23.7%	27.0%	30.2%	33.5%	36.8%	40.1%	43.4%	46.7%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Haringey	21.7%	23.6%	24.0%	26.5%	29.1%	27.5%	33.3%	35.4%	37.5%	39.6%	41.7%	43.8%	45.8%	47.9%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Islington	24.7%	29.1%	32.0%	33.1%	33.2%	35.5%	34.0%	36.0%	38.0%	40.0%	42.0%	44.0%	46.0%	48.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Waltham Forest	26.4%	31.3%	29.7%	29.8%	28.1%	28.9%	32.2%	34.4%	36.7%	38.9%	41.1%	43.3%	45.6%	47.8%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Total of Boroughs	24.9%	28.3%	28.9%	30.6%	31.2%	32.1%	33.4%	35.4%	37.5%	39.6%	41.7%	43.8%	45.8%	47.9%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Additional NLWA Waste	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.3%	12.5%	18.8%	25.0%	31.3%	37.5%	43.8%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
NLWA	22.9%	25.0%	28.4%	30.3%	30.5%	31.6%	32.8%	34.9%	37.1%	39.2%	41.4%	43.5%	45.7%	47.8%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%

Total Recycling (tonnes)	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet	43,016	46,245	46,758	49,252	50,703	51,973	49,688	52,469	55,843	59,279	62,827	66,496	70,295	74,234	78,324	78,571	78,818	79,066	79,315	79,564	79,815	80,066	80,318	80,570	80,824	81,078	81,333	81,589	81,846	82,103	82,362	82,621	82,881	83,142	83,403	83,666	83,929	84,193	84,458	84,724	84,990	85,258	85,526	85,795	86,065
Camden	19,680	19,105	21,905	21,911	24,688	25,177	21,347	22,916	24,746	26,612	28,534	30,518	32,569	34,692	36,894	37,010	37,127	37,244	37,361	37,478	37,596	37,714	37,833	37,952	38,072	38,191	38,312	38,432	38,553	38,674	38,796	38,918	39,041	39,163	39,287	39,410	39,534	39,659	39,783	39,909	40,034	40,160	40,286	40,413	40,540
Enfield	32,364	34,920	33,597	35,006	38,575	42,885	48,047	49,428	51,354	53,314	55,351	57,469	59,675	61,973	64,371	64,573	64,776	64,980	65,185	65,390	65,596	65,802	66,009	66,217	66,425	66,634	66,844	67,054	67,265	67,477	67,689	67,902	68,115	68,330	68,545	68,760	68,977	69,194	69,412	69,630	69,849	70,069	70,289	70,510	70,732
Hackney	15,502	17,862	17,460	17,964	18,567	18,347	19,203	21,861	24,779	27,755	30,811	33,956	37,199	40,548	44,012	44,150	44,289	44,428	44,568	44,708	44,849	44,990	45,132	45,274	45,416	45,559	45,702	45,846	45,990	46,135	46,280	46,426	46,572	46,719	46,866	47,013	47,161	47,309	47,458	47,607	47,757	47,908	48,058	48,209	48,361
Haringey	17,483	19,494	21,098	23,745	25,103	25,016	30,431	32,310	34,556	36,843	39,204	41,642	44,166	46,782	49,496	49,652	49,808	49,965	50,122	50,280	50,438	50,597	50,756	50,916	51,076	51,237	51,398	51,560	51,722	51,884	52,048	52,211	52,376	52,541	52,706	52,872	53,038	53,205	53,372	53,540	53,709	53,878	54,047	54,217	54,388
Islington	19,609	21,821	22,078	21,534	21,504	21,932	21,711	22,973	24,496	26,046	27,647	29,302	31,015	32,791	34,634	34,743	34,852	34,962	35,072	35,182	35,293	35,404	35,516	35,627	35,739	35,852	35,965	36,078	36,191	36,305	36,419	36,534	36,649	36,764	36,880	36,996	37,112	37,229	37,346	37,464	37,582	37,700	37,819	37,937	38,057
Waltham Forest	28,237	31,616	30,385	29,605	28,047	29,520	32,105	34,299	36,884	39,518	42,233	45,038	47,938	50,941	54,057	54,227	54,398	54,569	54,740	54,913	55,085	55,259	55,433	55,607	55,782	55,958	56,134	56,310	56,487	56,665	56,843	57,022	57,202	57,382	57,562	57,743	57,925	58,107	58,290	58,473	58,657	58,842	59,027	59,213	59,399
Total of Boroughs	175,891	191,063	193,283	199,017	207,187	214,849	222,532	236,257	252,658	269,367	286,607	304,421	322,856	341,961	361,788	362,927	364,068	365,214	366,363	367,516	368,672	369,832	370,996	372,163	373,334	374,509	375,687	376,869	378,055	379,244	380,437	381,634	382,835	384,040	385,248	386,460	387,676	388,896	390,119	391,347	392,578	393,813	395,053	396,295	397,542
Additional NLWA Waste	0	0	0	0	0	0	0	735	1,484	2,249	3,031	3,833	4,657	5,504	6,378	6,399	6,419	6,439	6,459	6,479	6,500	6,520	6,541	6,561	6,582	6,603	6,623	6,644	6,665	6,686	6,707	6,728	6,750	6,771	6,792	6,813	6,835	6,856	6,878	6,900	6,921	6,943	6,965	6,987	7,009
NLWA	175,891	191,063	193,283	199,017	207,187	214,849	222,532	236,991	254,142	271,616	289,638	308,254	327,512	347,465	368,167	369,325	370,487	371,653	372,822	373,995	375,172	376,352	377,536	378,724	379,916	381,111	382,310	383,513	384,720	385,930	387,145	388,363	389,585	390,810	392,040	393,274	394,511	395,752	396,997	398,247	399,500	400,756	402,017	403,282	404,551

Remaining Residual

Residual (tonnes)	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet	99,470	98,492	99,113	94,540	96,924	93,944	94,742	91,866	89,953	87,992	86,047	84,114	82,186	80,258	78,324	78,571	78,818	79,066	79,315	79,564	79,815	80,066	80,318	80,570	80,824	81,078	81,333	81,589	81,846	82,103	82,362	82,621	82,881	83,142	83,403	83,666	83,929	84,193	84,458	84,724	84,990	85,258	85,526	85,795	86,065
Camden	54,885	53,186	50,216	48,252	51,790	51,030	46,686	45,073	43,930	42,760	41,593	40,426	39,256	38,080	36,894	37,010	37,127	37,244	37,361	37,478	37,596	37,714	37,833	37,952	38,072	38,191	38,312	38,432	38,553	38,674	38,796	38,918	39,041	39,163	39,287	39,410	39,534	39,659	39,783	39,909	40,034	40,160	40,286	40,413	40,540
Enfield	104,913	85,674	82,070	74,192	73,653	71,748	70,652	69,194	68,468	67,720	67,001	66,309	65,641	64,996	64,371	64,573	64,776	64,980	65,185	65,390	65,596	65,802	66,009	66,217	66,425	66,634	66,844	67,054	67,265	67,477	67,689	67,902	68,115	68,330	68,545	68,760	68,977	69,194	69,412	69,630	69,849	70,069	70,289	70,510	70,732
Hackney	70,344	61,548	59,010	56,021	57,457	59,834	61,954	59,243	57,146	54,999	52,844	50,674	48,482	46,264	44,012	44,150	44,289	44,428	44,568	44,708	44,849	44,990	45,132	45,274	45,416	45,559	45,702	45,846	45,990	46,135	46,280	46,426	46,572	46,719	46,866	47,013	47,161	47,309	47,458	47,607	47,757	47,908	48,058	48,209	48,361
Haringey	63,180	63,265	66,926	65,984	61,040	65,867	60,840	58,901	57,579	56,223	54,876	53,534	52,193	50,848	49,496	49,652	49,808	49,965	50,122	50,280	50,438	50,597	50,756	50,916	51,076	51,237	51,398	51,560	51,722	51,884	52,048	52,211	52,376	52,541	52,706	52,872	53,038	53,205	53,372	53,540	53,709	53,878	54,047	54,217	54,388
Islington	59,696	53,215	46,902	43,495	43,250	39,801	42,155	40,850	39,974	39,075	38,184	37,296	36,411	35,524	34,634	34,743	34,852	34,962	35,072	35,182	35,293	35,404	35,516	35,627	35,739	35,852	35,965	36,078	36,191	36,305	36,419	36,534	36,649	36,764	36,880	36,996	37,112	37,229	37,346	37,464	37,582	37,700	37,819	37,937	38,057
Waltham Forest	78,767	69,405	71,857	69,715	71,917	72,634	67,576	65,316	63,739	62,124	60,515	58,908	57,300	55,684	54,057	54,227	54,398	54,569	54,740	54,913	55,085	55,259	55,433	55,607	55,782	55,958	56,134	56,310	56,487	56,665	56,843	57,022	57,202	57,382	57,562	57,743	57,925	58,107	58,290	58,473	58,657	58,842	59,027	59,213	59,399
Total of Boroughs	531,255	484,785	476,093	452,199	456,031	454,859	444,605	430,444	420,789	410,894	401,061	391,261	381,469	371,654	361,788	362,927	364,068	365,214	366,363	367,516	368,672	369,832	370,996	372,163	373,334	374,509	375,687	376,869	378,055	379,244	380,437	381,634	382,835	384,040	385,248	386,460	387,676	388,896	390,119	391,347	392,578	393,813	395,053	396,295	397,542
Additional NLWA Waste	61,624	86,926	11,069	5,700	15,051	10,623	11,762	11,020	10,389	9,744	9,093	8,432	7,761	7,077	6,378	6,399	6,419	6,439	6,459	6,479	6,500	6,520	6,541	6,561	6,582	6,603	6,623	6,644	6,665	6,686	6,707	6,728	6,750	6,771	6,792	6,813	6,835	6,856	6,878	6,900	6,921	6,943	6,965	6,987	7,009
NLWA	592,879	571,711	487,161	457,898	471,082	465,482	456,366	441,463	431,178	420,638	410,153	399,694	389,230	378,731	368,167	369,325	370,487	371,653	372,822	373,995	375,172	376,352	377,536	378,724	379,916	381,111	382,310	383,513	384,720	385,930	387,145	388,363	389,585	390,810	392,040	393,274	394,511	395,752	396,997	398,247	399,500	400,756	402,017	403,282	404,551

Low Recycling Scenario

Recycling Rate Forecast

Total Recycling (%)	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet	30.2%	32.0%	32.1%	34.3%	34.3%	35.6%	34.4%	35.1%	35.8%	36.5%	37.2%	37.9%	38.6%	39.3%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%
Camden	26.4%	26.4%	30.4%	31.2%	32.3%	33.0%	31.4%	32.5%	33.5%	34.6%	35.7%	36.8%	37.8%	38.9%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%
Enfield	23.6%	29.0%	29.0%	32.1%	34.4%	37.4%	40.5%	40.4%	40.4%	40.3%	40.2%	40.2%	40.1%	40.1%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%
Hackney	18.1%	22.5%	22.8%	24.3%	24.4%	23.5%	23.7%	25.7%	27.7%	29.8%	31.8%	33.9%	35.9%	38.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%
Haringey	21.7%	23.6%	24.0%	26.5%	29.1%	27.5%	33.3%	34.2%	35.0%	35.8%	36.7%	37.5%	38.3%	39.2%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%
Islington	24.7%	29.1%	32.0%	33.1%	33.2%	35.5%	34.0%	34.7%	35.5%	36.2%	37.0%	37.7%	38.5%	39.2%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%
Waltham Forest	26.4%	31.3%	29.7%	29.8%	28.1%	28.9%	32.2%	33.2%	34.2%	35.1%	36.1%	37.1%	38.1%	39.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%
Total of Boroughs	24.9%	28.3%	28.9%	30.6%	31.2%	32.1%	33.4%	34.2%	35.0%	35.8%	36.7%	37.5%	38.3%	39.2%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%
Additional NLWA Waste	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.0%	10.0%	15.0%	20.0%	25.0%	30.0%	35.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%
NLWA	22.9%	25.0%	28.4%	30.3%	30.5%	31.6%	32.8%	33.7%	34.6%	35.5%	36.4%	37.3%	38.2%	39.1%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%

Total Recycling (tonnes)	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet	43,016	46,245	46,758	49,252	50,703	51,973	49,688	50,665	52,198	53,757	55,383	57,083	58,859	60,716	62,659	62,857	63,054	63,253	63,452	63,651	63,852	64,053	64,254	64,456	64,659	64,863	65,067	65,271	65,477	65,683	65,889	66,097	66,305	66,513	66,723	66,932	67,143	67,354	67,566	67,779	67,992	68,206	68,421	68,636	68,852
Camden	19,680	19,105	21,905	21,911	24,688	25,177	21,347	22,066	23,029	24,010	25,027	26,084	27,182	28,325	29,515	29,608	29,701	29,795	29,889	29,983	30,077	30,172	30,267	30,362	30,457	30,553	30,649	30,746	30,842	30,939	31,037	31,134	31,232	31,331	31,429	31,528	31,627	31,727	31,827	31,927	32,027	32,128	32,229	32,331	32,432
Enfield	32,364	34,920	33,597	35,006	38,575	42,885	48,047	47,945	48,359	48,776	49,233	49,733	50,276	50,864	51,497	51,659	51,821	51,984	52,148	52,312	52,476	52,642	52,807	52,973	53,140	53,307	53,475	53,643	53,812	53,981	54,151	54,321	54,492	54,664	54,836	55,008	55,181	55,355	55,529	55,704	55,879	56,055	56,231	56,408	56,586
Hackney	15,502	17,862	17,460	17,964	18,567	18,347	19,203	20,847	22,731	24,651	26,628	28,667	30,773	32,952	35,209	35,320	35,431	35,543	35,655	35,767	35,879	35,992	36,105	36,219	36,333	36,447	36,562	36,677	36,792	36,908	37,024	37,141	37,258	37,375	37,492	37,610	37,729	37,847	37,967	38,086	38,206	38,326	38,447	38,568	38,689
Haringey	17,483	19,494	21,098	23,745	25,103	25,016	30,431	31,170	32,252	33,353	34,500	35,694	36,939	38,239	39,597	39,722	39,847	39,972	40,098	40,224	40,350	40,477	40,605	40,733	40,861	40,989	41,118	41,248	41,377	41,508	41,638	41,769	41,901	42,032	42,165	42,297	42,430	42,564	42,698	42,832	42,967	43,102	43,238	43,374	43,510
Islington	19,609	21,821	22,078	21,534	21,504	21,932	21,711	22,176	22,884	23,604	24,356	25,139	25,958	26,813	27,707	27,794	27,882	27,970	28,058	28,146	28,234	28,323	28,412	28,502	28,591	28,681	28,772	28,862	28,953	29,044	29,136	29,227	29,319	29,411	29,504	29,597	29,690	29,783	29,877	29,971	30,065	30,160	30,255	30,350	30,445
Waltham Forest	28,237	31,616	30,385	29,605	28,047	29,520	32,105	33,054	34,369	35,706	37,096	38,541	40,045	41,612	43,246	43,382	43,518	43,655	43,792	43,930	44,068	44,207	44,346	44,486	44,626	44,766	44,907	45,048	45,190	45,332	45,475	45,618	45,761	45,905	46,050	46,195	46,340	46,486	46,632	46,779	46,926	47,074	47,222	47,370	47,519
Total of Boroughs	175,891	191,063	193,283	199,017	207,187	214,849	222,532	227,923	235,822	243,858	252,223	260,941	270,031	279,520	289,431	290,341	291,255	292,171	293,090	294,013	294,938	295,866	296,797	297,730	298,667	299,607	300,550	301,495	302,444	303,395	304,350	305,308	306,268	307,232	308,198	309,168	310,141	311,117	312,096	313,078	314,063	315,051	316,042	317,036	318,034
Additional NLWA Waste	0	0	0	0	0	0	0	588	1,187	1,799	2,425	3,066	3,725	4,403	5,103	5,119	5,135	5,151	5,167	5,184	5,200	5,216	5,233	5,249	5,266	5,282	5,299	5,315	5,332	5,349	5,366	5,383	5,400	5,417	5,434	5,451	5,468	5,485	5,502	5,520	5,537	5,554	5,572	5,589	5,607
NLWA	175,891	191,063	193,283	199,017	207,187	214,849	222,532	228,511	237,009	245,657	254,648	264,007	273,757	283,923	294,533	295,460	296,390	297,322	298,258	299,196	300,137	301,082	302,029	302,979	303,933	304,889	305,848	306,811	307,776	308,744	309,716	310,690	311,668	312,648	313,632	314,619	315,609	316,602	317,598	318,597	319,600	320,605	321,614	322,626	323,641

Remaining Residual

Residual (tonnes)	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet	99,470	98,492	99,113	94,540	96,924	93,944	94,742	93,670	93,598	93,515	93,491	93,527	93,622	93,776	93,989	94,285	94,582	94,879	95,178	95,477	95,778	96,079	96,381	96,684	96,989	97,294	97,600	97,907	98,215	98,524	98,834	99,145	99,457	99,770	100,084	100,399	100,715	101,031	101,349	101,668	101,988	102,309	102,631	102,954	103,278
Camden	54,885	53,186	50,216	48,252	51,790	51,030	46,686	45,922	45,647	45,361	45,099	44,860	44,643	44,448	44,273	44,412	44,552	44,692	44,833	44,974	45,115	45,257	45,400	45,543	45,686	45,830	45,974	46,119	46,264	46,409	46,555	46,702	46,849	46,996	47,144	47,292	47,441	47,590	47,740	47,890	48,041	48,192	48,344	48,496	48,648
Enfield	104,913	85,674	82,070	74,192	73,653	71,748	70,652	70,677	71,464	72,259	73,119	74,045	75,040	76,106	77,245	77,488	77,732	77,976	78,222	78,468	78,715	78,962	79,211	79,460	79,710	79,961	80,212	80,465	80,718	80,972	81,227	81,482	81,739	81,996	82,254	82,513	82,772	83,033	83,294	83,556	83,819	84,083	84,347	84,612	84,879

Hackney	70,344	61,548	59,010	56,021	57,457	59,834	61,954	60,257	59,194	58,103	57,027	55,963	54,908	53,860	52,814
Haringey	63,180	63,265	66,926	65,984	61,040	65,867	60,840	60,041	59,882	59,713	59,580	59,483	59,419	59,391	59,396
Islington	59,696	53,215	46,902	43,495	43,250	39,801	42,155	41,648	41,585	41,517	41,475	41,459	41,467	41,502	41,561
Waltham Forest	78,767	69,405	71,857	69,715	71,917	72,634	67,576	66,562	66,255	65,935	65,652	65,405	65,193	65,014	64,868
Total of Boroughs	**531,255**	**484,785**	**476,093**	**452,199**	**456,031**	**454,859**	**444,605**	**438,778**	**437,625**	**436,404**	**435,444**	**434,742**	**434,293**	**434,096**	**434,146**
Additional NLWA Waste	61,624	86,926	11,069	5,700	15,051	10,623	11,762	11,166	10,686	10,194	9,699	9,199	8,692	8,178	7,654
NLWA	**592,879**	**571,711**	**487,161**	**457,898**	**471,082**	**465,482**	**456,366**	**449,944**	**448,311**	**446,598**	**445,143**	**443,940**	**442,985**	**442,273**	**441,800**

Hackney	52,980	53,147	53,314	53,482	53,650	53,819	53,988	54,158	54,328	54,499	54,671	54,843	55,015	55,189	55,362
Haringey	59,582	59,770	59,958	60,147	60,336	60,526	60,716	60,907	61,099	61,291	61,484	61,677	61,871	62,066	62,261
Islington	41,692	41,823	41,954	42,086	42,219	42,352	42,485	42,619	42,753	42,887	43,022	43,158	43,293	43,430	43,566
Waltham Forest	65,072	65,277	65,483	65,689	65,895	66,103	66,311	66,519	66,728	66,938	67,149	67,360	67,572	67,785	67,998
Total of Boroughs	**435,512**	**436,882**	**438,257**	**439,636**	**441,019**	**442,406**	**443,798**	**445,195**	**446,596**	**448,001**	**449,410**	**450,824**	**452,243**	**453,666**	**455,093**
Additional NLWA Waste	7,678	7,702	7,727	7,751	7,775	7,800	7,824	7,849	7,874	7,898	7,923	7,948	7,973	7,998	8,023
NLWA	**443,190**	**444,584**	**445,983**	**447,387**	**448,794**	**450,206**	**451,623**	**453,044**	**454,469**	**455,899**	**457,334**	**458,772**	**460,216**	**461,664**	**463,116**

Hackney	55,536	55,711	55,886	56,062	56,239	56,416	56,593	56,771	56,950	57,129	57,309	57,489	57,670	57,851	58,033
Haringey	62,457	62,654	62,851	63,049	63,247	63,446	63,646	63,846	64,047	64,248	64,450	64,653	64,857	65,061	65,265
Islington	43,703	43,841	43,979	44,117	44,256	44,395	44,535	44,675	44,816	44,957	45,098	45,240	45,382	45,525	45,668
Waltham Forest	68,212	68,427	68,642	68,858	69,075	69,292	69,510	69,729	69,948	70,168	70,389	70,610	70,833	71,055	71,279
Total of Boroughs	**456,525**	**457,961**	**459,402**	**460,848**	**462,298**	**463,752**	**465,211**	**466,675**	**468,143**	**469,616**	**471,094**	**472,576**	**474,063**	**475,555**	**477,051**
Additional NLWA Waste	8,049	8,074	8,099	8,125	8,150	8,176	8,202	8,228	8,254	8,279	8,306	8,332	8,358	8,384	8,411
NLWA	**464,574**	**466,035**	**467,502**	**468,973**	**470,448**	**471,928**	**473,413**	**474,903**	**476,397**	**477,896**	**479,399**	**480,908**	**482,421**	**483,939**	**485,461**

Recycling - C&I Waste

This tab forms the basis for calculating the remaining recycled C&I managed by Local Authorities, and consequently the quantity of residual C&I waste that will require treatment after recycling has occurred. While there are Mayoral targets for recycling of C&I waste, current C&I recycling by the seven boroughs is very poor.

Therefore, unlike the target-led approach taken for household recycling, we have taken an approach that utilises the same growth rate of household recycling, and applied it to LAC C&I waste. For example, if household recycling experiences a 10%-point increase over 10 years, then the same growth is applied to LAC C&I recycling.

C&I Waste Managed

Known & Forecast Managed Arisings

(tonnes)	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet	0	0	18,973	17,776	16,410	15,616	13,806	14,884	15,957	17,026	18,090	20,941	23,788	23,770	23,753	23,735	23,745	23,756	23,766	23,777	23,787	23,822	23,856	23,890	23,925	23,959	24,013	24,067	24,122	24,176	24,230	24,285	24,339	24,394	24,448	24,503	24,558	24,613	24,669	24,724	24,780	24,835	24,891	24,947	25,003
Camden	0	0	50,290	46,342	39,672	36,638	37,661	40,052	42,432	44,802	47,161	52,245	57,321	57,278	57,235	57,192	57,217	57,243	57,268	57,294	57,319	57,402	57,484	57,567	57,650	57,732	57,863	57,994	58,125	58,255	58,386	58,517	58,648	58,780	58,912	59,044	59,177	59,310	59,443	59,576	59,710	59,844	59,978	60,113	60,248
Enfield	0	0	15,362	15,539	12,872	11,143	8,362	10,237	12,104	13,962	15,813	19,006	22,195	22,178	22,161	22,145	22,154	22,164	22,174	22,184	22,194	22,226	22,258	22,290	22,322	22,354	22,404	22,455	22,506	22,556	22,607	22,658	22,708	22,759	22,810	22,862	22,913	22,964	23,016	23,068	23,119	23,171	23,223	23,275	23,328
Hackney	0	0	29,553	27,461	22,877	20,492	19,441	21,581	23,712	25,834	27,946	29,574	31,199	31,176	31,152	31,129	31,142	31,156	31,170	31,184	31,198	31,243	31,288	31,333	31,378	31,423	31,494	31,565	31,636	31,707	31,779	31,850	31,921	31,993	32,065	32,137	32,209	32,281	32,354	32,426	32,499	32,572	32,645	32,718	32,792
Haringey	0	0	16,039	15,608	10,235	3,192	2,489	5,859	9,215	12,556	15,884	17,653	19,420	19,406	19,391	19,376	19,385	19,394	19,402	19,411	19,419	19,447	19,475	19,503	19,531	19,559	19,604	19,648	19,692	19,737	19,781	19,825	19,870	19,914	19,959	20,004	20,049	20,094	20,139	20,184	20,229	20,275	20,320	20,366	20,412
Islington	0	0	26,677	24,926	19,389	19,100	17,649	17,340	17,032	24,099	30,852	34,749	34,723	34,697	34,671	34,644	34,660	34,675	34,691	34,706	34,721	34,771	34,822	34,872	34,922	34,972	35,051	35,130	35,209	35,289	35,368	35,447	35,527	35,606	35,686	35,766	35,847	35,927	36,008	36,089	36,170	36,251	36,332	36,414	36,495
Waltham Forest	0	0	10,912	10,457	8,335	4,855	2,663	4,671	6,670	8,660	10,642	12,346	14,047	14,037	14,026	14,016	14,022	14,028	14,034	14,041	14,047	14,067	14,087	14,108	14,128	14,148	14,180	14,212	14,244	14,276	14,308	14,340	14,373	14,405	14,437	14,470	14,502	14,535	14,567	14,600	14,633	14,665	14,698	14,731	14,764
NLWA	217,425	211,462	167,805	158,108	129,789	111,036	102,071	114,624	127,122	146,939	166,388	186,515	202,694	202,542	202,389	202,236	202,326	202,416	202,506	202,595	202,685	202,978	203,270	203,562	203,855	204,147	204,609	205,072	205,534	205,996	206,459	206,922	207,387	207,852	208,318	208,786	209,255	209,724	210,195	210,667	211,139	211,613	212,088	212,564	213,041

Current Recycling

C&I Waste Sent for Recycling

(tonnes)	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet	0	0	100	118	210	89	0																																						
Camden	2,096	2,902	2,452	2,511	3,086	2,938	2,491																																						
Enfield	0	0	1,143	1,530	881	458	177																																						
Hackney	1,266	1,112	1,098	923	1,838	2,155	2,673																																						
Haringey	348	342	580	1,112	1,129	400	373																																						
Islington	63	120	261	677	1,285	1,585	1,325																																						
Waltham Forest	0	170	522	715	1,496	547	0																																						
NLWA	3,774	4,646	6,156	7,585	9,924	8,171	7,039																																						

Current Recycling Rate of Managed C&I Waste

(%)	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet			0.5%	0.7%	1.3%	0.6%	0.0%																																						
Camden			4.9%	5.4%	7.8%	8.0%	6.6%																																						
Enfield			7.4%	9.8%	6.8%	4.1%	2.1%																																						
Hackney			3.7%	3.4%	8.0%	10.5%	13.7%																																						
Haringey			3.6%	7.1%	11.0%	12.5%	15.0%																																						
Islington			1.0%	2.7%	6.6%	8.3%	7.5%																																						
Waltham Forest			4.8%	6.8%	17.9%	11.3%	0.0%																																						
NLWA	1.7%	2.2%	3.7%	4.8%	7.6%	7.4%	6.9%																																						

High Recycling Scenario

Recycling Rate

(%)	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet			0.5%	0.7%	1.3%	0.6%	0.0%	1.9%	3.9%	5.8%	7.8%	9.7%	11.7%	13.6%	15.6%	16.5%	17.4%	18.3%	19.2%	20.1%	21.1%	22.0%	22.9%	23.8%	24.7%	25.6%	25.6%	25.6%	25.6%	25.6%	25.6%	25.6%	25.6%	25.6%	25.6%	25.6%	25.6%	25.6%	25.6%	25.6%	25.6%	25.6%	25.6%	25.6%	25.6%
Camden			4.9%	5.4%	7.8%	8.0%	6.6%	8.9%	11.3%	13.6%	15.9%	18.3%	20.6%	22.9%	25.2%	26.1%	27.1%	28.0%	28.9%	29.8%	30.7%	31.6%	32.5%	33.4%	34.3%	35.2%	35.2%	35.2%	35.2%	35.2%	35.2%	35.2%	35.2%	35.2%	35.2%	35.2%	35.2%	35.2%	35.2%	35.2%	35.2%	35.2%	35.2%	35.2%	35.2%
Enfield			7.4%	9.8%	6.8%	4.1%	2.1%	3.3%	4.5%	5.7%	6.9%	8.1%	9.3%	10.4%	11.6%	12.5%	13.5%	14.4%	15.3%	16.2%	17.1%	18.0%	18.9%	19.8%	20.7%	21.6%	21.6%	21.6%	21.6%	21.6%	21.6%	21.6%	21.6%	21.6%	21.6%	21.6%	21.6%	21.6%	21.6%	21.6%	21.6%	21.6%	21.6%	21.6%	21.6%
Hackney			3.7%	3.4%	8.0%	10.5%	13.7%	17.0%	20.3%	23.6%	26.9%	30.2%	33.5%	36.8%	40.1%	41.0%	41.9%	42.8%	43.7%	44.6%	45.5%	46.5%	47.4%	48.3%	49.2%	50.1%	50.1%	50.1%	50.1%	50.1%	50.1%	50.1%	50.1%	50.1%	50.1%	50.1%	50.1%	50.1%	50.1%	50.1%	50.1%	50.1%	50.1%	50.1%	50.1%
Haringey			3.6%	7.1%	11.0%	12.5%	15.0%	17.1%	19.2%	21.2%	23.3%	25.4%	27.5%	29.6%	31.7%	32.6%	33.5%	34.4%	35.3%	36.2%	37.1%	38.0%	38.9%	39.8%	40.8%	41.7%	41.7%	41.7%	41.7%	41.7%	41.7%	41.7%	41.7%	41.7%	41.7%	41.7%	41.7%	41.7%	41.7%	41.7%	41.7%	41.7%	41.7%	41.7%	41.7%
Islington			1.0%	2.7%	6.6%	8.3%	7.5%	9.5%	11.5%	13.5%	15.5%	17.5%	19.5%	21.5%	23.5%	24.4%	25.3%	26.2%	27.1%	28.1%	29.0%	29.9%	30.8%	31.7%	32.6%	33.5%	33.5%	33.5%	33.5%	33.5%	33.5%	33.5%	33.5%	33.5%	33.5%	33.5%	33.5%	33.5%	33.5%	33.5%	33.5%	33.5%	33.5%	33.5%	33.5%
Waltham Forest			4.8%	6.8%	17.9%	11.3%	0.0%	2.2%	4.4%	6.7%	8.9%	11.1%	13.3%	15.6%	17.8%	18.7%	19.6%	20.5%	21.4%	22.3%	23.2%	24.2%	25.1%	26.0%	26.9%	27.8%	27.8%	27.8%	27.8%	27.8%	27.8%	27.8%	27.8%	27.8%	27.8%	27.8%	27.8%	27.8%	27.8%	27.8%	27.8%	27.8%	27.8%	27.8%	27.8%
NLWA			3.7%	4.8%	7.6%	7.4%	6.9%	9.3%	11.6%	13.9%	16.2%	18.2%	20.3%	22.5%	24.7%	25.6%	26.5%	27.4%	28.3%	29.3%	30.2%	31.1%	32.0%	32.9%	33.8%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%

Waste Recycled

(tonnes)	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet			100	118	210	89	0	290	622	996	1,411	2,041	2,783	3,244	3,705	3,918	4,135	4,353	4,571	4,789	5,008	5,231	5,456	5,681	5,907	6,133	6,147	6,161	6,174	6,188	6,202	6,216	6,230	6,244	6,258	6,272	6,286	6,300	6,314	6,329	6,343	6,357	6,371	6,386	6,400
Camden			2,452	2,511	3,086	2,938	2,491	3,581	4,782	6,092	7,510	9,536	11,797	13,122	14,444	14,953	15,480	16,007	16,535	17,063	17,592	18,139	18,688	19,238	19,790	20,343	20,389	20,435	20,481	20,527	20,573	20,619	20,666	20,712	20,758	20,805	20,852	20,899	20,945	20,992	21,040	21,087	21,134	21,182	21,229
Enfield			1,143	1,530	881	458	177	338	544	794	1,087	1,533	2,054	2,317	2,579	2,778	2,981	3,184	3,387	3,590	3,793	4,001	4,209	4,418	4,627	4,837	4,848	4,859	4,869	4,880	4,891	4,902	4,913	4,924	4,935	4,947	4,958	4,969	4,980	4,991	5,002	5,014	5,025	5,036	5,047
Hackney			1,098	923	1,838	2,155	2,673	3,678	4,821	6,103	7,523	8,934	10,452	11,471	12,488	12,762	13,050	13,339	13,629	13,918	14,208	14,512	14,818	15,124	15,431	15,739	15,774	15,810	15,846	15,881	15,917	15,953	15,988	16,024	16,060	16,096	16,133	16,169	16,205	16,241	16,278	16,314	16,351	16,388	16,424
Haringey			580	1,112	1,129	400	373	1,001	1,766	2,668	3,706	4,486	5,340	5,740	6,139	6,311	6,490	6,669	6,848	7,028	7,207	7,395	7,582	7,771	7,959	8,148	8,167	8,185	8,204	8,222	8,241	8,259	8,278	8,296	8,315	8,334	8,352	8,371	8,390	8,409	8,428	8,447	8,465	8,484	8,504
Islington			261	677	1,285	1,585	1,325	1,649	1,960	3,256	4,785	6,085	6,775	7,464	8,152	8,461	8,780	9,099	9,418	9,738	10,058	10,388	10,720	11,052	11,386	11,720	11,747	11,773	11,800	11,826	11,853	11,879	11,906	11,933	11,959	11,986	12,013	12,040	12,067	12,094	12,121	12,149	12,176	12,203	12,231
Waltham Forest			522	715	1,496	547	0	104	297	578	947	1,373	1,875	2,185	2,496	2,621	2,750	2,879	3,007	3,136	3,265	3,398	3,531	3,664	3,798	3,932	3,941	3,950	3,959	3,968	3,977	3,986	3,994	4,003	4,012	4,021	4,030	4,040	4,049	4,058	4,067	4,076	4,085	4,094	4,103
NLWA			6,156	7,585	9,924	8,171	7,039	10,641	14,793	20,486	26,969	33,989	41,076	45,543	50,002	51,803	53,666	55,530	57,395	59,262	61,131	63,065	65,003	66,947	68,897	70,852	71,012	71,172	71,333	71,493	71,654	71,815	71,976	72,137	72,299	72,462	72,624	72,787	72,950	73,114	73,278	73,443	73,608	73,773	73,938

Remaining Residual

(tonnes)	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet			18,873	17,658	16,200	15,527	13,806	14,594	15,335	16,030	16,679	18,900	21,006	20,526	20,048	19,817	19,610	19,403	19,195	18,987	18,780	18,590	18,400	18,209	18,018	17,826	17,866	17,907	17,947	17,988	18,028	18,068	18,109	18,150	18,190	18,231	18,272	18,313	18,354	18,395	18,437	18,478	18,519	18,561	18,603
Camden			47,838	43,831	36,586	33,701	35,170	36,470	37,650	38,710	39,650	42,709	45,524	44,157	42,791	42,239	41,738	41,236	40,733	40,231	39,727	39,263	38,797	38,329	37,860	37,390	37,474	37,559	37,644	37,728	37,813	37,898	37,983	38,068	38,154	38,239	38,325	38,411	38,497	38,584	38,670	38,757	38,844	38,931	39,019
Enfield			14,219	14,009	11,991	10,685	8,185	9,899	11,560	13,169	14,726	17,473	20,140	19,861	19,582	19,366	19,173	18,981	18,787	18,594	18,400	18,225	18,049	17,872	17,695	17,517	17,557	17,596	17,636	17,676	17,715	17,755	17,795	17,835	17,875	17,915	17,955	17,996	18,036	18,077	18,117	18,158	18,199	18,239	18,280
Hackney			28,455	26,538	21,040	18,337	16,768	17,903	18,891	19,730	20,424	20,640	20,747	19,705	18,664	18,367	18,092	17,817	17,541	17,266	16,990	16,730	16,470	16,209	15,947	15,684	15,720	15,755	15,791	15,826	15,862	15,897	15,933	15,969	16,005	16,040	16,076	16,113	16,149	16,185	16,221	16,258	16,294	16,331	16,367
Haringey			15,459	14,496	9,106	2,792	2,115	4,858	7,449	9,888	12,178	13,167	14,081	13,666	13,252	13,066	12,895	12,725	12,554	12,383	12,212	12,053	11,893	11,733	11,572	11,411	11,437	11,463	11,489	11,514	11,540	11,566	11,592	11,618	11,644	11,670	11,696	11,723	11,749	11,775	11,802	11,828	11,855	11,881	11,908
Islington			26,416	24,249	18,104	17,515	16,324	15,691	15,072	20,843	26,067	28,664	27,948	27,233	26,519	26,184	25,880	25,576	25,272	24,968	24,664	24,383	24,102	23,819	23,536	23,252	23,304	23,357	23,410	23,462	23,515	23,568	23,621	23,674	23,727	23,780	23,834	23,887	23,941	23,994	24,048	24,102	24,156	24,211	24,265
Waltham Forest			10,390	9,742	6,839	4,309	2,663	4,567	6,373	8,083	9,696	10,973	12,173	11,851	11,531	11,394	11,272	11,150	11,027	10,904	10,781	10,669	10,556	10,443	10,330	10,216	10,239	10,262	10,285	10,308	10,332	10,355	10,378	10,401	10,425	10,448	10,472	10,495	10,519	10,542	10,566	10,590	10,613	10,637	10,661
NLWA			161,650	150,524	119,865	102,865	95,032	103,983	112,329	126,453	139,419	152,526	161,618	156,999	152,387	150,433	148,661	146,886	145,111	143,333	141,554	139,913	138,267	136,615	134,958	133,296	133,597	133,899	134,201	134,503	134,805	135,108	135,411	135,715	136,019	136,325	136,630	136,937	137,244	137,552	137,861	138,171	138,481	138,791	139,103

Central Recycling Scenario

Recycling Rate

(%)	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet			0.5%	0.7%	1.3%	0.6%	0.0%	1.9%	3.9%	5.8%	7.8%	9.7%	11.7%	13.6%	15.6%	15.6%	15.6%	15.6%	15.6%	15.6%	15.6%	15.6%	15.6%	15.6%	15.6%	15.6%	15.6%	15.6%	15.6%	15.6%	15.6%	15.6%	15.6%	15.6%	15.6%	15.6%	15.6%	15.6%	15.6%	15.6%	15.6%	15.6%	15.6%	15.6%	15.6%
Camden			4.9%	5.4%	7.8%	8.0%	6.6%	8.9%	11.3%	13.6%	15.9%	18.3%	20.6%	22.9%	25.2%	25.2%	25.2%	25.2%	25.2%	25.2%	25.2%	25.2%	25.2%	25.2%	25.2%	25.2%	25.2%	25.2%	25.2%	25.2%	25.2%	25.2%	25.2%	25.2%	25.2%	25.2%	25.2%	25.2%	25.2%	25.2%	25.2%	25.2%	25.2%	25.2%	25.2%
Enfield			7.4%	9.8%	6.8%	4.1%	2.1%	3.3%	4.5%	5.7%	6.9%	8.1%	9.3%	10.4%	11.6%	11.6%	11.6%	11.6%	11.6%	11.6%	11.6%	11.6%	11.6%	11.6%	11.6%	11.6%	11.6%	11.6%	11.6%	11.6%	11.6%	11.6%	11.6%	11.6%	11.6%	11.6%	11.6%	11.6%	11.6%	11.6%	11.6%	11.6%	11.6%	11.6%	11.6%
Hackney			3.7%	3.4%	8.0%	10.5%	13.7%	17.0%	20.3%	23.6%	26.9%	30.2%	33.5%	36.8%	40.1%	40.1%	40.1%	40.1%	40.1%	40.1%	40.1%	40.1%	40.1%	40.1%	40.1%	40.1%	40.1%	40.1%	40.1%	40.1%	40.1%	40.1%	40.1%	40.1%	40.1%	40.1%	40.1%	40.1%	40.1%	40.1%	40.1%	40.1%	40.1%	40.1%	40.1%
Haringey			3.6%	7.1%	11.0%	12.5%	15.0%	17.1%	19.2%	21.2%	23.3%	25.4%	27.5%	29.6%	31.7%	31.7%	31.7%	31.7%	31.7%	31.7%	31.7%	31.7%	31.7%	31.7%	31.7%	31.7%	31.7%	31.7%	31.7%	31.7%	31.7%	31.7%	31.7%	31.7%	31.7%	31.7%	31.7%	31.7%	31.7%	31.7%	31.7%	31.7%	31.7%	31.7%	31.7%
Islington			1.0%	2.7%	6.6%	8.3%	7.5%	9.5%	11.5%	13.5%	15.5%	17.5%	19.5%	21.5%	23.5%	23.5%	23.5%	23.5%	23.5%	23.5%	23.5%	23.5%	23.5%	23.5%	23.5%	23.5%	23.5%	23.5%	23.5%	23.5%	23.5%	23.5%	23.5%	23.5%	23.5%	23.5%	23.5%	23.5%	23.5%	23.5%	23.5%	23.5%	23.5%	23.5%	23.5%
Waltham Forest			4.8%	6.8%	17.9%	11.3%	0.0%	2.2%	4.4%	6.7%	8.9%	11.1%	13.3%	15.6%	17.8%	17.8%	17.8%	17.8%	17.8%	17.8%	17.8%	17.8%	17.8%	17.8%	17.8%	17.8%	17.8%	17.8%	17.8%	17.8%	17.8%	17.8%	17.8%	17.8%	17.8%	17.8%	17.8%	17.8%	17.8%	17.8%	17.8%	17.8%	17.8%	17.8%	17.8%
NLWA			3.7%	4.8%	7.6%	7.4%	6.9%	9.3%	11.6%	13.9%	16.2%	18.2%	20.3%	22.5%	24.7%	24.7%	24.7%	24.7%	24.7%	24.7%	24.7%	24.7%	24.7%	24.7%	24.7%	24.7%	24.7%	24.7%	24.7%	24.7%	24.7%	24.7%	24.7%	24.7%	24.7%	24.7%	24.7%	24.7%	24.7%	24.7%	24.7%	24.7%	24.7%	24.7%	24.7%

Waste Recycled

(tonnes)	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet			100	118	210	89	0	290	622	996	1,411	2,041	2,783	3,244	3,705	3,702	3,704	3,705	3,707	3,709	3,710	3,716	3,721	3,726	3,732	3,737	3,745	3,754	3,762	3,771	3,779	3,788	3,796	3,805	3,813	3,822	3,830	3,839	3,848	3,856	3,865	3,874	3,882	3,891	3,900
Camden			2,452	2,511	3,086	2,938	2,491	3,581	4,782	6,092	7,510	9,536	11,797	13,122	14,444	14,433	14,440	14,446	14,452	14,459	14,465	14,486	14,507	14,528	14,549	14,570	14,603	14,636	14,669	14,702	14,735	14,768	14,801	14,834	14,867	14,901	14,934	14,968	15,001	15,035	15,069	15,102	15,136	15,170	15,204
Enfield			1,143	1,530	881	458	177	338	544	794	1,087	1,533	2,054	2,317	2,579	2,577	2,578	2,579	2,580	2,581	2,583	2,586	2,590	2,594	2,598	2,601	2,607	2,613	2,619	2,625	2,631	2,637	2,643	2,648	2,654	2,660	2,666	2,672	2,678	2,684	2,690	2,696	2,702	2,709	2,715
Hackney			1,098	923	1,838	2,155	2,673	3,678	4,821	6,103	7,523	8,934	10,452	11,471	12,488	12,479	12,484	12,490	12,495	12,501	12,506	12,524	12,542	12,560	12,578	12,596	12,625	12,654	12,682	12,711	12,739	12,768	12,796	12,825	12,854	12,883	12,912	12,941	12,970	12,999	13,028	13,057	13,086	13,116	13,145
Haringey			580	1,112	1,129	400	373	1,001	1,766	2,668	3,706	4,486	5,340	5,740	6,139	6,135	6,137	6,140	6,143	6,145	6,148	6,157	6,166	6,175	6,184	6,193	6,207	6,221	6,235	6,249	6,263	6,277	6,291	6,305	6,319	6,333	6,347	6,362	6,376	6,390	6,405	6,419	6,433	6,448	6,462
Islington			261	677	1,285	1,585	1,325	1,649	1,960	3,256	4,785	6,085	6,775	7,464	8,152	8,146	8,149	8,153	8,157	8,160	8,164	8,176	8,187	8,199	8,211	8,223	8,241	8,260	8,279	8,297	8,316	8,335	8,353	8,372	8,391	8,410	8,429	8,447	8,466	8,485	8,504	8,524	8,543	8,562	8,581
Waltham Forest			522	715	1,496	547	0	104	297	578	947	1,373	1,875	2,185	2,496	2,494	2,495	2,496	2,497	2,498	2,499	2,503	2,506	2,510	2,514	2,517	2,523	2,529	2,534	2,540	2,546	2,552	2,557	2,563	2,569	2,574	2,580	2,586	2,592	2,598	2,604	2,609	2,615	2,621	2,627
NLWA			6,156	7,585	9,924	8,171	7,039	10,641	14,793	20,486	26,969	33,989	41,076	45,543	50,002	49,965	49,987	50,009	50,031	50,053	50,076	50,148	50,220	50,292	50,365	50,437	50,551	50,665	50,779	50,894	51,008	51,122	51,237	51,352	51,467	51,583	51,699	51,815	51,931	52,048	52,164	52,281	52,399	52,516	52,634

Remaining Residual

(tonnes)	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet			18,873	17,658	16,200	15,527	13,806	14,594	15,335	16,030	16,679	18,900	21,006	20,526	20,048	20,033	20,042	20,050	20,059	20,068	20,077	20,106	20,135	20,164	20,193	20,222	20,268	20,314	20,359	20,405	20,451	20,497	20,543	20,589	20,635	20,681	20,728	20,774	20,821	20,868	20,915	20,962	21,009	21,056	21,103
Camden			47,838	43,831	36,586	33,701	35,170	36,470	37,650	38,710	39,650	42,709	45,524	44,157	42,791	42,759	42,778	42,797	42,816	42,835	42,854	42,916	42,977	43,039	43,101	43,163	43,261	43,358	43,456	43,554	43,652	43,750	43,848	43,946	44,045	44,144	44,243	44,342	44,442	44,541	44,641	44,741	44,842	44,942	45,043
Enfield			14,219	14,009	11,991	10,685	8,185	9,899	11,560	13,169	14,726	17,473	20,140	19,861	19,582	19,568	19,576	19,585	19,594	19,602	19,611	19,639	19,668	19,696	19,724	19,752	19,797	19,842	19,887	19,931	19,976	20,021	20,066	20,111	20,156	20,201	20,247	20,292	20,338	20,383	20,429	20,475	20,521	20,567	20,613
Hackney			28,455	26,538	21,040	18,337	16,768	17,903	18,891	19,730	20,424	20,640	20,747	19,705	18,664	18,650	18,658	18,667	18,675	18,683	18,691	18,718	18,745	18,772	18,799	18,826	18,869	18,912	18,954	18,997	19,039	19,082	19,125	19,168	19,211	19,254	19,297	19,341	19,384	19,428	19,471	19,515	19,559	19,603	19,647
Haringey			15,459	14,496	9,106	2,792	2,115	4,858	7,449	9,888	12,178	13,167	14,081	13,666	13,252	13,242	13,248	13,254	13,259	13,265	13,271	13,290	13,310	13,329	13,348	13,367	13,397	13,427	13,458	13,488	13,518	13,549	13,579	13,610	13,640	13,671	13,701	13,732	13,763	13,794	13,825	13,856	13,887	13,918	13,949
Islington			26,416	24,249	18,104	17,515	16,324	15,691	15,072	20,843	26,067	28,664	27,948	27,233	26,519	26,499	26,510	26,522	26,534	26,546	26,557	26,596	26,634	26,672	26,711	26,749	26,810	26,870	26,931	26,991	27,052	27,113	27,173	27,234	27,296	27,357	27,418	27,480	27,541	27,603	27,665	27,727	27,790	27,852	27,914
Waltham Forest			10,390	9,742	6,839	4,309	2,663	4,567	6,373	8,083	9,696	10,973	12,173	11,851	11,531	11,522	11,527	11,532	11,537	11,542	11,547	11,564	11,581	11,597	11,614	11,631	11,657	11,683	11,710	11,736	11,762	11,789	11,815	11,842	11,868	11,895	11,922	11,949	11,975	12,002	12,029	12,056	12,083	12,110	12,137

NLWA			161,650	150,524	119,865	102,865	95,032	103,983	112,329	126,453	139,419	152,526	161,618	156,999	152,387	152,272	152,339	152,407	152,474	152,542	152,610	152,830	153,050	153,270	153,490	153,710	154,058	154,407	154,755	155,103	155,451	155,800	156,149	156,500	156,851	157,203	157,556	157,910	158,264	158,619	158,975	159,332	159,690	160,048	160,407

Low Recycling Scenario

Recycling Rate

(%)	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet			0.5%	0.7%	1.3%	0.6%	0.0%	0.7%	1.4%	2.1%	2.8%	3.5%	4.2%	4.9%	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%
Camden			4.9%	5.4%	7.8%	8.0%	6.6%	7.7%	8.8%	9.8%	10.9%	12.0%	13.1%	14.2%	15.2%	15.2%	15.2%	15.2%	15.2%	15.2%	15.2%	15.2%	15.2%	15.2%	15.2%	15.2%	15.2%	15.2%	15.2%	15.2%	15.2%	15.2%	15.2%	15.2%	15.2%	15.2%	15.2%	15.2%	15.2%	15.2%	15.2%	15.2%	15.2%	15.2%	15.2%
Enfield			7.4%	9.8%	6.8%	4.1%	2.1%	2.1%	2.0%	1.9%	1.9%	1.8%	1.8%	1.7%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%
Hackney			3.7%	3.4%	8.0%	10.5%	13.7%	15.8%	17.8%	19.9%	21.9%	24.0%	26.0%	28.0%	30.1%	30.1%	30.1%	30.1%	30.1%	30.1%	30.1%	30.1%	30.1%	30.1%	30.1%	30.1%	30.1%	30.1%	30.1%	30.1%	30.1%	30.1%	30.1%	30.1%	30.1%	30.1%	30.1%	30.1%	30.1%	30.1%	30.1%	30.1%	30.1%	30.1%	30.1%
Haringey			3.6%	7.1%	11.0%	12.5%	15.0%	15.8%	16.7%	17.5%	18.3%	19.2%	20.0%	20.8%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%	21.7%
Islington			1.0%	2.7%	6.6%	8.3%	7.5%	8.3%	9.0%	9.8%	10.5%	11.3%	12.0%	12.8%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%
Waltham Forest			4.8%	6.8%	17.9%	11.3%	0.0%	1.0%	1.9%	2.9%	3.9%	4.9%	5.8%	6.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%
NLWA			3.7%	4.8%	7.6%	7.4%	6.9%	8.0%	9.1%	10.2%	11.2%	12.0%	12.8%	13.7%	14.7%	14.7%	14.7%	14.7%	14.7%	14.7%	14.7%	14.7%	14.7%	14.7%	14.7%	14.7%	14.7%	14.7%	14.7%	14.7%	14.7%	14.7%	14.7%	14.7%	14.7%	14.7%	14.7%	14.7%	14.7%	14.7%	14.7%	14.7%	14.7%	14.7%	14.7%

Waste Recycled

(tonnes)	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet			100	118	210	89	0	104	223	357	506	733	999	1,164	1,329	1,328	1,329	1,330	1,330	1,331	1,331	1,333	1,335	1,337	1,339	1,341	1,344	1,347	1,350	1,353	1,356	1,359	1,362	1,365	1,368	1,372	1,375	1,378	1,381	1,384	1,387	1,390	1,393	1,396	1,399
Camden			2,452	2,511	3,086	2,938	2,491	3,081	3,721	4,412	5,152	6,271	7,498	8,110	8,721	8,714	8,718	8,722	8,726	8,729	8,733	8,746	8,759	8,771	8,784	8,796	8,816	8,836	8,856	8,876	8,896	8,916	8,936	8,956	8,976	8,996	9,016	9,037	9,057	9,077	9,098	9,118	9,138	9,159	9,180
Enfield			1,143	1,530	881	458	177	210	242	270	297	345	390	376	363	362	363	363	363	363	363	364	364	365	365	366	367	368	368	369	370	371	372	373	373	374	375	376	377	378	378	379	380	381	382
Hackney			1,098	923	1,838	2,155	2,673	3,408	4,229	5,135	6,125	7,086	8,113	8,743	9,373	9,366	9,370	9,374	9,378	9,382	9,386	9,400	9,414	9,427	9,441	9,454	9,476	9,497	9,518	9,540	9,561	9,583	9,604	9,626	9,647	9,669	9,691	9,712	9,734	9,756	9,778	9,800	9,822	9,844	9,866
Haringey			580	1,112	1,129	400	373	928	1,536	2,197	2,912	3,383	3,883	4,042	4,200	4,197	4,199	4,201	4,203	4,204	4,206	4,212	4,218	4,224	4,231	4,237	4,246	4,256	4,265	4,275	4,285	4,294	4,304	4,313	4,323	4,333	4,343	4,352	4,362	4,372	4,382	4,392	4,401	4,411	4,421
Islington			261	677	1,285	1,585	1,325	1,432	1,534	2,352	3,243	3,913	4,171	4,428	4,685	4,681	4,683	4,686	4,688	4,690	4,692	4,699	4,705	4,712	4,719	4,726	4,736	4,747	4,758	4,768	4,779	4,790	4,801	4,811	4,822	4,833	4,844	4,855	4,866	4,877	4,887	4,898	4,909	4,920	4,931
Waltham Forest			522	715	1,496	547	0	45	130	253	415	601	821	957	1,093	1,092	1,093	1,093	1,094	1,094	1,095	1,096	1,098	1,099	1,101	1,102	1,105	1,107	1,110	1,112	1,115	1,117	1,120	1,122	1,125	1,128	1,130	1,133	1,135	1,138	1,140	1,143	1,145	1,148	1,151
NLWA			6,156	7,585	9,924	8,171	7,039	9,208	11,615	14,976	18,649	22,332	25,874	27,820	29,764	29,741	29,754	29,768	29,781	29,794	29,807	29,850	29,893	29,936	29,979	30,022	30,090	30,158	30,226	30,294	30,362	30,430	30,499	30,567	30,636	30,704	30,773	30,842	30,912	30,981	31,050	31,120	31,190	31,260	31,330

Remaining Residual

(tonnes)	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet			18,873	17,658	16,200	15,527	13,806	14,780	15,734	16,669	17,584	20,209	22,790	22,606	22,423	22,406	22,416	22,426	22,436	22,446	22,456	22,488	22,521	22,553	22,585	22,618	22,669	22,720	22,772	22,823	22,874	22,925	22,977	23,028	23,080	23,132	23,184	23,236	23,288	23,340	23,393	23,445	23,498	23,550	23,603
Camden			47,838	43,831	36,586	33,701	35,170	36,971	38,711	40,390	42,008	45,974	49,823	49,169	48,515	48,478	48,500	48,521	48,543	48,564	48,586	48,656	48,726	48,796	48,866	48,936	49,047	49,158	49,269	49,379	49,490	49,601	49,713	49,824	49,936	50,048	50,160	50,273	50,386	50,499	50,612	50,726	50,840	50,954	51,068
Enfield			14,219	14,009	11,991	10,685	8,185	10,027	11,862	13,692	15,517	18,661	21,805	21,802	21,798	21,782	21,792	21,801	21,811	21,821	21,830	21,862	21,893	21,925	21,956	21,988	22,038	22,087	22,137	22,187	22,237	22,287	22,337	22,387	22,437	22,487	22,538	22,589	22,639	22,690	22,741	22,792	22,843	22,894	22,946
Hackney			28,455	26,538	21,040	18,337	16,768	18,173	19,483	20,699	21,821	22,488	23,087	22,432	21,779	21,763	21,773	21,782	21,792	21,802	21,811	21,843	21,874	21,906	21,937	21,969	22,018	22,068	22,118	22,168	22,217	22,267	22,317	22,367	22,417	22,468	22,518	22,569	22,619	22,670	22,721	22,772	22,823	22,874	22,926
Haringey			15,459	14,496	9,106	2,792	2,115	4,931	7,679	10,359	12,972	14,270	15,537	15,364	15,191	15,179	15,186	15,193	15,200	15,206	15,213	15,235	15,257	15,279	15,301	15,323	15,358	15,392	15,427	15,462	15,496	15,531	15,566	15,601	15,636	15,671	15,706	15,741	15,777	15,812	15,848	15,883	15,919	15,955	15,990
Islington			26,416	24,249	18,104	17,515	16,324	15,908	15,498	21,747	27,609	30,836	30,552	30,269	29,986	29,963	29,976	29,990	30,003	30,016	30,030	30,073	30,116	30,160	30,203	30,246	30,315	30,383	30,452	30,520	30,589	30,657	30,726	30,795	30,864	30,933	31,003	31,072	31,142	31,212	31,282	31,352	31,423	31,493	31,564
Waltham Forest			10,390	9,742	6,839	4,309	2,663	4,625	6,540	8,407	10,228	11,745	13,226	13,080	12,933	12,923	12,929	12,935	12,941	12,946	12,952	12,971	12,990	13,008	13,027	13,046	13,075	13,105	13,134	13,164	13,193	13,223	13,253	13,282	13,312	13,342	13,372	13,402	13,432	13,462	13,492	13,523	13,553	13,583	13,614
NLWA			161,650	150,524	119,865	102,865	95,032	105,415	115,508	131,963	147,739	164,183	176,820	174,721	172,625	172,495	172,572	172,648	172,725	172,802	172,878	173,127	173,377	173,626	173,876	174,125	174,519	174,914	175,308	175,702	176,097	176,492	176,888	177,285	177,683	178,082	178,481	178,882	179,283	179,686	180,089	180,493	180,898	181,304	181,711

Arisings

(tonnes)	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
High			167,805	158,108	129,789	111,036	102,071	114,624	127,122	146,939	166,388	186,515	202,694	202,542	202,389	202,236	202,326	202,416	202,506	202,595	202,685	202,978	203,270	203,562	203,855	204,147	204,609	205,072	205,534	205,996	206,459	206,922	207,387	207,852	208,318	208,786	209,255	209,724	210,195	210,667	211,139	211,613	212,088	212,564	213,041
Central			167,805	158,108	129,789	111,036	102,071	114,624	127,122	146,939	166,388	186,515	202,694	202,542	202,389	202,236	202,326	202,416	202,506	202,595	202,685	202,978	203,270	203,562	203,855	204,147	204,609	205,072	205,534	205,996	206,459	206,922	207,387	207,852	208,318	208,786	209,255	209,724	210,195	210,667	211,139	211,613	212,088	212,564	213,041
Low			167,805	158,108	129,789	111,036	102,071	114,624	127,122	146,939	166,388	186,515	202,694	202,542	202,389	202,236	202,326	202,416	202,506	202,595	202,685	202,978	203,270	203,562	203,855	204,147	204,609	205,072	205,534	205,996	206,459	206,922	207,387	207,852	208,318	208,786	209,255	209,724	210,195	210,667	211,139	211,613	212,088	212,564	213,041

Recycling

(tonnes)	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
High			6,156	7,585	9,924	8,171	7,039	10,641	14,793	20,486	26,969	33,989	41,076	45,543	50,002	51,803	53,666	55,530	57,395	59,262	61,131	63,065	65,003	66,947	68,897	70,852	71,012	71,172	71,333	71,493	71,654	71,815	71,976	72,137	72,299	72,462	72,624	72,787	72,950	73,114	73,278	73,443	73,608	73,773	73,938
Central			6,156	7,585	9,924	8,171	7,039	10,641	14,793	20,486	26,969	33,989	41,076	45,543	50,002	49,965	49,987	50,009	50,031	50,053	50,076	50,148	50,220	50,292	50,365	50,437	50,551	50,665	50,779	50,894	51,008	51,122	51,237	51,352	51,467	51,583	51,699	51,815	51,931	52,048	52,164	52,281	52,399	52,516	52,634
Low			6,156	7,585	9,924	8,171	7,039	9,208	11,615	14,976	18,649	22,332	25,874	27,820	29,764	29,741	29,754	29,768	29,781	29,794	29,807	29,850	29,893	29,936	29,979	30,022	30,090	30,158	30,226	30,294	30,362	30,430	30,499	30,567	30,636	30,704	30,773	30,842	30,912	30,981	31,050	31,120	31,190	31,260	31,330

Residual

(tonnes)	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
High			161,650	150,524	119,865	102,865	95,032	103,983	112,329	126,453	139,419	152,526	161,618	156,999	152,387	150,433	148,661	146,886	145,111	143,333	141,554	139,913	138,267	136,615	134,958	133,296	133,597	133,899	134,201	134,503	134,805	135,108	135,411	135,715	136,019	136,325	136,630	136,937	137,244	137,552	137,861	138,171	138,481	138,791	139,103
Central			161,650	150,524	119,865	102,865	95,032	103,983	112,329	126,453	139,419	152,526	161,618	156,999	152,387	152,272	152,339	152,407	152,474	152,542	152,610	152,830	153,050	153,270	153,490	153,710	154,058	154,407	154,755	155,103	155,451	155,800	156,149	156,500	156,851	157,203	157,556	157,910	158,264	158,619	158,975	159,332	159,690	160,048	160,407
Low			161,650	150,524	119,865	102,865	95,032	105,415	115,508	131,963	147,739	164,183	176,820	174,721	172,625	172,495	172,572	172,648	172,725	172,802	172,878	173,127	173,377	173,626	173,876	174,125	174,519	174,914	175,308	175,702	176,097	176,492	176,888	177,285	177,683	178,082	178,481	178,882	179,283	179,686	180,089	180,493	180,898	181,304	181,711

Recycling - Other Waste

This tab forms the basis for calculating the remaining residual 'Other' waste that will require treatment after recycling has occurred.

There is currently no recycling occurring of the waste included within this category. Therefore due to these types of waste we have assumed that recycling remains at zero for the modelling period.

Other Waste Managed

Known & Forecast Managed Arisings

(tonnes)	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet	3,183	2,824	3,636	2,834	1,076	616	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995
Camden	5,688	5,736	5,006	6,041	4,491	4,482	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663
Enfield	2,922	1,382	2,582	3,482	2,808	3,474	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429
Hackney	7,692	7,084	10,603	11,881	10,972	10,782	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128
Haringey	12,696	12,674	15,726	10,862	17,663	9,278	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624
Islington	3,384	4,640	5,961	6,855	9,021	11,862	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624
Waltham Forest	6,180	6,084	4,620	6,694	11,471	7,696	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855
NLWA	**41,746**	**40,425**	**48,133**	**48,649**	**57,502**	**48,191**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**

Current and Historic Recycling

Other Waste Sent for Recycling

(tonnes)	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet	0	0	0	0	0	0	0																																						
Camden	0	0	0	0	0	0	0																																						
Enfield	0	0	0	0	0	0	0																																						
Hackney	0	0	0	0	0	0	0																																						
Haringey	0	0	0	0	0	0	0																																						
Islington	0	0	0	0	0	0	0																																						
Waltham Forest	0	0	0	0	0	0	0																																						
NLWA	**0**	**0**	**0**	**0**	**0**	**0**	**0**																																						

Recycling Rate of Managed C&I Waste

(%)	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet			0.0%	0.0%	0.0%	0.0%	0.0%																																						
Camden			0.0%	0.0%	0.0%	0.0%	0.0%																																						
Enfield			0.0%	0.0%	0.0%	0.0%	0.0%																																						
Hackney			0.0%	0.0%	0.0%	0.0%	0.0%																																						
Haringey			0.0%	0.0%	0.0%	0.0%	0.0%																																						
Islington			0.0%	0.0%	0.0%	0.0%	0.0%																																						
Waltham Forest			0.0%	0.0%	0.0%	0.0%	0.0%																																						
NLWA	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**																																						

High Recycling Scenario

Recycling Rate

(%)	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet			0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Camden			0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Enfield			0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Hackney			0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Haringey			0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Islington			0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Waltham Forest			0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
NLWA			**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**

Waste Recycled

(tonnes)	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Camden			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Enfield			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hackney			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haringey			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Islington			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Waltham Forest			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NLWA			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Remaining Residual

(tonnes)	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet			3,636	2,834	1,076	616	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995
Camden			5,006	6,041	4,491	4,482	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663
Enfield			2,582	3,482	2,808	3,474	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429
Hackney			10,603	11,881	10,972	10,782	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128
Haringey			15,726	10,862	17,663	9,278	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624
Islington			5,961	6,855	9,021	11,862	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624
Waltham Forest			4,620	6,694	11,471	7,696	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855
NLWA			**48,133**	**48,649**	**57,502**	**48,191**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**

Central Recycling Scenario

Recycling Rate

(%)	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet			0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Camden			0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Enfield			0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Hackney			0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Haringey			0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Islington			0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Waltham Forest			0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
NLWA			**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**

Waste Recycled

(tonnes)	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Camden			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Enfield			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hackney			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haringey			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Islington			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Waltham Forest			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NLWA			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Remaining Residual

(tonnes)	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet			3,636	2,834	1,076	616	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995
Camden			5,006	6,041	4,491	4,482	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663
Enfield			2,582	3,482	2,808	3,474	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429
Hackney			10,603	11,881	10,972	10,782	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128
Haringey			15,726	10,862	17,663	9,278	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624
Islington			5,961	6,855	9,021	11,862	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624
Waltham Forest			4,620	6,694	11,471	7,696	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855
NLWA			**48,133**	**48,649**	**57,502**	**48,191**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**	**46,319**

Low Recycling Scenario

Recycling Rate

(%)	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet			0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Camden			0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Enfield			0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Hackney			0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Haringey			0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Islington			0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Waltham Forest			0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
NLWA			0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Waste Recycled

(tonnes)	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Camden			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Enfield			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hackney			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haringey			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Islington			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Waltham Forest			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NLWA			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Remaining Residual

(tonnes)	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet			3,636	2,834	1,076	616	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995	1,995
Camden			5,006	6,041	4,491	4,482	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663	4,663
Enfield			2,582	3,482	2,808	3,474	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429	3,429
Hackney			10,603	11,881	10,972	10,782	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128	11,128
Haringey			15,726	10,862	17,663	9,278	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624	8,624
Islington			5,961	6,855	9,021	11,862	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624	12,624
Waltham Forest			4,620	6,694	11,471	7,696	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855	3,855
NLWA			48,133	48,649	57,502	48,191	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319

Summary

Arisings

(tonnes)	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
High			48,133	48,649	57,502	48,191	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319
Central			48,133	48,649	57,502	48,191	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319
Low			48,133	48,649	57,502	48,191	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319

Recycling

(tonnes)	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
High			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Central			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Low			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Residual

(tonnes)	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
High			48,133	48,649	57,502	48,191	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319
Central			48,133	48,649	57,502	48,191	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319
Low			48,133	48,649	57,502	48,191	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319	46,319

Results

This tab details the results of the three recycling scenarios and their impact on the quantity of residual waste across the 7 NLWA boroughs. The figures shown here are for LAC household and LAC C&I waste.

High Recycling Scenario

Recycling (tonnes)	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet	49,688	52,760	56,465	60,275	64,238	68,537	73,077	77,478	82,029	83,917	85,819	87,732	89,654	91,587	93,529	95,487	97,456	99,435	101,426	103,427	103,747	104,068	104,390	104,712	105,036	105,361	105,687	106,014	106,342	106,671	107,001	107,332	107,664	107,997	108,331	108,666	109,002	109,339	109,678
Camden	23,838	26,497	29,528	32,703	36,044	40,054	44,366	47,814	51,338	52,636	53,957	55,282	56,613	57,948	59,289	60,653	62,024	63,400	64,783	66,172	66,363	66,553	66,745	66,936	67,128	67,321	67,514	67,708	67,902	68,097	68,293	68,489	68,685	68,883	69,080	69,279	69,478	69,677	69,877
Enfield	48,224	49,766	51,898	54,108	56,438	59,003	61,729	64,290	66,950	68,526	70,113	71,708	73,312	74,924	76,545	78,177	79,819	81,470	83,129	84,797	85,060	85,323	85,587	85,852	86,118	86,385	86,652	86,920	87,189	87,459	87,730	88,001	88,274	88,547	88,821	89,096	89,372	89,649	89,926
Hackney	21,876	25,539	29,601	33,858	38,333	42,891	47,651	52,019	56,500	57,714	58,950	60,191	61,438	62,691	63,950	65,229	66,514	67,806	69,105	70,410	70,617	70,825	71,034	71,244	71,453	71,664	71,875	72,087	72,299	72,512	72,726	72,940	73,155	73,370	73,587	73,803	74,021	74,239	74,458
Haringey	30,804	33,311	36,322	39,511	42,909	46,129	49,506	52,522	55,636	56,866	58,109	59,359	60,616	61,879	63,148	64,431	65,721	67,018	68,322	69,632	69,844	70,057	70,270	70,484	70,698	70,913	71,129	71,345	71,562	71,780	71,998	72,217	72,437	72,657	72,878	73,100	73,322	73,545	73,769
Islington	23,036	24,622	26,456	29,302	32,432	35,386	37,790	40,255	42,786	43,836	44,899	45,968	47,041	48,119	49,201	50,299	51,401	52,510	53,623	54,742	54,904	55,066	55,229	55,392	55,556	55,720	55,885	56,050	56,215	56,381	56,548	56,715	56,883	57,051	57,219	57,388	57,558	57,728	57,899
Waltham Forest	32,105	34,403	37,181	40,096	43,180	46,410	49,812	53,127	56,553	57,834	59,126	60,424	61,729	63,041	64,360	65,690	67,027	68,371	69,722	71,081	71,301	71,522	71,744	71,966	72,189	72,412	72,637	72,861	73,087	73,313	73,540	73,768	73,997	74,226	74,456	74,686	74,918	75,150	75,382
Total of Boroughs	229,570	246,898	267,451	289,854	313,575	338,410	363,932	387,504	411,791	421,328	430,973	440,664	450,403	460,189	470,022	479,966	489,962	500,010	510,110	520,262	521,836	523,415	524,999	526,586	528,179	529,776	531,378	532,985	534,597	536,214	537,835	539,462	541,094	542,731	544,372	546,019	547,671	549,327	550,989
Additional NLWA Waste	0	735	1,484	2,249	3,031	3,833	4,657	5,504	6,378	6,515	6,652	6,790	6,929	7,068	7,209	7,350	7,492	7,635	7,779	7,923	7,948	7,973	7,998	8,023	8,049	8,074	8,099	8,125	8,150	8,176	8,202	8,228	8,254	8,279	8,306	8,332	8,358	8,384	8,411
NLWA	229,570	247,632	268,935	292,103	316,606	342,243	368,588	393,008	418,169	427,843	437,625	447,454	457,332	467,257	477,231	487,316	497,454	507,645	517,888	528,185	529,784	531,388	532,997	534,610	536,227	537,850	539,477	541,110	542,747	544,390	546,037	547,690	549,347	551,010	552,678	554,351	556,028	557,712	559,400

Residual (tonnes)	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet	110,542	108,454	107,283	106,017	104,721	105,009	105,186	102,779	100,367	98,954	97,556	96,151	94,736	93,313	91,882	90,460	89,030	87,590	86,141	84,683	84,928	85,173	85,419	85,665	85,912	86,160	86,408	86,658	86,908	87,158	87,410	87,662	87,915	88,169	88,423	88,679	88,935	89,192	89,449
Camden	86,519	86,206	86,243	86,133	85,907	87,798	89,444	86,900	84,349	83,240	82,178	81,111	80,040	78,965	77,885	76,841	75,790	74,734	73,673	72,606	72,787	72,968	73,149	73,331	73,513	73,696	73,879	74,062	74,246	74,431	74,616	74,801	74,987	75,174	75,361	75,548	75,737	75,925	76,114
Enfield	82,267	82,522	83,457	84,318	85,157	87,212	89,211	88,286	87,383	86,195	85,024	83,846	82,661	81,469	80,270	79,082	77,886	76,683	75,472	74,254	74,461	74,669	74,878	75,087	75,296	75,506	75,717	75,928	76,140	76,353	76,566	76,780	76,995	77,210	77,426	77,642	77,859	78,077	78,296
Hackney	89,850	88,275	87,164	85,858	84,396	82,441	80,357	77,096	73,804	72,843	71,899	70,950	69,996	69,038	68,074	67,122	66,165	65,202	64,234	63,259	63,409	63,560	63,711	63,862	64,014	64,166	64,319	64,471	64,625	64,779	64,933	65,088	65,243	65,399	65,555	65,712	65,869	66,026	66,184
Haringey	71,580	72,384	73,652	74,736	75,678	75,325	74,897	73,138	71,372	70,439	69,517	68,589	67,655	66,716	65,772	64,834	63,891	62,941	61,986	61,024	61,179	61,335	61,490	61,646	61,803	61,960	62,117	62,275	62,433	62,592	62,751	62,911	63,071	63,232	63,393	63,555	63,717	63,880	64,043
Islington	71,102	69,165	67,670	72,543	76,875	78,584	76,983	75,381	73,777	72,919	72,089	71,256	70,418	69,576	68,731	67,905	67,075	66,241	65,401	64,557	64,700	64,843	64,987	65,131	65,275	65,419	65,564	65,709	65,855	66,001	66,147	66,294	66,442	66,589	66,738	66,886	67,035	67,185	67,334
Waltham Forest	74,094	73,738	73,968	74,061	74,065	73,737	73,327	71,391	69,442	68,490	67,546	66,597	65,641	64,680	63,712	62,750	61,781	60,806	59,824	58,837	59,001	59,165	59,330	59,495	59,661	59,828	59,994	60,162	60,329	60,498	60,666	60,836	61,006	61,176	61,347	61,518	61,690	61,862	62,035
Total of Boroughs	585,955	580,745	579,437	583,666	586,798	590,106	589,406	574,972	560,493	553,080	545,809	538,498	531,148	523,757	516,326	508,994	501,618	494,197	486,732	479,221	480,466	481,713	482,964	484,217	485,474	486,734	487,998	489,265	490,536	491,811	493,090	494,372	495,659	496,949	498,242	499,540	500,841	502,147	503,456
Additional NLWA Waste	11,762	11,020	10,389	9,744	9,093	8,432	7,761	7,077	6,378	6,282	6,185	6,088	5,989	5,890	5,791	5,690	5,589	5,488	5,385	5,282	5,299	5,315	5,332	5,349	5,366	5,383	5,400	5,417	5,434	5,451	5,468	5,485	5,502	5,520	5,537	5,554	5,572	5,589	5,607
NLWA	597,717	591,765	589,826	593,410	595,891	598,538	597,167	582,049	566,872	559,362	551,994	544,586	537,137	529,647	522,117	514,685	507,207	499,685	492,117	484,503	485,764	487,029	488,296	489,566	490,839	492,116	493,397	494,682	495,970	497,262	498,558	499,858	501,161	502,468	503,779	505,094	506,413	507,736	509,063

Waste Managed (tonnes)	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet	160,230	161,214	163,748	166,292	168,959	173,546	178,264	180,257	182,396	182,871	183,376	183,882	184,390	184,900	185,411	185,948	186,486	187,026	187,567	188,110	188,674	189,240	189,808	190,377	190,948	191,521	192,095	192,672	193,249	193,829	194,411	194,994	195,579	196,166	196,754	197,345	197,937	198,531	199,127
Camden	110,357	112,703	115,772	118,836	121,951	127,852	133,810	134,714	135,687	135,876	136,134	136,393	136,653	136,914	137,175	137,494	137,814	138,135	138,456	138,779	139,150	139,521	139,894	140,267	140,642	141,017	141,393	141,770	142,149	142,528	142,909	143,290	143,673	144,057	144,441	144,827	145,214	145,602	145,992
Enfield	130,491	132,288	135,355	138,427	141,595	146,214	150,940	152,577	154,332	154,721	155,137	155,554	155,973	156,393	156,814	157,259	157,705	158,152	158,601	159,051	159,521	159,992	160,465	160,939	161,414	161,891	162,369	162,848	163,330	163,812	164,296	164,782	165,268	165,757	166,247	166,738	167,231	167,726	168,222
Hackney	111,726	113,813	116,765	119,716	122,729	125,332	128,008	129,115	130,303	130,557	130,849	131,141	131,434	131,729	132,024	132,351	132,679	133,008	133,338	133,669	134,027	134,386	134,745	135,106	135,467	135,830	136,193	136,558	136,924	137,291	137,659	138,028	138,398	138,769	139,142	139,515	139,890	140,265	140,642
Haringey	102,384	105,695	109,973	114,247	118,588	121,454	124,403	125,660	127,008	127,305	127,626	127,948	128,271	128,595	128,920	129,265	129,612	129,959	130,307	130,657	131,024	131,391	131,760	132,130	132,501	132,873	133,246	133,620	133,995	134,372	134,749	135,128	135,508	135,889	136,271	136,654	137,039	137,425	137,812
Islington	94,138	93,788	94,126	101,845	109,307	113,971	114,772	115,635	116,563	116,755	116,989	117,223	117,459	117,695	117,932	118,204	118,477	118,750	119,025	119,300	119,604	119,910	120,216	120,523	120,831	121,139	121,449	121,759	122,070	122,382	122,696	123,010	123,324	123,640	123,957	124,275	124,593	124,913	125,233
Waltham Forest	106,199	108,142	111,149	114,157	117,246	120,147	123,140	124,517	125,995	126,325	126,672	127,021	127,370	127,721	128,073	128,439	128,807	129,177	129,547	129,918	130,302	130,687	131,074	131,461	131,850	132,240	132,631	133,023	133,416	133,811	134,207	134,604	135,002	135,402	135,802	136,204	136,608	137,012	137,418
Total of Boroughs	815,526	827,643	846,888	873,519	900,374	928,516	953,337	962,476	972,284	974,408	976,782	979,163	981,550	983,946	986,348	988,960	991,580	994,207	996,841	999,483	1,002,302	1,005,128	1,007,962	1,010,804	1,013,652	1,016,510	1,019,376	1,022,250	1,025,133	1,028,025	1,030,926	1,033,835	1,036,753	1,039,679	1,042,615	1,045,559	1,048,512	1,051,474	1,054,445
Additional NLWA Waste	11,762	11,754	11,873	11,993	12,124	12,265	12,417	12,581	12,757	12,797	12,837	12,878	12,918	12,959	13,000	13,041	13,082	13,123	13,164	13,205	13,247	13,289	13,330	13,372	13,414	13,457	13,499	13,541	13,584	13,627	13,670	13,713	13,756	13,799	13,843	13,886	13,930	13,974	14,018
NLWA	827,288	839,397	858,761	885,513	912,498	940,781	965,755	975,057	985,041	987,205	989,619	992,040	994,469	996,904	999,348	1,002,001	1,004,662	1,007,330	1,010,005	1,012,688	1,015,549	1,018,417	1,021,293	1,024,176	1,027,067	1,029,966	1,032,875	1,035,792	1,038,717	1,041,652	1,044,595	1,047,547	1,050,508	1,053,478	1,056,457	1,059,445	1,062,442	1,065,448	1,068,462
Recycling Rate (%)	27.7%	29.5%	31.3%	33.0%	34.7%	36.4%	38.2%	40.3%	42.5%	43.3%	44.2%	45.1%	46.0%	46.9%	47.8%	48.6%	49.5%	50.4%	51.3%	52.2%	52.2%	52.2%	52.2%	52.2%	52.2%	52.2%	52.2%	52.2%	52.3%	52.3%	52.3%	52.3%	52.3%	52.3%	52.3%	52.3%	52.3%	52.3%	52.4%

Central Recycling Scenario

Recycling (tonnes)	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet	49,688	52,760	56,465	60,275	64,238	68,537	73,077	77,478	82,029	82,273	82,522	82,771	83,022	83,273	83,525	83,781	84,039	84,297	84,555	84,815	85,079	85,343	85,608	85,874	86,141	86,409	86,677	86,946	87,216	87,487	87,759	88,032	88,305	88,580	88,855	89,131	89,408	89,686	89,965
Camden	23,838	26,497	29,528	32,703	36,044	40,054	44,366	47,814	51,338	51,443	51,566	51,690	51,813	51,937	52,061	52,201	52,340	52,480	52,620	52,761	52,914	53,068	53,222	53,376	53,531	53,686	53,841	53,997	54,154	54,311	54,468	54,626	54,785	54,943	55,103	55,262	55,423	55,583	55,745
Enfield	48,224	49,766	51,898	54,108	56,438	59,003	61,729	64,290	66,950	67,150	67,354	67,559	67,765	67,971	68,178	68,388	68,599	68,810	69,023	69,235	69,451	69,667	69,884	70,101	70,320	70,538	70,758	70,978	71,199	71,421	71,643	71,866	72,090	72,314	72,539	72,765	72,992	73,219	73,447
Hackney	21,876	25,539	29,601	33,858	38,333	42,891	47,651	52,019	56,500	56,629	56,773	56,918	57,063	57,209	57,355	57,514	57,674	57,834	57,995	58,156	58,327	58,500	58,672	58,846	59,019	59,194	59,368	59,544	59,719	59,896	60,073	60,250	60,428	60,606	60,785	60,965	61,145	61,325	61,506
Haringey	30,804	33,311	36,322	39,511	42,909	46,129	49,506	52,522	55,636	55,787	55,946	56,105	56,265	56,425	56,586	56,754	56,922	57,090	57,260	57,429	57,604	57,780	57,956	58,133	58,310	58,488	58,667	58,845	59,025	59,205	59,386	59,567	59,748	59,931	60,113	60,297	60,481	60,665	60,850
Islington	23,036	24,622	26,456	29,302	32,432	35,386	37,790	40,255	42,786	42,889	43,002	43,115	43,229	43,343	43,457	43,580	43,703	43,827	43,950	44,075	44,206	44,338	44,470	44,602	44,735	44,869	45,002	45,136	45,271	45,406	45,541	45,677	45,813	45,949	46,086	46,223	46,361	46,499	46,638
Waltham Forest	32,105	34,403	37,181	40,096	43,180	46,410	49,812	53,127	56,553	56,721	56,892	57,065	57,238	57,411	57,585	57,762	57,939	58,117	58,296	58,475	58,657	58,839	59,022	59,205	59,389	59,574	59,759	59,945	60,131	60,318	60,505	60,693	60,882	61,071	61,261	61,451	61,642	61,834	62,026
Total of Boroughs	229,570	246,898	267,451	289,854	313,575	338,410	363,932	387,504	411,791	412,891	414,055	415,223	416,394	417,569	418,748	419,980	421,216	422,455	423,698	424,945	426,238	427,534	428,834	430,138	431,445	432,757	434,072	435,392	436,715	438,043	439,375	440,711	442,050	443,394	444,743	446,095	447,451	448,812	450,177
Additional NLWA Waste	0	735	1,484	2,249	3,031	3,833	4,657	5,504	6,378	6,399	6,419	6,439	6,459	6,479	6,500	6,520	6,541	6,561	6,582	6,603	6,623	6,644	6,665	6,686	6,707	6,728	6,750	6,771	6,792	6,813	6,835	6,856	6,878	6,900	6,921	6,943	6,965	6,987	7,009
NLWA	229,570	247,632	268,935	292,103	316,606	342,243	368,588	393,008	418,169	419,290	420,474	421,662	422,853	424,049	425,247	426,500	427,757	429,017	430,280	431,548	432,861	434,179	435,499	436,824	438,153	439,485	440,822	442,163	443,507	444,856	446,210	447,567	448,928	450,294	451,664	453,038	454,416	455,799	457,185

Residual (tonnes)	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet	110,542	108,454	107,283	106,017	104,721	105,009	105,186	102,779	100,367	100,598	100,854	101,111	101,369	101,627	101,886	102,167	102,447	102,729	103,012	103,295	103,596	103,897	104,200	104,503	104,807	105,112	105,418	105,725	106,033	106,342	106,651	106,962	107,273	107,586	107,899	108,214	108,529	108,845	109,162
Camden	86,519	86,206	86,243	86,133	85,907	87,798	89,444	86,900	84,349	84,433	84,568	84,704	84,840	84,976	85,113	85,293	85,474	85,655	85,836	86,018	86,236	86,454	86,673	86,892	87,111	87,331	87,552	87,773	87,995	88,217	88,440	88,664	88,888	89,113	89,339	89,565	89,792	90,019	90,247
Enfield	82,267	82,522	83,457	84,318	85,157	87,212	89,211	88,286	87,383	87,570	87,782	87,995	88,208	88,422	88,636	88,871	89,106	89,342	89,579	89,816	90,070	90,325	90,581	90,837	91,094	91,352	91,611	91,870	92,130	92,391	92,653	92,915	93,179	93,443	93,708	93,973	94,240	94,507	94,775
Hackney	89,850	88,275	87,164	85,858	84,396	82,441	80,357	77,096	73,804	73,928	74,075	74,223	74,371	74,520	74,669	74,837	75,005	75,174	75,344	75,513	75,699	75,886	76,073	76,260	76,448	76,636	76,825	77,014	77,205	77,395	77,586	77,778	77,970	78,163	78,356	78,550	78,745	78,940	79,136
Haringey	71,580	72,384	73,652	74,736	75,678	75,325	74,897	73,138	71,372	71,518	71,680	71,843	72,006	72,169	72,334	72,511	72,690	72,869	73,048	73,228	73,419	73,611	73,804	73,997	74,190	74,384	74,579	74,774	74,970	75,167	75,364	75,561	75,759	75,958	76,158	76,358	76,558	76,760	76,961
Islington	71,102	69,165	67,670	72,543	76,875	78,584	76,983	75,381	73,777	73,866	73,987	74,108	74,230	74,352	74,475	74,624	74,774	74,924	75,074	75,225	75,398	75,572	75,746	75,921	76,095	76,271	76,446	76,623	76,800	76,977	77,155	77,333	77,512	77,691	77,871	78,051	78,232	78,413	78,595
Waltham Forest	74,094	73,738	73,968	74,061	74,065	73,737	73,327	71,391	69,442	69,604	69,780	69,956	70,133	70,310	70,488	70,678	70,868	71,059	71,251	71,443	71,646	71,849	72,052	72,256	72,461	72,666	72,872	73,078	73,285	73,493	73,702	73,911	74,120	74,331	74,541	74,753	74,965	75,178	75,392
Total of Boroughs	585,955	580,745	579,437	583,666	586,798	590,106	589,406	574,972	560,493	561,517	562,726	563,939	565,156	566,376	567,600	568,980	570,364	571,752	573,143	574,538	576,064	577,594	579,128	580,666	582,207	583,753	585,303	586,858	588,418	589,982	591,551	593,124	594,702	596,285	597,872	599,464	601,061	602,662	604,268
Additional NLWA Waste	11,762	11,020	10,389	9,744	9,093	8,432	7,761	7,077	6,378	6,399	6,419	6,439	6,459	6,479	6,500	6,520	6,541	6,561	6,582	6,603	6,623	6,644	6,665	6,686	6,707	6,728	6,750	6,771	6,792	6,813	6,835	6,856	6,878	6,900	6,921	6,943	6,965	6,987	7,009
NLWA	597,717	591,765	589,826	593,410	595,891	598,538	597,167	582,049	566,872	567,915	569,145	570,378	571,615	572,856	574,100	575,501	576,905	578,313	579,725	581,140	582,687	584,238	585,793	587,352	588,914	590,481	592,053	593,629	595,210	596,795	598,386	599,980	601,580	603,184	604,793	606,407	608,026	609,649	611,277

Waste Managed (tonnes)	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet	160,230	161,214	163,748	166,292	168,959	173,546	178,264	180,257	182,396	182,871	183,376	183,882	184,390	184,900	185,411	185,948	186,486	187,026	187,567	188,110	188,674	189,240	189,808	190,377	190,948	191,521	192,095	192,672	193,249	193,829	194,411	194,994	195,579	196,166	196,754	197,345	197,937	198,531	199,127
Camden	110,357	112,703	115,772	118,836	121,951	127,852	133,810	134,714	135,687	135,876	136,134	136,393	136,653	136,914	137,175	137,494	137,814	138,135	138,456	138,779	139,150	139,521	139,894	140,267	140,642	141,017	141,393	141,770	142,149	142,528	142,909	143,290	143,673	144,057	144,441	144,827	145,214	145,602	145,992
Enfield	130,491	132,288	135,355	138,427	141,595	146,214	150,940	152,577	154,332	154,721	155,137	155,554	155,973	156,393	156,814	157,259	157,705	158,152	158,601	159,051	159,521	159,992	160,465	160,939	161,414	161,891	162,369	162,848	163,330	163,812	164,296	164,782	165,268	165,757	166,247	166,738	167,231	167,726	168,222
Hackney	111,726	113,813	116,765	119,716	122,729	125,332	128,008	129,115	130,303	130,557	130,849	131,141	131,434	131,729	132,024	132,351	132,679	133,008	133,338	133,669	134,027	134,386	134,745	135,106	135,467	135,830	136,193	136,558	136,924	137,291	137,659	138,028	138,398	138,769	139,142	139,515	139,890	140,265	140,642
Haringey	102,384	105,695	109,973	114,247	118,588	121,454	124,403	125,660	127,008	127,305	127,626	127,948	128,271	128,595	128,920	129,265	129,612	129,959	130,307	130,657	131,024	131,391	131,760	132,130	132,501	132,873	133,246	133,620	133,995	134,372	134,749	135,128	135,508	135,889	136,271	136,654	137,039	137,425	137,812
Islington	94,138	93,788	94,126	101,845	109,307	113,971	114,772	115,635	116,563	116,755	116,989	117,223	117,459	117,695	117,932	118,204	118,477	118,750	119,025	119,300	119,604	119,910	120,216	120,523	120,831	121,139	121,449	121,759	122,070	122,382	122,696	123,010	123,324	123,640	123,957	124,275	124,593	124,913	125,233
Waltham Forest	106,199	108,142	111,149	114,157	117,246	120,147	123,140	124,517	125,995	126,325	126,672	127,021	127,370	127,721	128,073	128,439	128,807	129,177	129,547	129,918	130,302	130,687	131,074	131,461	131,850	132,240	132,631	133,023	133,416	133,811	134,207	134,604	135,002	135,402	135,802	136,204	136,608	137,012	137,418
Total of Boroughs	815,526	827,643	846,888	873,519	900,374	928,516	953,337	962,476	972,284	974,408	976,782	979,163	981,550	983,946	986,348	988,960	991,580	994,207	996,841	999,483	1,002,302	1,005,128	1,007,962	1,010,804	1,013,652	1,016,510	1,019,376	1,022,250	1,025,133	1,028,025	1,030,926	1,033,835	1,036,753	1,039,679	1,042,615	1,045,559	1,048,512	1,051,474	1,054,445
Additional NLWA Waste	11,762	11,754	11,873	11,993	12,124	12,265	12,417	12,581	12,757	12,797	12,837	12,878	12,918	12,959	13,000	13,041	13,082	13,123	13,164	13,205	13,247	13,289	13,330	13,372	13,414	13,457	13,499	13,541	13,584	13,627	13,670	13,713	13,756	13,799	13,843	13,886	13,930	13,974	14,018
NLWA	827,288	839,397	858,761	885,513	912,498	940,781	965,755	975,057	985,041	987,205	989,619	992,040	994,469	996,904	999,348	1,002,001	1,004,662	1,007,330	1,010,005	1,012,688	1,015,549	1,018,417	1,021,293	1,024,176	1,027,067	1,029,966	1,032,875	1,035,792	1,038,717	1,041,652	1,044,595	1,047,547	1,050,508	1,053,478	1,056,457	1,059,445	1,062,442	1,065,448	1,068,462
Recycling Rate (%)	27.7%	29.5%	31.3%	33.0%	34.7%	36.4%	38.2%	40.3%	42.5%	42.5%	42.5%	42.5%	42.5%	42.5%	42.6%	42.6%	42.6%	42.6%	42.6%	42.6%	42.6%	42.6%	42.6%	42.7%	42.7%	42.7%	42.7%	42.7%	42.7%	42.7%	42.7%	42.7%	42.7%	42.7%	42.8%	42.8%	42.8%	42.8%	42.8%

Low Recycling Scenario

Recycling (tonnes)	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet	49,688	50,769	52,421	54,114	55,890	57,815	59,857	61,880	63,989	64,185	64,383	64,582	64,782	64,982	65,183	65,386	65,589	65,793	65,998	66,204	66,411	66,618	66,827	67,036	67,246	67,456	67,667	67,879	68,091	68,304	68,518	68,732	68,947	69,163	69,379	69,596	69,814	70,032	70,251
Camden	23,838	25,147	26,751	28,422	30,180	32,355	34,680	36,435	38,236	38,322	38,419	38,517	38,614	38,712	38,810	38,918	39,025	39,133	39,241	39,349	39,465	39,582	39,698	39,815	39,933	40,050	40,168	40,287	40,405	40,524	40,644	40,763	40,884	41,004	41,125	41,246	41,368	41,490	41,612
Enfield	48,224	48,156	48,600	49,046	49,530	50,079	50,666	51,240	51,859	52,021	52,184	52,347	52,511	52,675	52,840	53,005	53,171	53,338	53,505	53,673	53,842	54,011	54,180	54,350	54,521	54,692	54,864	55,036	55,209	55,383	55,556	55,731	55,906	56,082	56,258	56,434	56,612	56,789	56,968
Hackney	21,876	24,255	26,960	29,786	32,753	35,753	38,885	41,695	44,582	44,686	44,801	44,917	45,033	45,149	45,266	45,392	45,519	45,646	45,774	45,901	46,038	46,174	46,311	46,448	46,585	46,723	46,862	47,001	47,140	47,279	47,419	47,560	47,701	47,842	47,984	48,126	48,269	48,412	48,555
Haringey	30,804	32,098	33,788	35,550	37,411	39,077	40,823	42,281	43,797	43,919	44,045	44,173	44,300	44,428	44,557	44,690	44,823	44,957	45,091	45,226	45,364	45,503	45,643	45,783	45,923	46,063	46,204	46,346	46,488	46,630	46,773	46,916	47,060	47,204	47,349	47,494	47,639	47,785	47,931
Islington	23,036	23,608	24,418	25,956	27,598	29,052	30,128	31,241	32,392	32,476	32,565	32,655	32,745	32,836	32,926	33,022	33,118	33,214	33,310	33,407	33,508	33,609	33,711	33,813	33,915	34,017	34,120	34,223	34,326	34,430	34,534	34,638	34,743	34,848	34,953	35,058	35,164	35,270	35,377
Waltham Forest	32,105	33,100	34,499	35,960	37,511	39,142	40,866	42,569	44,339	44,474	44,611	44,748	44,886	45,024	45,163	45,303	45,444	45,585	45,727	45,869	46,012	46,156	46,300	46,445	46,590	46,735	46,881	47,028	47,175	47,322	47,470	47,618	47,767	47,916	48,066	48,216	48,367	48,518	48,670
Total of Boroughs	229,570	237,131	247,437	258,834	270,873	283,272	295,905	307,340	319,194	320,082	321,009	321,939	322,871	323,806	324,745	325,716	326,690	327,666	328,646	329,629	330,640	331,653	332,670	333,689	334,712	335,738	336,767	337,799	338,834	339,872	340,914	341,959	343,007	344,058	345,113	346,171	347,232	348,296	349,364
Additional NLWA Waste	0	588	1,187	1,799	2,425	3,066	3,725	4,403	5,103	5,119	5,135	5,151	5,167	5,184	5,200	5,216	5,233	5,249	5,266	5,282	5,299	5,315	5,332	5,349	5,366	5,383	5,400	5,417	5,434	5,451	5,468	5,485	5,502	5,520	5,537	5,554	5,572	5,589	5,607
NLWA	229,570	237,719	248,624	260,633	273,297	286,339	299,631	311,743	324,297	325,201	326,144	327,090	328,038	328,990	329,945	330,932	331,922	332,916	333,912	334,911	335,938	336,969	338,002	339,038	340,078	341,120	342,166	343,215	344,268	345,323	346,382	347,444	348,509	349,578	350,650	351,725	352,804	353,886	354,971

Residual (tonnes)	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51
Barnet	110,542	110,445	111,327	112,178	113,070	115,730	118,407	118,377	118,407	118,686	118,992	119,300	119,608	119,918	120,228	120,562	120,897	121,232	121,569	121,906	122,264	122,622	122,981	123,341	123,703	124,065	124,428	124,793	125,158	125,525	125,893	126,262	126,632	127,003	127,375	127,749	128,123	128,499	128,876
Camden	86,519	87,557	89,021	90,414	91,771	95,498	99,130	98,280	97,451	97,554	97,715	97,877	98,039	98,201	98,364	98,577	98,789	99,002	99,215	99,429	99,684	99,940	100,196	100,452	100,709	100,966	101,225	101,484	101,743	102,004	102,265	102,527	102,789	103,053	103,317	103,581	103,847	104,113	104,380

Enfield	82,267	84,133	86,755	89,381	92,065	96,136	100,274	101,337	102,473	102,699	102,953	103,207	103,462	103,718	103,974	104,254	104,534	104,814	105,096	105,378	105,679	105,982	106,285	106,588	106,893	107,198	107,505	107,812	108,120	108,429	108,740	109,051	109,363	109,675	109,989	110,304	110,620	110,936	111,254
Hackney	89,850	89,558	89,805	89,930	89,976	89,579	89,123	87,420	85,721	85,871	86,047	86,224	86,402	86,580	86,758	86,959	87,160	87,362	87,565	87,767	87,989	88,212	88,434	88,658	88,882	89,106	89,332	89,558	89,784	90,011	90,239	90,468	90,697	90,927	91,158	91,389	91,621	91,854	92,087
Haringey	71,580	73,597	76,185	78,697	81,177	82,377	83,581	83,379	83,211	83,386	83,580	83,775	83,971	84,167	84,363	84,575	84,788	85,002	85,216	85,431	85,659	85,888	86,117	86,347	86,578	86,809	87,041	87,274	87,507	87,741	87,976	88,212	88,448	88,685	88,922	89,161	89,400	89,640	89,880
Islington	71,102	70,180	69,707	75,888	81,709	84,919	84,644	84,394	84,171	84,279	84,423	84,568	84,714	84,859	85,005	85,182	85,359	85,536	85,714	85,892	86,096	86,301	86,505	86,710	86,916	87,122	87,329	87,536	87,744	87,953	88,162	88,371	88,582	88,793	89,004	89,216	89,429	89,642	89,856
Waltham Forest	74,094	75,042	76,650	78,198	79,735	81,005	82,274	81,948	81,656	81,851	82,061	82,272	82,484	82,697	82,910	83,136	83,364	83,592	83,820	84,050	84,290	84,532	84,774	85,017	85,260	85,504	85,749	85,995	86,242	86,489	86,737	86,986	87,235	87,485	87,736	87,988	88,240	88,494	88,748
Total of Boroughs	**585,955**	**590,512**	**599,451**	**614,686**	**629,501**	**645,243**	**657,432**	**655,136**	**653,090**	**654,326**	**655,773**	**657,224**	**658,679**	**660,139**	**661,603**	**663,245**	**664,890**	**666,540**	**668,195**	**669,854**	**671,662**	**673,475**	**675,292**	**677,114**	**678,940**	**680,772**	**682,609**	**684,451**	**686,299**	**688,153**	**690,011**	**691,876**	**693,745**	**695,621**	**697,502**	**699,388**	**701,280**	**703,178**	**705,081**
Additional NLWA Waste	11,762	11,166	10,686	10,194	9,699	9,199	8,692	8,178	7,654	7,678	7,702	7,727	7,751	7,775	7,800	7,824	7,849	7,874	7,898	7,923	7,948	7,973	7,998	8,023	8,049	8,074	8,099	8,125	8,150	8,176	8,202	8,228	8,254	8,279	8,306	8,332	8,358	8,384	8,411
NLWA	**597,717**	**601,678**	**610,137**	**624,880**	**639,200**	**654,442**	**666,124**	**663,313**	**660,744**	**662,004**	**663,475**	**664,950**	**666,430**	**667,914**	**669,403**	**671,069**	**672,739**	**674,414**	**676,093**	**677,777**	**679,611**	**681,448**	**683,291**	**685,138**	**686,989**	**688,846**	**690,708**	**692,576**	**694,450**	**696,329**	**698,213**	**700,103**	**701,999**	**703,900**	**705,807**	**707,720**	**709,638**	**711,562**	**713,491**

Waste Managed (tonnes)	**2012/13**	**2013/14**	**2014/15**	**2015/16**	**2016/17**	**2017/18**	**2018/19**	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**	**2025/26**	**2026/27**	**2027/28**	**2028/29**	**2029/30**	**2030/31**	**2031/32**	**2032/33**	**2033/34**	**2034/35**	**2035/36**	**2036/37**	**2037/38**	**2038/39**	**2039/40**	**2040/41**	**2041/42**	**2042/43**	**2043/44**	**2044/45**	**2045/46**	**2046/47**	**2047/48**	**2048/49**	**2049/50**	**2050/51**
Barnet	160,230	161,214	163,748	166,292	168,959	173,546	178,264	180,257	182,396	182,871	183,376	183,882	184,390	184,900	185,411	185,948	186,486	187,026	187,567	188,110	188,674	189,240	189,808	190,377	190,948	191,521	192,095	192,672	193,249	193,829	194,411	194,994	195,579	196,166	196,754	197,345	197,937	198,531	199,127
Camden	110,357	112,703	115,772	118,836	121,951	127,852	133,810	134,714	135,687	135,876	136,134	136,393	136,653	136,914	137,175	137,494	137,814	138,135	138,456	138,779	139,150	139,521	139,894	140,267	140,642	141,017	141,393	141,770	142,149	142,528	142,909	143,290	143,673	144,057	144,441	144,827	145,214	145,602	145,992
Enfield	130,491	132,288	135,355	138,427	141,595	146,214	150,940	152,577	154,332	154,721	155,137	155,554	155,973	156,393	156,814	157,259	157,705	158,152	158,601	159,051	159,521	159,992	160,465	160,939	161,414	161,891	162,369	162,848	163,330	163,812	164,296	164,782	165,268	165,757	166,247	166,738	167,231	167,726	168,222
Hackney	111,726	113,813	116,765	119,716	122,729	125,332	128,008	129,115	130,303	130,557	130,849	131,141	131,434	131,729	132,024	132,351	132,679	133,008	133,338	133,669	134,027	134,386	134,745	135,106	135,467	135,830	136,193	136,558	136,924	137,291	137,659	138,028	138,398	138,769	139,142	139,515	139,890	140,265	140,642
Haringey	102,384	105,695	109,973	114,247	118,588	121,454	124,403	125,660	127,008	127,305	127,626	127,948	128,271	128,595	128,920	129,265	129,612	129,959	130,307	130,657	131,024	131,391	131,760	132,130	132,501	132,873	133,246	133,620	133,995	134,372	134,749	135,128	135,508	135,889	136,271	136,654	137,039	137,425	137,812
Islington	94,138	93,788	94,126	101,845	109,307	113,971	114,772	115,635	116,563	116,755	116,989	117,223	117,459	117,695	117,932	118,204	118,477	118,750	119,025	119,300	119,604	119,910	120,216	120,523	120,831	121,139	121,449	121,759	122,070	122,382	122,696	123,010	123,324	123,640	123,957	124,275	124,593	124,913	125,233
Waltham Forest	106,199	108,142	111,149	114,157	117,246	120,147	123,140	124,517	125,995	126,325	126,672	127,021	127,370	127,721	128,073	128,439	128,807	129,177	129,547	129,918	130,302	130,687	131,074	131,461	131,850	132,240	132,631	133,023	133,416	133,811	134,207	134,604	135,002	135,402	135,802	136,204	136,608	137,012	137,418
Total of Boroughs	**815,526**	**827,643**	**846,888**	**873,519**	**900,374**	**928,516**	**953,337**	**962,476**	**972,284**	**974,408**	**976,782**	**979,163**	**981,550**	**983,946**	**986,348**	**988,960**	**991,580**	**994,207**	**996,841**	**999,483**	**1,002,302**	**1,005,128**	**1,007,962**	**1,010,804**	**1,013,652**	**1,016,510**	**1,019,376**	**1,022,250**	**1,025,133**	**1,028,025**	**1,030,926**	**1,033,835**	**1,036,753**	**1,039,679**	**1,042,615**	**1,045,559**	**1,048,512**	**1,051,474**	**1,054,445**
Additional NLWA Waste	11,762	11,754	11,873	11,993	12,124	12,265	12,417	12,581	12,757	12,797	12,837	12,878	12,918	12,959	13,000	13,041	13,082	13,123	13,164	13,205	13,247	13,289	13,330	13,372	13,414	13,457	13,499	13,541	13,584	13,627	13,670	13,713	13,756	13,799	13,843	13,886	13,930	13,974	14,018
NLWA	**827,288**	**839,397**	**858,761**	**885,513**	**912,498**	**940,781**	**965,755**	**975,057**	**985,041**	**987,205**	**989,619**	**992,040**	**994,469**	**996,904**	**999,348**	**1,002,001**	**1,004,662**	**1,007,330**	**1,010,005**	**1,012,688**	**1,015,549**	**1,018,417**	**1,021,293**	**1,024,176**	**1,027,067**	**1,029,966**	**1,032,875**	**1,035,792**	**1,038,717**	**1,041,652**	**1,044,595**	**1,047,547**	**1,050,508**	**1,053,478**	**1,056,457**	**1,059,445**	**1,062,442**	**1,065,448**	**1,068,462**
Recycling Rate (%)	27.7%	28.3%	29.0%	29.4%	30.0%	30.4%	31.0%	32.0%	32.9%	32.9%	33.0%	33.0%	33.0%	33.0%	33.0%	33.0%	33.0%	33.0%	33.1%	33.1%	33.1%	33.1%	33.1%	33.1%	33.1%	33.1%	33.1%	33.1%	33.1%	33.2%	33.2%	33.2%	33.2%	33.2%	33.2%	33.2%	33.2%	33.2%	33.2%

Series 05 Technical Documents

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