North London Waste Prevention Plan

1 April 2016 to 31 March 2018

BARNET LONDON BOROUGH · Camden · ENFIELD Council · Hackney · Haringey LONDON · ISLINGTON · Waltham Forest · nlwa north london waste authority

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1 Strategic Context

1.1 The north London area

The north London region covers approximately 30,000 hectares[1] and is served by North London Waste Authority (NLWA). NLWA is a joint statutory waste disposal authority that arranges the disposal of waste collected by the seven constituent boroughs:

London Borough of Barnet
London Borough of Camden
London Borough of Enfield
London Borough of Hackney
London Borough of Haringey
London Borough of Islington
London Borough of Waltham Forest

Waste collected by each of the seven constituent boroughs which is delivered to NLWA for disposal is either disposed at the Edmonton energy-from-waste (EfW) plant where it is burnt to generate electricity, or transferred by road from the Edmonton transfer facility or from the Hornsey Street road transfer station, or it is loaded onto rail containers at the Hendon Rail Transfer Station for transport to a third-party EfW facility or landfill site outside of London.

NLWA receives kitchen and garden waste, which is composted at the in-vessel composting facility at Edmonton or at third-party facilities outside London. NLWA also manages eight Reuse and Recycling Centres (RRCs) in five boroughs with a ninth site provided and managed by the local borough.

In addition NLWA manages the treatment of household dry recyclables from six of the seven north London boroughs. These materials are sent for sorting into their separate types (e.g. paper, plastic, steel and aluminium cans, glass etc) at materials recycling facilities and then on to factories, where they are made into new products.

1.2 North London demographics

The total population of the north London area is now estimated to be 1.92 million people living in 788,460 households. In the last year there has been both an increase in the number of people living in north London and number of households, as shown in Table 1.

	2012/13	2013/14	2014/15
Population	1,867,864	1,898,527	1,920,277
Number of dwellings	773,926	782,723	788,460

Table 1: North London population changes

1 Equivalent to 297 square kilometres

The population of the north London area is currently growing at a rate of 1.15% per annum and the dwelling stock is increasing by just under 0.8% per annum. When the North London Joint Waste Strategy (NLJWS) was published it was predicted that the increase in the number of people and households throughout the years would indicate that the amount of waste generated would continue to grow. Although the amount of waste produced in 2012-13 fell, possibly related to the economic downturn during this period, the years that followed saw a return to increasing volumes of waste and 2014-15 saw an increase in local authority collected waste by 8,991 tonnes. Therefore investment in waste prevention is an activity that can contribute to minimising waste growth in the years that come.

The population of north London is highly diverse, with many different nationalities, cultures and communities represented. Black, Asian and minority ethnic residents represent over 30% of residents of north London, and there are more than 200 languages in regular use. Additionally, north London has substantial areas of transient population and a relatively young demography. In Camden for example 26.6% of the population is aged 16 – 29. Hackney too has a relatively large proportion of residents in their 20s, who represent 21% of the population of the borough.

All the above characteristics create a considerable challenge in terms of ensuring interaction between NLWA and residents through education and awareness raising activities and effective dissemination of effective waste prevention messages.

1.3 Waste generation in north London

In the first set of waste generation modelling for the NLJWS it was estimated that the growth rate for municipal waste would be 3% per annum until 2010, and that waste volumes would then increase by 2.5% per annum thereafter, reaching 1.376 million tonnes by 2020. An updated sensitivity analysis was then undertaken for the NLJWS and with a 2% growth rate, it was projected that NLWA would be handling 1.261 million tonnes of municipal waste by 2020. Subsequent modelling undertaken in 2014 to inform the sizing of the proposed replacement Energy Recovery Facility (ERF) in north London[2] indicates that the projected amount of waste to be managed by the NLWA from its Constituent Boroughs is expected to rise from a combined total across NLWA of 985,000 tonnes by 2020-21, and just over a million tonnes by 2050-51[3].

The amount of municipal waste collected in the north London area over recent years is shown in Table 2.

	2012/13	2013/14	2014/15
Tonnes of local authority collected waste	**822,384**	**836,052**	**845,043**
Tonnes of local authority collected waste from households	**669,627**	**687,037**	**701,980**
Tonnes of local authority collected waste from commercial and industrial producers	**152,757**	**149,015**	**143,063**

Table 2: Amounts of local authority collected waste in north London

2 North London Heat and Power Project, **northlondonheatandpower.london**

3 **northlondonheatandpower.london/docs/default-source/further-reading/eunomia_nlwa_waste_forecasting_project_report_final_v1.pdf?sfvrsn=2**

In 2014-15 the total amount of local authority collected waste collected by the seven north London boroughs showed an increase of 8,991 tonnes to 845,043 tonnes compared to the previous year, possibly attributed to an increasing population and number of households and an improving economy. Of the total household waste collected, 233,376 tonnes were sent for reuse, recycling and composting making an overall recycling and composting rate of 33% of the local authority collected waste stream, which represents an increase of 0.1% from the previous year.

On average each household in north London produces 601 kg of waste and separated 297kg of waste for reuse, recycling or composting during the last year. As a result, the performance of the NLWA and the seven north London boroughs remains positive whilst greenhouse gas emissions to the atmosphere are falling, too.

The composition of the municipal waste stream is important in determining the materials that can be targeted via the North London Waste Prevention Plan. The most recent compositional analysis was conducted in October 2010 and showed the following results:

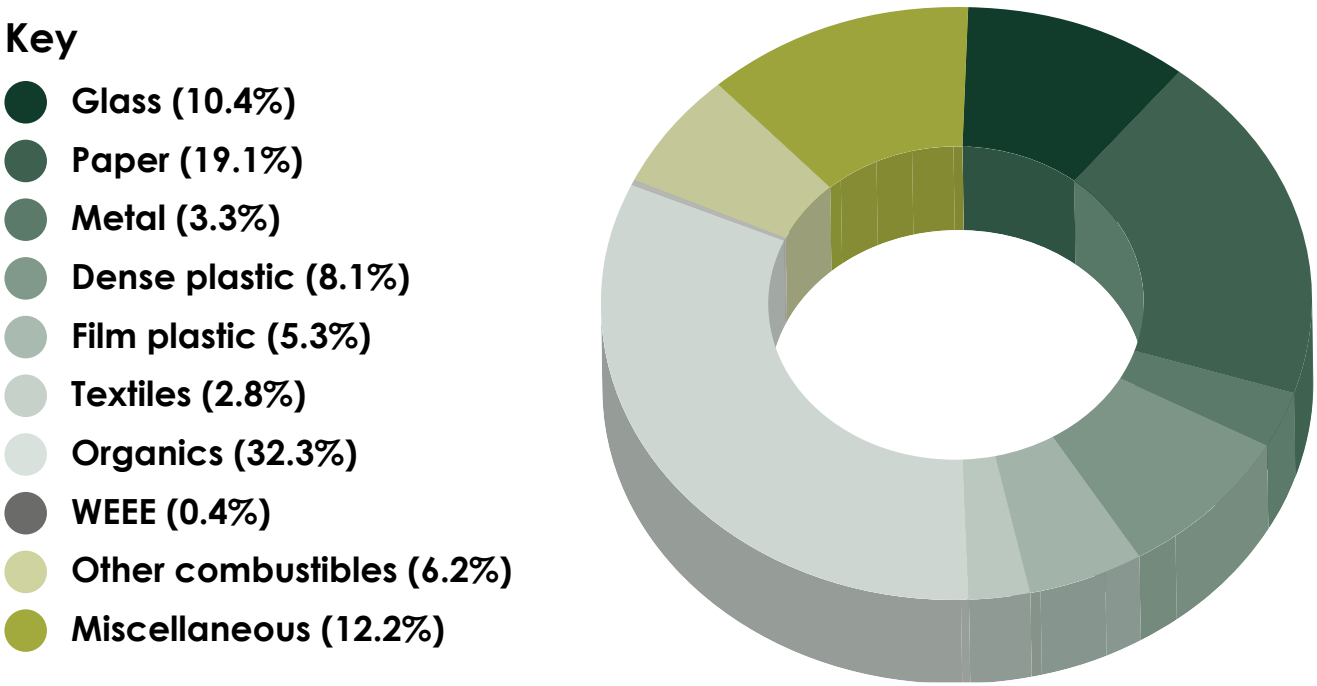

Figure 1: North London waste composition

Figure 1 demonstrates that organic waste is the largest component from north London households, followed by paper, glass and plastics (dense and film).

2. Delivering a waste prevention programme in north London

2.1 Definition of waste prevention

Article 24 of the Waste Framework Directive (2008/98/EC) provides the legal framework for all EU legislation and defines waste as '**an object the holder discards, intends to discard or is required to discard'**. Within this definition, the EU has developed end-of-waste criteria for the production and use of a product from a specific waste stream, which specify when waste ceases to be waste.

According to the Waste Framework Directive:

'prevention' means measures taken before a substance, material or product has become waste, that reduce:

(a) the quantity of waste, including through the re-use of products or the extension of the life span of products;

(b) the adverse impacts of the generated waste on the environment and human health;

(c) the content of harmful substances in materials and products.

'reuse' means any operation by which products or components that are not waste are used again for the same purpose for which they were conceived.

Figure 2 below illustrates how the materials may ultimately become waste.

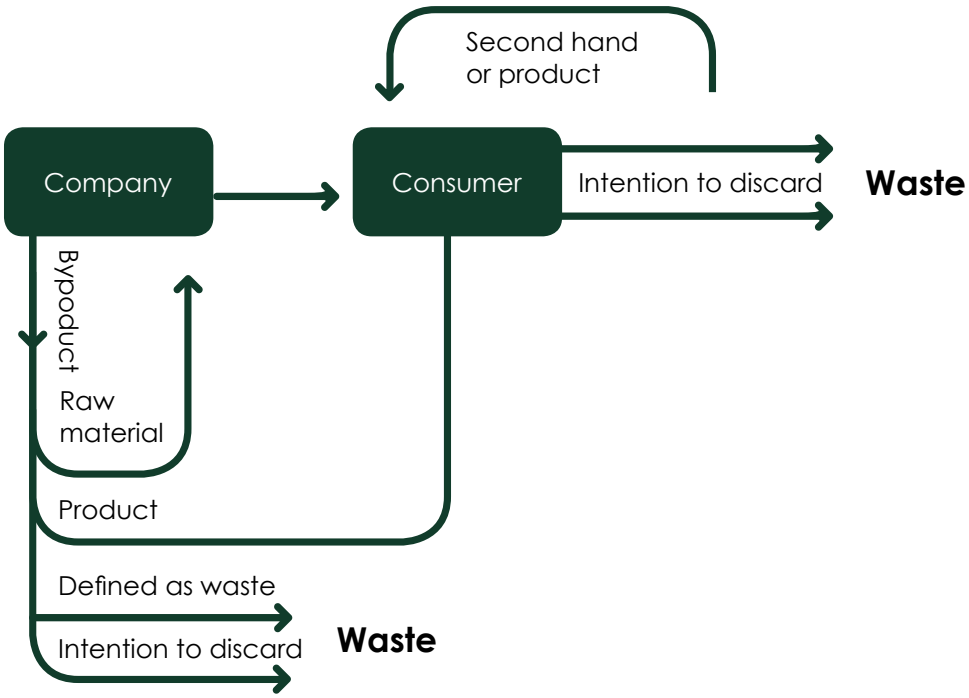

Figure 2: Illustration of EU legal definition of waste

The EC Circular Economy Package includes revised legislative proposals on waste and proposes the following amendments to the Waste Framework Directive:

Prevention of waste *(Article 9)*

Member States shall take measures to prevent waste generation. These measures shall:

– encourage the use of products that are resource efficient, durable, reparable and recyclable;
– identify and target products that are the main sources of raw materials of a high importance to the economy of the Union and whose supply is associated with a high risk to prevent that those materials become waste;
– encourage the setting up of systems promoting reuse activities, including in particular for electrical and electronic equipment, textiles and furniture;
– reduce waste generation in processes related to industrial production, extraction of minerals and construction and demolition, taking into account best available techniques;
– reduce the generation of food waste in primary production, in processing and manufacturing, in retail and other distribution of food, in restaurants and food services as well as in households'.

2.2 Policy and statutory background

Preventing waste is a priority for European, national and regional government. The Waste Framework Directive, first established in 1975, forms the basis of the EU waste policy and a legal framework of all EU waste legislation.

The Directive introduces a five-step waste hierarchy where prevention is the best option, followed by preparing for reuse, recycling and other forms of recovery. Disposal is the least preferred option, as described in Figure 3.

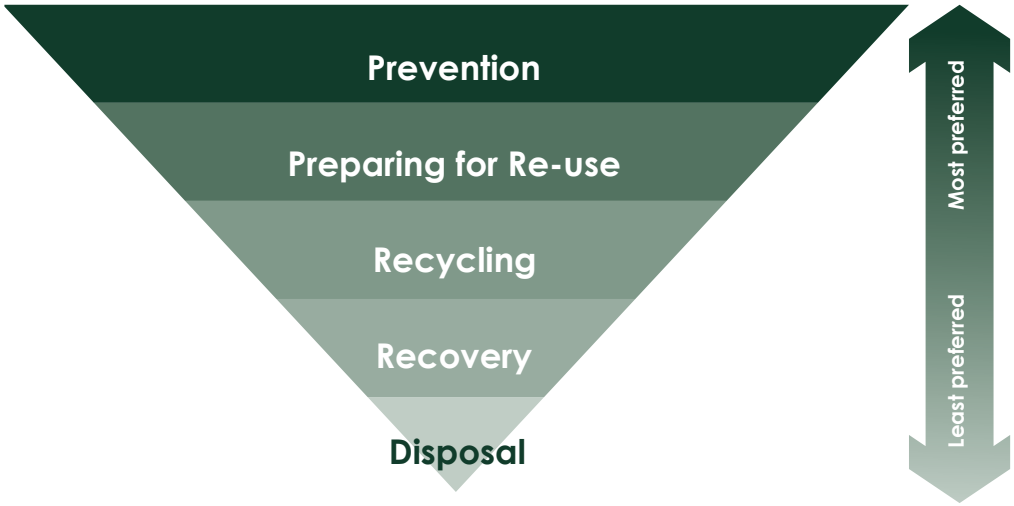

Figure 3: The waste hierarchy[4]

4 Waste Framework Directive (2008/98/EC), Article 3

2. Delivering a waste prevention programme in north London

The Mayor of London's Municipal Waste Management Strategy and the NLJWS agreed by NLWA and the seven north London boroughs are both driven by the principles sitting behind the waste hierarchy which identify waste prevention as the most preferable action. By delivering a waste prevention programme NLWA is delivering the waste-prevention related 'implementation actions' identified in NLJWS and is demonstrably delivering a strategy which is line with the waste hierarchy.

The waste prevention programme shows the importance NLWA and the seven constituent boroughs give to prevention as well as providing recycling, recovery and disposal services. As a result of this strategic prioritisation, NLWA has been delivering a waste prevention programme since 2007 with the aim of reducing the amount of waste that needs to be managed.

The waste hierarchy is also one of the principles underpinning waste planning. The National Planning Policy for Waste[5] 2014 states that in preparing Local Plans, waste planning authorities should:

"drive waste management up the waste hierarchy (Appendix A), recognising the need for a mix of types and scale of facilities, and that adequate provision must be made for waste disposal"

and continues by stating that when determining waste planning applications, waste planning authorities should:

".....expect applicants to demonstrate that waste disposal facilities not in line with the Local Plan, will not undermine the objectives of the Local Plan through prejudicing movement up the waste hierarchy".

Further policy background is provided in Chapter 3 of the North London Waste Prevention Plan 2016-18.

2.3 Environmental, economic and societal drivers

Preventing waste from occurring delivers the best environmental (reduction in carbon emissions and use of hazardous materials), economic (reduced waste management costs, reduction in costs from wasted food, job creation) and societal (increased jobs and training) outcomes, and is key to moving towards a more sustainable economy. For these reasons a key part of policy thinking is to focus on waste prevention in order to decouple the historical link between economic activity and waste production.

Some examples of the benefits of waste reduction and reuse are listed below:

- Providing one tonne of desks to a preparation for reuse network can result in a net greenhouse gas saving of 0.2 tonnes CO_2-eq compared to landfill[6].
- An average family throws away £700 worth of food in a year, action on food waste reduction can reduce this[7].

5 DCLG, October 2014
6 WRAP (2011) Benefits of Reuse, Case Study: Office Furniture
7 WRAP (2013) Household food and drink waste in the UK 2012

- Remanufacturing saves at least 70% of materials compared to manufacturing new goods[8].
- A tonne of waste prevented in north London potentially saves NLWA £100.61[9].
- However, it is important to note that NLWA does not have the "well-being" or "general competence" powers of the constituent borough councils, so can only take formally into account those factors that relate to its express duties and powers.

2.4 Resource scarcity

According to the Global Material Flows database[10] global extraction of resources has been rapidly increasing. Global use of material resources has increased ten-fold since 1900 and is set to double again by 2030[11] shown in Figure 4 below.

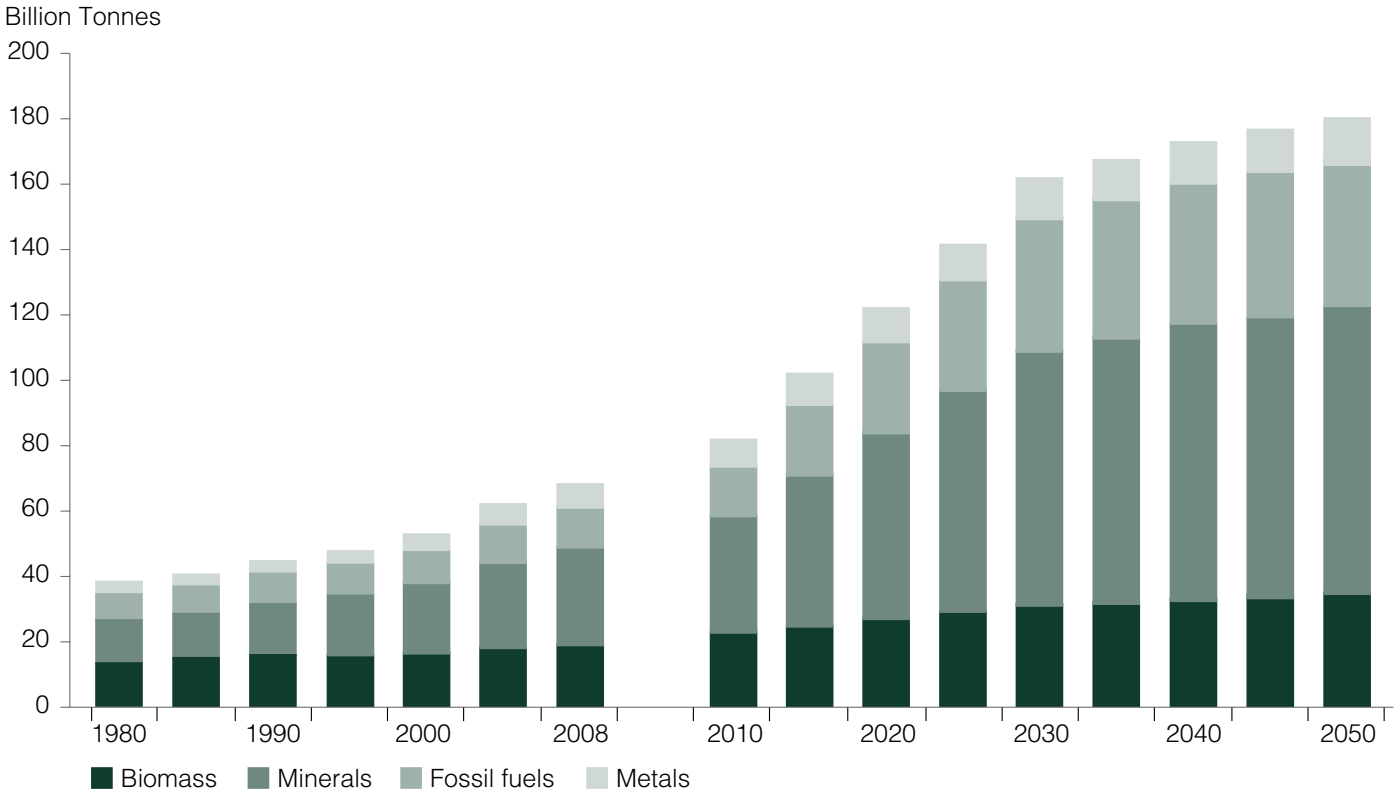

Figure 4: Estimated global resource extraction[12]

Defra (2013)[13] notes that the global environment is changing at an unprecedented rate and that within decades we are likely to face significant pressures on energy, resources and the natural environment. The Waste Prevention Programme for England shows that the UK uses approximately 470 million tonnes (Mt) of material resources annually, with over 250Mt of resources becoming waste each year.

8 Next Manufacturing Revolution (2013) The Next Manufacturing Revolution: Non-Labour Resource Productivity and its Potential for UK Manufacturing

9 the current forecast for chargeable residual waste for 2016/17 equivalent to the Authority's marginal cost of residual waste disposal.

10 SERI and WU Vienna (2014) **materialflows.net/trends/analyses-1980-2011/global-resource-extraction-by-material-category-1980-2011/**

11 European Environment Agency (2015) Intensified global competition for resources **eea.europa.eu/soer-2015/global/competition**

12 SERI et al.(2009) **materialflows.net**

13 Defra (2013) The Waste Prevention Programme for England. Prevention is better than cure: The role of waste prevention in moving to a more resource efficient economy

Although around half of this waste is recovered for recycling, this still results in the loss of large quantities of valuable materials. Resources extracted from the earth for production and consumption currently follow a traditional linear model with limited intent to reuse or regenerate the natural systems from which resources have been taken.

As an alternative, a circular economy model is proposed in which resources are in use for as long as possible, maximum value is extracted whilst in use and then recovery and regeneration of materials can be introduced which will create opportunities for growth.

Although the contribution of waste management to the global greenhouse gas emissions is relatively minor (the industry's impact is estimated at approximately three to five per cent of the total anthropogenic emissions[14]),the waste management sector still has an important role to play. This is due to the fact that waste management approaches can result in avoided emissions across many sectors of the economy and can, for example, make a positive contribution to reducing the emissions from the energy, forestry, mining, transport, services and manufacturing sectors.

Waste prevention and using waste as a resource is becoming more and more important, not only in environmental policies, but also in raw material policies, and as a backbone of the transition towards a green economy.

2.5 Move towards a circular economy society

With a longer term increase in resource scarcity the cost of raw materials is likely to increase. The recently launched EU Circular Economy Package seeks to move away from a current linear economy (make – use – dispose) towards one where products, and the materials they contain, are valued differently, creating a more robust economy in the process. The package prioritises waste prevention, and proposes that a requirement is placed on Member States to measure their progress on waste prevention going forwards. Encouraging greater levels of repair and reuse are key aspects of north London's waste prevention programme which fit well with the new focus on the circular economy.

When the proposed EC requirements to measure progress on waste prevention are transposed into Member State legislation it is possible that local authorities will be required to measure progress on waste prevention too. Accordingly retention of a programme in north London which has sufficient capacity to include involvement in any new proposals for waste prevention measurement will be important in order to stay ahead of the game in the implementation of the circular economy package in England.

The package of Circular Economy measures should also see a greater focus on whole life responsibility for producers, so called 'Extended Producer Responsibility (EPR). This means producers will be increasingly responsible for products from manufacture and use through to reuse and recycling. NLWA's current zero cost contract with DHL Envirosolutions for Waste Electrical and Electronic Equipment (WEEE) collection, reuse and recycling is a good example of where producers are paying for the costs of collecting, reusing and recycling of WEEE materials. This is a requirement stemming from the European WEEE Directive that has been transposed into national legislation.

The new circular economy measures mean that there is an anticipated new focus on waste prevention, recycling and composting which suggests that this is a time at which a focus on prevention will be very much in line with current policy and longer term plans and initiatives.

14 UNEP (2010) Waste and climate change: Global trends and strategic framework.

2.6 Funding opportunities

Implementing the circular economy package across the EU is likely to result in the development of new funding streams and partnerships (e.g. the Horizon 2020 Work Programme for 2016-2017 includes a major initiative on 'Industry 2020 in the circular economy', with funding of over €650 million and €5.5 billion from structural funds for waste management). NLWA has recently been asked to be part of an Interreg funding application with 11 other partners seeking support for the development of some EU standard metrics for measuring the impact of waste prevention activity.

2.7 Waste prevention as a cross cutting policy area

Waste prevention is a cross-cutting policy area that relates and links a wide range of policy options as illustrated in Figure 5.

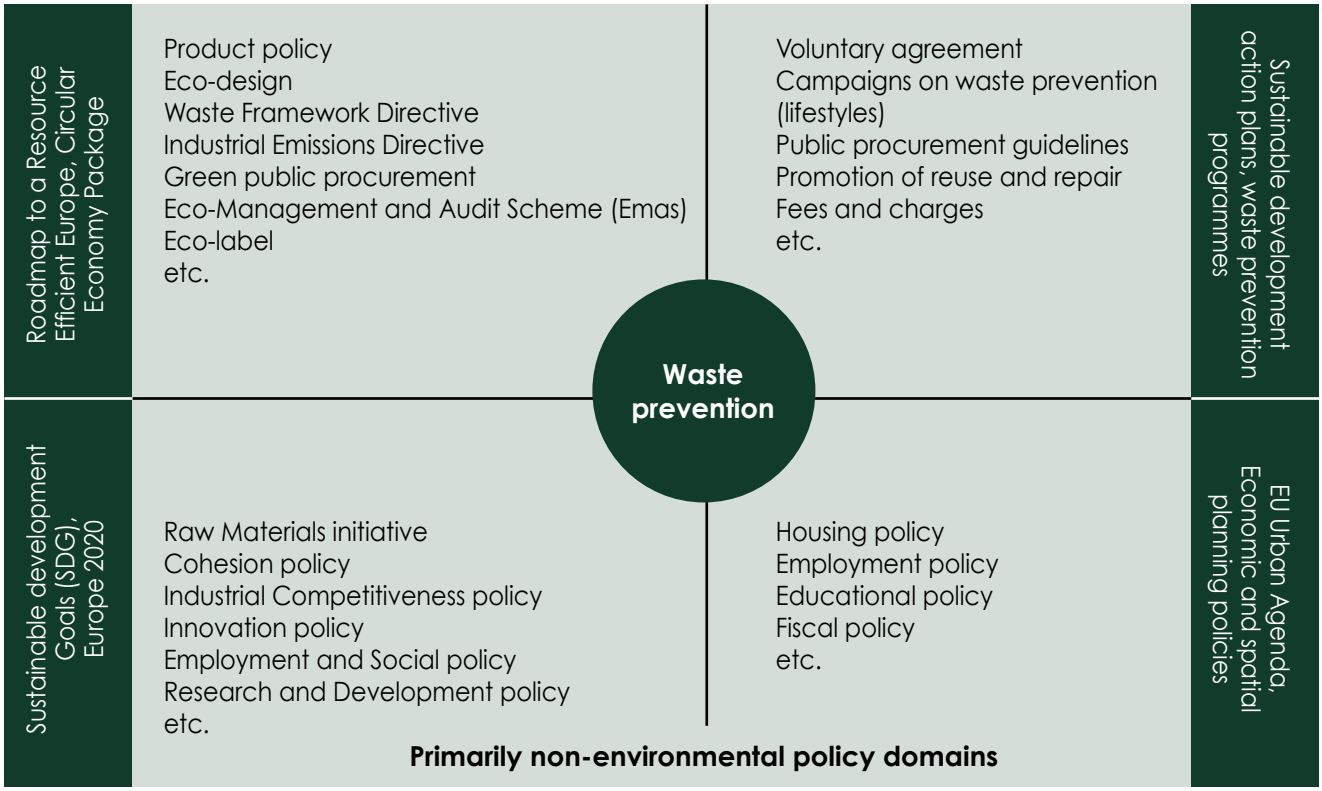

Figure 5: Waste prevention as a cross cutting area[15]

- In the **production phase**, waste can be prevented by improving material efficiency, by using processes that generate less waste, and by product and service innovation.
- In the **distribution phase**, waste can be prevented by, inter alia, good planning of supply and stocks, through waste-reducing marketing and by choosing less waste intensive packaging options.
- In the **consumption phase,** for example by choosing products that are less waste intensive over their life cycle, by keeping products in use for longer, by repairing, sharing or renting products, or by reducing levels of consumption.

15 EEA (2014), Waste prevention in Europe- the status in 2013

2. Delivering a waste prevention programme in north London

Across Europe growing amounts of waste have resulted in waste management objectives being hard to achieve and goals associated with improving waste management and reducing environmental impact being more challenging to deliver. This suggests that waste prevention could play an important role in preserving resources, and policy instruments need to be introduced to affect households in the direction of less waste-intensive behaviour.

2.8 Barriers to preventing waste

However, achieving the objectives at the top of the waste hierarchy is not easy. There are a number of barriers to waste prevention for household waste in the UK.

Barriers to participation include behavioural and social norms barriers, as waste prevention behaviours tend to be undertaken in private (e.g. packaging reduction through purchasing low packaged items) and there is no explicit social norm influencing them, as well as time and convenience (e.g. use of refillables and self-dispensing systems, product service systems, reusable nappies). In addition householders can underestimate the long-term benefits of waste prevention and so are less motivated to prevent waste than they would be if the long-term benefits were fully realised and understood.

Waste prevention also includes many different activities so a more complex set of interventions is required to encourage waste prevention than is necessary to uplift recycling, which is a more singular act[16]. Waste prevention encompasses product design so that products last longer; product repair and design for repairability, as well as design of products so that they use fewer or less hazardous resources.

Encouraging waste prevention also needs interventions in service delivery for example, ensuring services are available so that unwanted items get a second life through re-use. Additionally, waste prevention is a very personal behaviour, which is performed in the privacy of our own home; it is a personal activity which is driven by deeply held beliefs and attitudes rather than social norms[17], peer pressure may therefore be less of a driver in waste prevention behaviour change programmes than it is with recycling.

Thus, consumers may not be always aware of the value associated with waste prevention actions and not appreciate the full costs of other waste disposal options and therefore potential savings from waste prevention actions are often not known or understood. Research shows that there are many considerations that should be taken into account when trying to examine barriers to participation in waste prevention initiatives such as lack of motivation and interest, weak 'know-how' skills and sense of powerlessness. These barriers will provide a useful indication when considering actions needed to engage the public in waste prevention initiatives.

Apart from social norms barriers, there are also market limitations which act counter to encouraging better, less wasteful consumption habits of consumers. Opportunities for bulk-buying of products, sale of second hand items and hire services have a lower market share than single use, new product sale so may be less visible to consumers than the more wasteful alternatives. It is often cheaper to replace an item rather than repair it, whilst certain products are designed to have limited service life and are based on programmed obsolescence, so the market signals for extending product use and/or repair may be much weaker than for purchasing short life, single use products, incorporating programmed obsolescence.

16 Defra (2009) Household Waste Prevention Evidence Review: L1 m1 – Executive Report
17 WRAP (2009). Introduction to behavioural change

3. Policy and statutory drivers

3.1 The Waste Framework Directive

The Waste Framework Directive was first established in 1975 and it forms the basis of the EU waste policy and a legal framework of all EU waste legislation. The Directive was revised in November 2008 and consequently a modernised approach was achieved according to which waste was seen as a valuable resource. On 2 December 2015 the EC adopted a Circular Economy Package, which includes revised legislative proposals on waste with the aim of:

- **Stimulating Europe's transition towards a circular economy (which it concludes will boost global competitiveness).**
- **Foster sustainable economic growth.**
- **Generate new jobs.**

The Circular Economy Package consists of an EU Action Plan for the Circular Economy with measures covering the whole cycle: from production and consumption to waste management and the market for secondary raw materials.

As a result, new legislative changes were proposed on waste including amending Directive 2008/98/EC on waste to provide a long-term vision for increasing recycling and reducing the landfilling of municipal waste, while taking account of differences between Member States. The proposals also include the encouragement of greater use of economic instruments to ensure coherence with the EU waste hierarchy.

It is hoped that the proposed action in the Package will "contribute to 'closing the loop' of product lifecycles through greater recycling and re-use, and bring benefits for both the environment and the economy".

The revised legislative proposals on waste set targets for waste reduction and establish a long-term path for waste management and recycling. Key elements of the revised waste proposal include:

- A common EU target for recycling 65% of municipal waste by 2030, with an interim target of 60% recycling by 2025;
- A common EU target for recycling 75% of packaging waste by 2030 via proposed amends to the packaging directive;
- Introduction of an Early Warning System for monitoring compliance with the recycling targets;
- A binding landfill target to reduce landfill to maximum of 10% of all waste by 2030 via proposed amends to the landfill directive;
- A ban on landfilling of separately collected waste;
- Promotion of economic instruments to discourage landfilling;
- Simplified and improved definitions and harmonised calculation methods for recycling rates throughout the EU;
- Concrete measures to promote re-use and stimulate industrial symbiosis - turning one industry's by-product into another industry's raw material;
- Economic incentives for producers to put greener products on the market and support recovery and recycling schemes.

3.2 The revised Waste Strategy for England

Waste prevention encompasses a range of policy options and plays a key role in sustainable waste management and is seen as a beneficial waste management option. The revised Waste Strategy for England[18] suggests that we need to take an integrated approach to waste prevention, re-use and recycling – absolute prevention of waste is in many areas unrealistic, but we can prioritise prevention while seeking to re-use and recycle as much as possible of the waste which does arise.

3.3 Legislation and policy drivers on a European level

The aim of the **EU legislation** is to move our approach to waste management up the waste hierarchy towards 'prevention' and a summary of the relevant legislation with specific references to waste prevention is described in Table 3.

Legislation	Reference to waste prevention
Waste Framework Directive (2008/98/EC)	- The EC Circular Economy Package includes revised legislative proposals on waste and proposes the following amendments to the Waste Framework Directive– encourage the use of products that are resource efficient, durable, reparable and recyclable; – identify and target products that are the main sources of raw materials of a high importance to the economy of the Union and whose supply is associated with a high risk to prevent that those materials become waste; – encourage the setting up of systems promoting reuse activities, including in particular for electrical and electronic equipment, textiles and furniture; – reduce waste generation in processes related to industrial production, extraction of minerals and construction and demolition, taking into account best available techniques; – reduce the generation of food waste in primary production, in processing and manufacturing, in retail and other distribution of food, in restaurants and food services as well as in households.'
Batteries Directive (2006/66/EC)	Prohibits the placing on the market of batteries and accumulators containing more than 0.0005% of mercury or more than 0.002% of cadmium); Prohibits the disposal in landfills or by incineration of waste industrial and automotive batteries and accumulators; Measures taken to promote waste prevention should be reported.
End-of-Life Vehicles (ELVs) Directive (2000/53/EC)	Waste Prevention refers to measures that need to be taken to reduce the quantity and harmfulness of ELVs, their materials and substances; Most preferred option is waste prevention with reuse, recycling and recovery as least preferred options; Reduction/limitation of hazardous substances in vehicles is a requirement. Requires MSs to increase the amount of recycled material in vehicles and facilitate dismantling, reuse, recovery and recycling at the dismantling stage. By 1 January 2006, 85% by weight of all ELVs should be reused and recovered and at least 80% reused and recycled. By 1 January 2015, the equivalent figures should be at least 95% and 85%. Use of heavy metals should be restricted.
Mining Waste Directive (2006/21/EC)	Operators are required to produce a waste management plan.

18 Defra (2011), Government Review of Waste Policy in England 2011

Packaging Directive (1994/62/EC)	Waste Prevention refers to the reduction of the quantity and harmfulness of materials and substances in packaging and packaging waste; - Prevention is identified as a first priority; - Requires MSs to develop national programmes and producer responsibility projects; - Packaging on new products should adhere to specific standards; - Development of indicators and plans and reduction of heavy metals and hazardous substances at the packaging stage.
WEEE Directive (2012/19/EC)	Puts emphasis on the development, production and marketing of products that are suitable for multiple use and once they have become waste, to be suitable for re-use and recycling.
RoHS Directive (2002/95/EC)	- Requires MSs to ensure that from 1 July 2006 certain heavy metals should be excluded; - Certain hazardous substances can be prohibited.
REACH Regulation (1907/2006)	Aims to ensure protection of human health and the environment; working towards achieving sustainable development; ensuring that by 2020 chemicals are produced and used in ways that minimise significant adverse effects on human health and the environment. - Identification of hazardous properties of substances and recommendations about risk management measures through the supply chain. - Substances that cause an unacceptable risk to human health or to the environment should be substituted. - Substances that put human health and environmental protection at risk should be restricted. - Toxic and other harmful substances should be identified.
Regulation on ozone depleting substances (1005/2009)	Restrictions are laid down on the manufacture, placing on the market and use of certain dangerous substances. It involves regulations about import, export, placing on the market, use, recovery, recycling, reclamation and destruction of substances that deplete the ozone layer. Outlines reporting requirements.
Eco design Directive (2009/125/EC)	Aims to improve the overall environmental performance of products, focusing on issues related to the reparability, durability, upgradability, recyclability and the examination of materials used under the Ecodesign requirements. The Directive also aims to highlight proposals made as part of the Circular Economy package in the design of future products. The next Working Plan (2015-2017) of the Directive is due to be developed and include a set of priority product groups for Ecodesign legislation.
Proposed legislative changes	As a result of the Circul ar Economy proposals the following legislative proposals on waste have been proposed: - Proposed Directive on Waste (which amends Directive 2008/98/EC on waste) - Proposed Directive on Packaging Waste (which amends Directive 94/62/EC on packaging and packaging waste) - Proposed Directive on Landfill (which amends Directive 1999/31/EC on the landfill of waste. - Proposed Directive on electrical and electronic waste amending Directive 2012/19/EU on waste electrical and electronic equipment. - Proposed Directive on end-of-life vehicles amending Directive 2000/53/EC on end-of-life vehicles), and batteries and accumulators and waste batteries and accumulators amending Directive 2006/66/EC on batteries and accumulators and waste batteries and accumulators.

Table 3: Waste prevention in EU legislation

Table 3 shows that legislation is a key instrument in favouring waste prevention and demonstrates how waste prevention has also been incorporated into legislation on specific waste streams.

3.3.1 Life cycle thinking

The Waste Framework Directive additionally introduced the concept of Life Cycle Thinking (LCT). LCT aims to provide a broader overview of all the environmental aspects of a product and ensuring that the overall benefits and impact are taken into account as well as compatibility with other environmental initiatives. Highlighted within the Directive are the necessary measures required from the organisations implementing the scheme. A key part of LCT is Life Cycle Assessment (LCA), which *'is the process of quantitatively evaluating the environmental impacts of a product over its entire life period'*

The lifecycle perspective ensures that any emerging policies or interventions do not simply shift the environmental burden to another life cycle stage, but assess the impact from raw material acquisition through production, use and disposal.

For instance, recent research[19] on textiles indicated that the largest waste footprint reductions are achieved by extending product lifetime, which indicates that major environmental gains can be achieved by promoting textile re-use as the best environmental option. The process is illustrated in Figure 6.

LCT and LCA have been useful in assessing solutions and identifying best available waste management options. Both LCT and LCA can help waste managers understand the benefits and trade-offs of different waste management strategies. Although LCT and LCA cannot replace a decision-making process, they can assist in that decision making and ensure that the environmental impacts of product production, use and disposal are taken into account when making decisions.

Figure 6: Life Cycle Thinking

19 WRAP (2012) A waste footprint assessment for UK clothing

3.3.2 Thematic strategy on Waste Prevention and Recycling (2011)

The Thematic Strategy on Waste Prevention and Recycling features as part of the 6th Environmental Action Programme and includes recommendations on new initiatives in support of economic instruments for the implementation of the waste hierarchy. It sets a long term goal for the EU to become a recycling society and use waste as a resource. Waste prevention was identified as a priority action in the Thematic Strategy on Waste Prevention and Recycling and it took a leading role in the revision of the Waste Framework Directive alongside development of legislation for the limitation of hazardous substances and promotion of sustainable consumption and production initiatives.

3.3.3 The Seventh Environmental Action Programme (2013-2020)

Since the early 70s the Environmental Action Programmes have guided the development of environmental policy in Europe. The Seventh Environmental Action Programme highlights the protection, conservation, and enhancement of the Union's natural capital, turning the Union into a more resource-efficient and low-carbon economy as well as to protect its citizens from environmental risks to health. To achieve this, the proposal aims to improve on legislation implementation, increase investment for environment and climate policy and fully integrate requirements into other policies Supported in the programme is the Roadmap to a Resource Efficient Europe through increased emphasis on turning waste into a resource, strict application of the waste hierarchy and covering different types of waste.

3.3.4 Resource Efficiency Roadmap (2011)

The Resource Efficiency Roadmap is a flagship initiative of the Europe 2020 Strategy which called for a roadmap

"to define medium and long term objectives and means needed for achieving them".

The Roadmap identifies initiatives and policy achievements towards a low carbon economy and a sustainable and inclusive growth. It considers developments under the 2005 Thematic Strategy on the Sustainable Use of Natural Resources and the EU's Sustainable Consumption and Production Action Plan. Particularly with regards to waste prevention it sets a target to reduce generation of waste in absolute terms and achieve maximum level of re-use and recycling.

3.3.5 Sustainable Development Strategy

A revision of the EU Sustainable Development Strategy led to a renewed version which highlights the need to reduce emissions and promote a low carbon economy. Targets include avoidance of waste and waste reduction in an effort to preserve natural resources.

3.3.6 Sustainable Consumption and Production Action Plan (2008)

In 2008 the EC adopted an action plan to promote Sustainable Consumption and Production through better purchasing and better production techniques. Environmental benchmarking and labelling also feature as means to supporting sustainable development as well as development of eco-products and more choice to the consumer.

3.3.7 Conclusions

Following the policy and legislative review, a number of conclusions can be made.

Achieving decoupling of waste generation from economic growth is of primary importance for the EU as outlined in EU policies and legislation. The Circular Economy package is expected to largely influence waste management decisions taken across the EU. Waste prevention appears in high level EU policy and legislative documents and LCAs position waste prevention solutions higher up the policy agenda.

3.4 National and regional drivers

As the environmental impact of waste has increased in line with rising waste volumes and the level of impact has been realised, a raft of national and regional guidance has been issued indicating how waste should be managed in a more sustainable way. The summary of the policies that underline the case for waste prevention on a national and regional level, are identified in Table 4, whilst the strategic processes that have been considered on a local level are described in more detail in Section 3.5.

National Level	
Waste Prevention Programme for England	The Waste Prevention Programme for England sets out the Government's view on how to reduce the amount of waste produced and presents the key roles and actions which would be taken in our transition towards a more resource-efficient, circular economy. The aim of the programme is to improve the environment and protect human health by supporting a resource efficient economy, with a priority of reducing the quantity and impact of waste produced whilst promoting sustainable use of resources. The programme aims to achieve a change in the way both people and businesses see the value and potential in resources and to improve on reducing waste, extending product life, repairing and reusing of items.
Waste Review 2011	The Government Review of Waste Policy in England 2011 (the Waste Review) was published on the 14th June 2011. The Waste Review sets out the framework for achieving a 'zero waste' economy, and includes a number of actions which aim to ensure waste is managed in line with the waste hierarchy, with waste prevention a priority. Food waste is identified as a priority waste stream and the Government's long-term objectives are to reduce the amount of food wasted, whilst recognising that any food waste generated should be seen as a valuable resource and not sent to landfill.
Waste Strategy for England 2007	The Waste Strategy for England 2007 sets out the framework for waste management in England, including recycling targets, incentives and actions to stimulate infrastructure investment. While the Waste Strategy for England 2007 sets 'reduction' targets, these are based on reducing the amount of residual waste and do not consider wastes that are recycled or composted. As such, these targets do not focus on the total amount of waste arising and may effectively provide further incentive to increase recycling and centralised composting without necessarily promoting actions to reduce the generation of waste in the first place.

National Level	
National Planning Policy for Waste 2014	The National Planning Policy for Waste aims to improve sustainability and efficiency in resource use and management through: - identifying the need for waste planning authorities to incorporate the waste hierarchy when preparing Local Plans - recognising that waste management can have a positive contribution to sustainable communities - increasing the responsibility for own waste to communities and businesses - ensuring sustainable waste management is incorporated in plans for new developments
Packaging Waste Regulations 1997	The UK's transposition legislation originally came into force in 1997, and has been subsequently subject to a number of amendments and consolidation. It states that a shared producer responsibility approach is applied between the manufacturing and retail industries.
Essential Packaging Requirements 1998	The UK's 'Packaging (Essential Requirements) Regulations' implemented articles on the essential requirements and regulated metals concentration limits in the EU Packaging Directive. It states that packaging weight and volume must be reduced to the minimum necessary for safety, hygiene and consumer acceptance of the packaged product. It has also been revised to include that packaging must be manufactured in a suitable way to allow for reuse or recovery and any noxious or hazardous substances in packaging should be minimised in emissions, ash or leachate from incineration or landfill.
The Single Use Carrier Bags Charges (England) 2015	The Single Use Carrier Bags Charges in England came into force on October 5 2015 to reduce the number of single use carrier bags given out by large retailers of 250 or more employees. A charge of five pence has to be made to the customer for each single use carrier bag given out by these retailers.
The Waste Minimisation Act 1998	The Waste Minimisation Act 1998 is a key driver for waste prevention at the National level. It allows a local authority to "do, or arrange for the doing of, … anything which in its opinion is necessary or expedient for the purpose of minimising the quantities of controlled waste, or controlled waste of any description, generated in its area" (Defra, 2001). The intention behind the Act was to clear up any legislative uncertainty about whether councils could actually carry out initiatives to reduce the amount of waste (as opposed to recycling it).
Landfill Tax	Landfill Tax is a tax payable for each tonne of waste sent to landfill and was introduced by the Government in 1996 to encourage diversion of waste away from landfill towards more sustainable management options such as prevention, recycling and composting. There are two rates of tax; a lower rate for solid inert waste and a higher rate all other wastes. The tax in the 2015/16 tax year was £82.60 per tonne and it is set to rise to £84.40 per tonne from April 2-16.

Continues overleaf

Regional Requirements	
The Mayor's Municipal Waste Strategy	The Mayor's Municipal Waste Strategy was published in November 2011 and is entitled 'London's Wasted Resource'. The Strategy sets out the Mayor's policies and proposals for reducing the amount of local authority collected waste produced, increasing the amount of waste reused, recycled or composted, and generating low carbon energy from waste remaining.
The London Plan	The 'London Plan- Spatial Development Strategy for Greater London' was developed in 2004 and sets out policies to accommodate the expected growth of the city in a sustainable way through a framework which considers social, economic and environmental impacts. Policy section 4 of the London Plan relates specifically to waste management including issues surrounding spatial planning and site selection. Policy 4 also discusses the development of partnerships between the London Mayor, government, boroughs, statutory waste disposal authorities and operators to minimise waste generation.

Table 4: National and regional policy drivers

3.5 Local drivers and strategic processes

On a local level the following processes and strategies have been considered for the development of this plan:

3.5.1 North London Joint Waste Strategy

The North London Joint Waste Strategy (NLJWS) provides the strategic framework for local authority collected waste management in north London for the period 2004 – 2020 and sets out the targets for reducing, reusing and recovering a greater proportion of the local authority collected waste which is generated in the NLWA area and for reducing the amount which is sent for disposal to landfill.

Implementing the strategy involves working in partnership with local authorities and local communities, to provide the services and facilities required to make the improvements we need at the most efficient scale of operation and finance. This involves action and investment in waste minimisation, recycling and composting and recovering energy from waste.

Furthermore, the NLJWS set outs how NLWA, in partnership with the seven constituent boroughs, is going to manage waste up until 2020.

The aim for north London is to achieve:

- A 50% recycling and composting rate by 2020.
- The aim for no more than 35% of north London's 1995 arisings to be sent to landfill by 2020 have been met, and
- No more than 35% of our 1995 arisings to be sent to landfill by 2020.

The NLJWS lists 12 actions that are related to waste avoidance, waste reduction, waste re-use and home composting, which form the top half of the waste hierarchy.

These actions (as detailed in the NLJWS) are set out in Table 5.

Area	Action
Waste Prevention	4.A The Partner Authorities are gravely concerned about the year-on-year growth in waste and would urge greater action from Government to minimise waste and will lobby Government to achieve this.
Waste Avoidance	4.A2 The North London Partner Authorities will actively support Business Networks encouraging demonstrably effective waste prevention and minimisation amongst local businesses.
	4.A3 The North London Partner Authorities will seek external funding or regional support to develop a packaging waste prevention campaign with local manufacturing companies.
Waste Reduction	4.B1 The Partner Authorities will seek external funding to run waste prevention public awareness campaigns across north London throughout the period of this Strategy.
	4.B2 The Partner Authorities will share good practice on waste prevention activities and will have regard to the effects on waste arising when introducing new waste services.
	4.B3 The Partner Authorities support a move to a tonnage-based levy system provided the transitional financial impact on Partner Authorities is minimised. [Please note that since the publication of the original North London Joint Waste Strategy this has now happened, as noted above.]
	4.B4 The Partner Authorities will consider the opportunities presented by offering incentives and rebates to residents for reducing waste and will review the need for direct and differential charging for waste during the implementation of this Strategy
Waste Reuse	4.C1 The Partner Authorities will continue to actively support the development of best practice in waste reuse and will encourage the development of community sector and other partnerships to deliver effective reuse services.
	4.C2 The Partner Authorities will continue to support bids for external funding of reuse services and will seek to develop a means of rewarding effective reuse services directly through a "reuse credit", to reflect the avoided or deferred cost of disposal.
Home Composting	4.D1 The Partner Authorities will provide a concerted and on-going promotional campaign to encourage home composting throughout the period of this strategy, offering residents purpose-built bins at subsidised rates and providing support to residents wishing to compost at home.
	4.D2 The Partner Authorities will aim to ensure that 25% of all residents with gardens compost at home by 2014 to divert approximately 40,000 tonnes from the waste stream.
Community Composting	4.E The Partner Authorities will actively support appropriate community compost projects in north London, particularly where these contribute to statutory compost targets, through patronage of bids for external funding, direct support and through payment of third party recycling credits.

Table 5: NLJWS waste prevention related targets

3.5.2 NLWA strategic priorities

The NLJWS provides the strategic framework and vision for local authority collected waste management in north London for the period 2004 to 2020. In 2001 the north London partner authorities (the NLWA and the London boroughs of Barnet, Camden, Enfield, Hackney, Haringey, Islington and Waltham Forest) agreed the following joint aims and objectives, which are outlined in the 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; and**
- **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; and
- To ensure an equitable distribution of costs, so that those who produce or manage the waste pay for it.

Implementing the strategy involves working in partnership with local authorities and local communities, to provide the services and facilities required to make the improvements we need at the most efficient scale of operation and finance. This involves action and investment in waste minimisation, recycling and composting and recovering energy from waste too.

Implementing the strategy

At the 'top' of the waste hierarchy the NLJWS lists 12 actions on waste avoidance, waste reduction, waste re-use and home composting. These actions (as detailed in the NLJWS) are set out in Table 5 above and are implemented through the 2-yearly Waste Prevention Plan.
In the 'middle' of the waste hierarchy the target is to achieve a 50% household recycling rate by 2020. The partners are working together to increase recycling and composting by offering access to recycling and composting through 'kerbside' collection services and by collecting recyclable and compostable material at household waste recycling centres and on-street recycling banks.

Near the 'bottom' of the waste hierarchy the waste recovery strategy is based on continued use of NLWA's existing Edmonton energy-from-waste incineration plant at Edmonton. A longer term strategy will explore bringing additional benefits to local people through a new energy recovery solution to take over from the existing facility, which will continue to provide electricity for the national grid and which could also provide the potential to supply heat for local homes and businesses.

A long-term energy recovery solution would have additional benefits in relation to the aspirations of local authorities in the Upper Lee Valley for a decentralised energy network in the area, by providing the opportunity for heat to be made available to local homes and businesses. This approach also means that NLWA is getting the best value it can from its long-standing and reliable energy-from-waste facility at Edmonton.

The disposal solution involves reducing the amount of waste sent to landfill to 35% of 1995 amounts by 2020, through waste reduction and by implementing the other actions in the NLJWS for re-use, recycling, composting and for energy (and heat) production.

3.5.3 North London Waste Plan

The North London Waste Plan (NLWP) is a spatial planning document prepared by the London Boroughs of Barnet, Camden, Enfield, Haringey, Hackney, Islington and Waltham Forest in their capacities as local planning authorities, and is completely separate from NLWA and the NLJWS. The North London Waste Plan will set out the planning framework for waste management in the London boroughs of Barnet, Camden, Enfield, Hackney, Haringey, Islington and Waltham Forest for the next 15 years from 2017 up to 2032. It will identify sites for waste management use and set out policies for determining waste planning applications.

A previous version of the NLWP was found by a Planning Inspector at an independent examination not to meet the legal requirements under the Duty to Co-operate. As a result the Boroughs decided to start again on a new plan.

The Boroughs are now considering the representations made during the consultation and are preparing a revised (proposed submission) version of the Plan on which they expect to consult over the summer and autumn of 2016. In early 2017 the Boroughs expect to submit the NLWP for an examination by a Planning Inspector and the Boroughs expect to be able to adopt the NLWP by December 2017.

3.5.4 Inter Authority Agreement

The Inter Authority Agreement (IAA), which is currently in development, will provide the strategic link between the north London authorities in the development and delivery of the authorities' joint waste strategy, the NLJWS. The IAA is a legally binding document to formalise the relationship between NLWA and the constituent borough councils in the long-term management of wastes, waste contracts and associated finances by defining the aims, objectives, roles and respective responsibilities of the authorities in delivering best value and legislative targets, and establishing a framework to manage the principles and processes of joint working and collaboration. The IAA confirms that the authorities will follow the waste hierarchy in implementing policies to prevent or reduce the amount of local authority collected waste arising as outlined in the NLJWS.

3. Policy and statutory drivers

An IAA assists in:

- governing the relationship between the constituent waste collection authorities and the waste disposal authority;
- clarifying the statutory position;
- agreeing the position on funding (including menu pricing to incentivise waste prevention, recycling and composting);
- allowing a strategic north London wide approach;
- sharing risk appropriately; and
- providing greater certainty in relation to each party's respective obligations.
- The detail is currently being finalised with an expectation that the IAA is going to be signed in 2016/17.

4. Planning a waste prevention programme for north London

4.1 Aim of the North London Waste Prevention Plan

The aim of the North London Waste Prevention 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.

The North London Waste Prevention Plan (referred to as the Plan thereafter) is the practical interpretation of the NLJWS objectives "to minimise the amount of municipal wastes arising" and "to co-ordinate and continuously improve municipal wastes minimisation (and management) policies in north London".

It is estimated that through the two-year waste prevention programme, nearly 20,000 tonnes of waste will be diverted from disposal, representing 1.42% of the current year's waste arisings. The Plan sets out a series of specific actions required to deliver the strategic objectives for waste prevention, which are within the North London Joint Waste Strategy. The focus of the Plan is on local authority collected waste, of which the majority is household waste, the remainder being waste from commercial sources collected by the boroughs.

4.2 Situational analysis

Assessment of the current programme and previously implemented activities was crucial for the development of the Plan, in order to identify any shortfalls in present and planned activity and identify opportunities for improvement[20]. Analysis of the current status of waste prevention initiatives in north London created baselines, identified future objectives and involved critical review of existing data showing waste generation across north London and exploration of the opportunities to reduce its production.

When looking into the best options for north London it is important to keep in mind that NLWA is a single purpose authority focused on waste and any decisions made by Members of NLWA must demonstrably focus on achieving that purpose. As such, chosen activities will focus on benefits to NLWA with regards to tonnage diversion. There will be instances, however, that in connection with higher value[21] services commissioned and procured, projects will need to demonstrate economic and social well-being as well as environmental benefits, under the Public Services Social Value Act (2012).

20 A summary of the 2014/15 waste prevention activity can be viewed at **nlwa.gov.uk/media/waste-prevention-activity-2014-15-brochure-nbsp.pdf**

21 The Act applies to public service contracts and those public services contracts with only an element of goods or works over the EU threshold.

4.3 Development of the Plan

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

- Consultation with the NLWA Chair;
- Consultation with the Members' Recycling Working Group;
- Constituent borough and NLWA officers; and
- Community partners and delivery agents.

The 2016-18 priorities were validated through NLWA's Waste Prevention Exchange seminar in February 2015.

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

- The EC Circular economy package;
- The Waste Prevention Programme for England 2013;
- The Government Review of Waste Policy in England 2011;
- The Resource London programme; and
- 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+).

Where possible, financial and resource implications for delivering the Plan have been outlined as well as anticipated benefits of implementing specific waste prevention activities.

4.4 Setting priorities

Priorities emerged based on reduction of waste streams that:

- are generated in large quantities;
- have high tonnage diversion potential;
- provide financial savings to residents;
- are difficult to reintroduce into production cycles;
- regulatory and legislative instruments already exist;
- have seen a significant increase in generation in the recent years; and
- are emblematic waste streams that provide the opportunity to promote other further in waste prevention and recycling messages.

4.4.1 Priority waste streams

Following the consultation process stakeholders felt that both waste stream and policy priorities are still current and that officers should continue working in accordance with the framework of the latest two-year Plan during 2016-18.

The priority waste streams and policy instruments still match those identified within the Waste Prevention Programme for England, those contained in the more recent EC Circular Economy Package and the waste prevention priorities identified in the Resource London programme. Therefore, the priorities identified in the Plan match priorities set out at all three levels- European, UK and pan-London.

Three priority waste streams emerged with a very high degree of consensus, namely:

- **Food waste;**
- **Furniture (and Waste Electrical and Electronic Equipment); and**
- **Textiles (clothing and non-clothing).**

Food waste is still one of the largest components of the waste stream from north London households, much of which is 'avoidable'. To reduce the overall generation of household food waste it is proposed that the new Plan is still heavily focused on promotion of food waste reduction messages using the '4Es' behavioural change model; enabling people to make a change, encouraging actions, engaging with the community and exemplifying what is being done by others. Food waste reduction can also provide significant financial benefits, as it can save households up to £60 per month so is financially attractive for action as well as the benefit to north London boroughs of saving money by reducing the tonnage for composting or disposal.

Furniture re-use is proposed as a second focal area of the new plan due to its high tonnage diversion potential by means of reuse and preparation of reuse. Work on furniture re-use can divert a significant amount of valuable products from disposal, which is where the NLWA's business case lies, as well as support the social agenda by helping combat joblessness and alleviating poverty. Furthermore, public participation in community exchange events where furniture is exchanged can benefit residents through the direct financial savings achieved by avoiding purchase of more expensive new items. Furniture re-use encourages re-use within the local community, thus helping preserve valuable resources and diverting a significant amount of reusable items from disposal.

Textiles - Apart from its significance in terms of waste diversion[22], textile re-use can assist in reducing adverse impacts of greenhouse gas emissions, energy demand and resource depletion, and can also assist with job creation and other financial impacts that occur in the supply chain. Textile re-use extends product life and reduces the speed with which textiles become waste, and where re-use displaces the purchase of a new item, it reduces the amount of waste produced and provides direct money savings to residents[23]. The activity also facilitates partnership work with third sector organisations, who can partner with the NLWA for the delivery of events.

22 clothing reuse can achieve an estimated £100 million worth (based on 2015 prices) or around 350,000 tonnes of used clothing goes to landfill in the UK every year

23 Swishing has been proven to be a powerful tool to promote textile re-use, divert waste from disposal and contribute to positive change in consumer behaviour, whilst recognising the economic value of textiles and promoting direct money-saving benefits to north London residents

Even though it is proposed that the focus is on the three waste streams listed above, it is proposed that the new waste prevention plan will continue to be complemented by routinely undertaken, smaller scale initiatives which will promote reduction of other waste streams such as paper, plastic bags, nappies, WEEE and packaging.

4.4.2 Policy priorities

The 2016-18 Plan continues to include a multi-instrumental policy and behavioural change approach which uses as a combination of policy measures and action-oriented activities based upon the Defra '4E's' behavioural change model. Defra's '4E's' behavioural change model requires a mix of actions: enabling people to make a change, encouraging actions, engaging with the community and exemplifying what is being done by others. The Plan also includes action to promote a circular economy approach, although it is noted that the EC Circular Economy Package is unlikely to be fully transposed into UK legislation within the timescale of this Plan.

The Plan includes more action-oriented activities encompassing all the above elements and focusing on informational, educational and promotional initiatives that can be applied on a local level on the basis that regulatory and legislative strategies are occurring on a national level. Therefore, promotion of behavioural change messages on a larger scale is something that NLWA could beneficially continue to undertake. Such work at the top of the waste hierarchy is essential and can be undertaken more cost-effectively on an NLWA-wide basis rather than at the level of individual boroughs.

It is also recommended that NLWA continues adding recycling messages as secondary messages to waste prevention activity when appropriate, as this approach was successfully trialed in 2015-16 and proven to be cost effective.

4.4.3 Roles and responsibilities

NLWA and the seven north London boroughs all share responsibility for working towards waste prevention goals in north London, but the partners have slightly different roles.

NLWA will be leading on this Plan, although a number of key stakeholders and partners will participate in all stages, from planning to implementation and reviewing, which are described in Section 6.

The constituent borough councils, as key stakeholders, will be consulted throughout the implementation of the Plan in accordance with the NLJWS objective

to co-ordinate and continuously improve municipal waste minimisation (and management) policies in north London".

The Plan's commitment to arrange quarterly meetings with constituent borough officers will assist in fostering further partnership work on waste prevention.

5 Plan implementation

5.1 Measures and instruments

Measures and instruments employed fall under categories that promote certain types of actions addressing relevant actions of the NLJWS as previously outlined in Table 5:

Technical measures: aim to divert waste directly and reduce consumption of natural resources (e.g. reduction of food waste via public engagement events, reuse and repair via community exchange events, home and community composting).

Economic measures: provide subsidies to encourage waste reduction behaviours (e.g. real nappy subsidies).

Educational measures: change the behaviour of all actors involved by providing information about the environmental impact of waste and the benefits of waste prevention (e.g. intensive work with schools, conferences, exhibitions).

Organisational measures: coordinate with various stakeholders and institutions involved in waste prevention (e.g. responses to consultations, being members of professional organisations such as the Association of Cities and Regions for Sustainable Resource Management).

Table 6 on the next four pages provides detailed information on policy options to include in the programme according to the priority areas and measures discussed and other targeted waste streams.

Activity		Budget		Annual Diversion target (tonnes)	Cost/ tonne diverted	Annual Target/ Key Performance Indicator
		Year 1 2016-17	Year 2 2016-17			
Priority waste streams (food, furniture, textiles)		**£288,000**	**£294,175**			
Food waste	Run an intensive, large scale and high profile food waste reduction programme, including the following: - food waste stalls at large festivals and fairs, supermarkets, farmers markets and shopping centres with a target of 10,000 face to face conversations; - intensive work with a minimum of 30 community groups through workshops, presentations and cascade training sessions; - work with educational establishments, halls of residence and student unions; - 14 lunchtime briefings and stalls in offices and council buildings; - 14 food waste demonstrations and cookery sessions providing residents with skills; - 25 displays in libraries, community centres and empty shop windows; food waste challenge helping residents implement changes in their homes; - 7 events where free lunch is offered to the public from food that otherwise could have been wasted along with advice on food waste reduction; - 7 composting sessions, and composting collection points; - sessions bringing together a mix of people involved in the food industry sharing experiences with residents around food; - work with 7 families that will act as ambassadors for promoting the food waste reduction message before Christmas;					

Activity		Budget		Annual Diversion target (tonnes)	Cost/ tonne diverted	Annual Target/ Key Performance Indicator
		Year 1 2016-17	Year 2 2016-17			
Food waste (Cont)	- waste prevention conference; - advertising, print and social media activity.			6,969	£29.12	application of all elements of the 4E model
Furniture and other bulky waste	Support furniture reuse and repair activity and deliver a range of activities, such as: - 14 community exchange events; - community repair and upcycling activity and exhibition; - work with local 3rd sector organisations; - support the King's Road reuse shop; - promote the national web-based postcode locator - promote community exchange systems such as freegle and freecycle, loan and hire libraries; - press and social media activity.			1,033	£58.07	3% reuse bulky waste across north London
Textiles	Work in partnership with 3rd sector organisations to promote textile reuse, repair and upcycling, including: - 14 clothing exchange, repair and upcycling events; - Production and promotion of a textiles guide; - Work with colleges and universities for the promotion of swishing events; - support existing clothing exchange networks and promotion of services they offer; - print and social media activity.			425	£58.72	4% reuse and repair textiles across north London
Other waste prevention activity		£66,100	£67,753			

Activity		Budget		Annual Diversion target (tonnes)	Cost/ tonne diverted	Annual Target/ Key Performance Indicator
		Year 1 2016-17	Year 2 2016-17			
Waste Education	Run an extensive education programme incorporating waste prevention and recycling messages: - Work intensively with 14 schools to raise awareness of waste prevention and recycling amongst pupils and their families; - offer educational visits to Reuse and Recycling Centres.			506	£49.33	15% reduction in waste at participating schools, 10% reduction at home
European Week for Waste Reduction	Ensure that the three priority waste streams targeted by the current programme are included in eth Week's activity and have a target of a minimum of 5,000 residents participating in the activities.			195	£51.28	5,000 residents engaged
Single use plastic bags	Work with small local retailers and their customers for the promotion of use of reusable bags as opposed to single use plastic carrier bags.			236	£63.41	3% of north London residents use reusable bags
Paper (unwanted mail)	Promote paper reduction and offer guidance to north London residents about how to opt out of receiving unwanted marketing material.			173	£57.65	2% of north London residents opting out
Reference guides	Produce/update the following reference guides: - guide for businesses to reflect current programme and infrastructures and provide information on how small local businesses can reduce the amount of waste they produce and increase recycling; - guide for households with tips and advice on how to waste less and save money when shopping and at the same time be kinder to the environment; - textiles guide to provide residents with information on how they can extend the life of their textiles and at the same time organise their own swishing events.			n/a	n/a	3 reference guides

Activity		Budget		Annual Diversion target (tonnes)	Cost/ tonne diverted	Annual Target/ Key Performance Indicator
		Year 1 2016-17	Year 2 2016-17			
Incentive schemes		£62,000	£62,000			
Real nappies	Provide and promote a financial incentive to parents using reusable 'real' nappies on their babies; continue to pay £54.15 per child using real nappies and support the Real Nappy for London scheme and the cash back scheme by covering the administration costs.			440	neutral	800 vouchers/ cash backs
Grand total		£416,100	£423,928	9,980	£52.51	
Headline figures - Potential diversion through waste prevention activity: 9,980 tonnes - Cost per tonne diverted: £52.51						
Recycling activity						
Recycling engagement and outreach	Delivery of a minimum of 35 events promoting dry and food waste recycling; inclusion of recycling messages in the education activity; development of tools and materials to encourage residents understand the benefits of recycling and recycle more.	£45,000	£46,125			
Waste Electrical and Electronic Equipment (WEEE)	Delivery of outreach face-to-face activity to promote the WEEE scheme to north London residents; promotion of repair services and investment on reuse; inclusion of the WEEE message to educational programmes; leafleting; advertising, press and social media promotion.	zero cost to NLWA				

Table 6: Actions and anticipated benefits

Additionally, NLWA will review opportunities for obtaining external funding which will enable it to enhance waste prevention initiatives or introduce new ones. In particular, NLWA will engage proactively with the Association of Cities and Regions for Sustainable Resource Management (ACR+) for partnership opportunities to secure EU funding.

5.2 Communications support

Ensuring the use of a range of communication tools has formed part of the waste prevention programme since its inception in 2007, where a supporting range of communications tools were implemented to uplift the waste prevention work. Using NLWA's Wise Up to Waste campaign branding, focus was given to a range of initiatives with the aim to encourage minimising waste. A range of tools were used in each project and results ascertained through these will help guide and influence the waste prevention communications work for 2016 – 18.

To enhance the impact of the work detailed in Table 6, the communication focus for the next two years will consider a range of factors including:

- the relatively young demography of north London residents;
- the need to help residents understand the long term benefits of minimising waste in the first instance to establish long term behaviour change;
- the understanding that waste prevention is a very personal behaviour and is driven by beliefs rather than social norms; and
- the barriers to waste prevention.

In order to take account of these considerations, communications will drive towards delivering:

- Digital and social media campaigns;
- Innovative and dynamic advertising campaigns using a range of different tools (printed and digital channels);
- A mixture of high level awareness raising campaigns and support to projects targeting specific demographics; and
- A comprehensive analysis of the impact and effectiveness of the advertising and social media activity and measurement of impact of the overall communications activity.

6. Monitoring and evaluation

The Institute for European Environmental Policy (IEEP) notes[24] *that*

Waste prevention, by its nature, is difficult to measure accurately and there is no current mechanism for doing so at the EU level; data on waste generation, however, appear to suggest that waste prevention is not yet occurring in a significant way. Real breakthroughs are yet to be achieved on either quantitative or qualitative prevention..."

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 the coming year.

To measure impact of an activity that has not occurred, NLWA currently uses a range of metrics drawn from nationally recognised organisations to estimate the diversion that has been achieved as a result of its activity. All activities included in the current Plan will be rigorously evaluated and impact will be measured via a suit of monitoring methods:

- **Physical measure of waste diverted,**
  e.g. weighing of items at community exchange events (impact measure).
- **Survey methods:**
- **Feedback,**
  e.g. from conversations with participants of feedback questionnaires (impact measure).
- **Activity statistics,**
  e.g. number of events, number of attendees, indirect impact of press/social media activity (output measure).
- **Proxy measures,**
  e.g. number of reference packs requested, MPS registrations (impact measure).

24 IEEP (2010) Preparing for the review of the Thematic Strategy on the prevention and recycling of waste

6. Monitoring and evaluation

The nature of the specific waste prevention activity will determine the type of measurement that will be employed. The monitoring and evaluation framework of the current Plan is outlined in Table 7.

Activity		Metric	Measure			
			Physical measurement of waste diverted	Survey methods		Proxy measures
				Questionnaire/ feedback	Activity statistics	
Priority waste streams	Food waste	waste prevented		x	x	x
	Bulky waste	waste reused and repaired	x	x	x	
	Textiles	waste reused and repaired	x	x	x	x
Other waste prevention activity	Education programme	waste prevented and reused	x	x	x	
	European Week for Waste Reduction	waste prevented and reused		x	x	
	Single use plastic bags	waste prevented		x	x	x
	Paper (unwanted mail)	waste prevented			x	x
	Real nappies	waste prevented		x	x	x
	Reference guides	waste prevented, reused and recycled		x	x	x

Table 7: Monitoring and evaluation framework

For estimating the amount of waste that waste prevention activities divert, NLWA estimates the quantity of waste reduced at source. Although the complexity of factors determining waste generation is high[25] we have to assume that there is a constant linear relationship between private consumption and waste generation when estimating the quantity of waste diverted through prevention activity.

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

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 or recycling 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.

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[26] carried out in west London (i.e. an urban area with a similar demographic profile to north London) has shown that food waste campaigns of a similar nature and level of investment to that proposed in the current Plan can decrease the amount of avoidable food waste by 14% 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 that has previously been carried out elsewhere.

To ensure that the monitoring and evaluation regime that NLWA delivers is based on a robust framework, 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. A consultant (Resource Futures) was appointed 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 could use to evaluate the impact of future waste prevention programmes. This work will be updated if a national evaluation methodology is introduced.

The Resource Futures review of NLWA's impact evaluation methodology included consideration of comparable work carried out by other organisations and drew the following conclusions from the assessment:

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

long-term benefits of waste prevention activity are not currently reported, but could include reduced operating and capital costs of waste collection across the north London area."

Given that the review of the prevention plan impact measurement methodology did not identify any major errors or omissions in NLWA's approach to measuring impact it is therefore proposed that the impact of implementing the 2016-18 Plan continues to be measured in the same way as the 2014–16 Plan. However, if the new Plan is failing to deliver on its objectives, consideration will be given to improving the performance of existing activities or looking into other alternatives as well as identifying opportunities for external funding and further partnership working.

26 WRAP (2013) West London Food Waste Prevention Campaign Evaluation Report, available online at **wrap.org.uk/sites/files/wrap/West%20London%20Food%20Waste%20Campaign%20Evaluation%20Report_1.pdf**

7. Reviewing and reporting

The Plan will be thoroughly reviewed and assessed to ensure that objectives are met and activity delivered is in line with local and national priorities. It will also be ensured that regular updates are disseminated to key stakeholders via either face-to-face meetings or electronically.

Progress will be reported at **Member Recycling Working Group meetings**.

Additionally, **bi-annual meetings** will be organised with senior borough officers, Members and NLWA officers to provide update on activity happening in the specific borough and to seek feedback and input from Boroughs.

NLWA will continue to hold quarterly **Waste Prevention Officer meetings** which provide a trusted source of information and a forum for information exchange and best practice sharing around waste prevention, recycling and education.

The '**NLWA Waste Prevention and Other News'** electronic newsletter will continue to be circulated to NLWA Members and officers on a bi-monthly basis to provide an overview of the current activity and an update on future plans as well as to provide opportunities for Members to attend activities that NLWA organises.

At the end of each implementation year a **final report** will be produced as well as a **brochure** that provides a summary of the year's activity which will be widely distributed to all partners and stakeholders, as well as other interested parties and opinion formers.

8. Programme timetable

8.1 Timeline of activity

Within the framework as described in the previous chapter, quantitative and qualitative goals and targets were set to help achieve selected goals. As a result, some clear timescales have been set and a programme timetable was created to showing the expected duration of the different stages and the expected finalisation date of the programme. The programme does not include timings for planning, reporting and reviewing.

Activity	April	May	June	July	August	September	October	November	December	January	February	March
Food waste	■	■	■	■	■	■	■	■	■	■	■	■
Bulky waste						■	■					
Textiles										■	■	
Education programme				■	■	■	■	■	■	■	■	■
European Week for Waste Reduction								■				
Single use plastic bags		■	■									
Paper (unwanted mail)						■	■					
Real nappies	■	■	■	■	■	■	■	■	■	■	■	■
Reference guides	■				■				■			
WEEE				■	■	■	■	■	■			
Recycling	■	■	■	■	■	■	■	■	■	■	■	■

Table 8: Timetable of activity

8.2 Timescales

This Plan replaces the North London Waste Prevention Plan, April 2014 to March 2016. This Plan will be thoroughly reviewed and assessed after its first year to ensure that aims and objectives are being met and a detailed activity programme will then be devised for 2017-18. Following assessment of the Plan's impact and by taking into account any changes in legislation and strategies by the constituent boroughs, Members will be asked to consider a new Plan for the period 2018-20.

9. Programme partners

Major partners who will contribute to the implementation of this Plan need to be identified and experience suggests that waste prevention activities are most effective when a complementary package of measures is in place and there is collaboration between public, private and third sector organisations.

A number of possible partners were identified, which include local authorities, national bodies, local businesses, the community and voluntary sector, as outlined in Table 9.

Type of Body	Potential partner
Local Authorities	**Waste management departments** **Communications departments** **Trading Standards officers** **Education services and academic institutions** **Library services** **Economic regeneration departments** **Housing departments** **Social services** **Health services**
National and Regional bodies	**Waste and Resources Action Programme** **Greater London Authority** **Resource London** **London Textiles Forum** **Defra** **Compliance schemes**
European Bodies	**Association of Cities and Regions for Sustainable Resource Management** **European Regional Development Fund** **Interreg Europe**
Voluntary and Community sector	**London Community Resource Network** **London Reuse Network** **Community Composting Network** **London Environmental Education Forum** **Sustainability and Environmental Education Network** **Real Nappies For London** **Furniture Reuse Network** **Charities**
Local residents and businesses	**Business Improvement Districts** **Waste Management companies and contractors** **Local reuse and repair organisations** **Compliance schemes** **Manufacturers and retailers** **Local press and media** **Community groups and individuals**

Table 9: Project partners

The table opposite also includes secondary stakeholders, whose role may not be vital for the development of the activities, but their contribution could be significant, as they could share good practice and provide valuable feedback.

10. Closing remarks

The North London Waste Prevention Plan 2016-18 focuses on implementation of systematic and structured initiatives to encourage north London residents to adopt more sustainable habits via a variety of measures linked to waste prevention behaviours. Engaging consumers and households to rethink their behaviour is one of the main ways in which waste prevention can be progressed[27] and range of strategies will be utilised to target each waste stream individually as well as a range of practical activities in which residents can actively participate.

A transition towards waste prevention behaviour and an improved use of resources requires an integrated mix of measures. On the basis that regulatory and legislative strategies are occurring on a national level, attaining a general level of public awareness of the environmental impact of waste is a vital first step and the proposed informational and public awareness initiatives are set out as the basis of waste prevention policies in north London for the next two years. A number of promotional strategies are proposed in the Plan to stimulate the community to take action and to promote behavioural change.

NLWA has considered the advancement of equality in the preparation of the Plan and will have due regard to the need to:

- eliminate discrimination, harassment and victimisation;
- advance equality of opportunity between persons who share a relevant protected characteristic and persons who do not share it;
- foster good relations between persons who share a relevant protected characteristic and persons who do not share it;

in the implementation of each action plan.

This plan has identified key activities and priorities in planning and implementing the projects. The project partners as well as a number of secondary partnerships will play a crucial role to ensure that the identified activities will be actively supported.

Finally, a robust approach to monitoring and evaluation of the effectiveness of the Plan as it is implemented will assist in assessing the effectiveness of the work and help to overcome problems and limitations that may arise.

27 Defra (2009) Household waste prevention evidence review