

Waste management

The Environment Committee is investigating aspects of London’s waste generation, handling and disposal, to inform the development of work under the Mayor’s Environment Strategy and other policies. The three aspects for particular focus are:

- Waste reduction and the circular economy
- Recycling
- Energy from waste

The investigation will seek to build on past work of the committee and identify recommendations to the Mayor and perhaps other London actors.

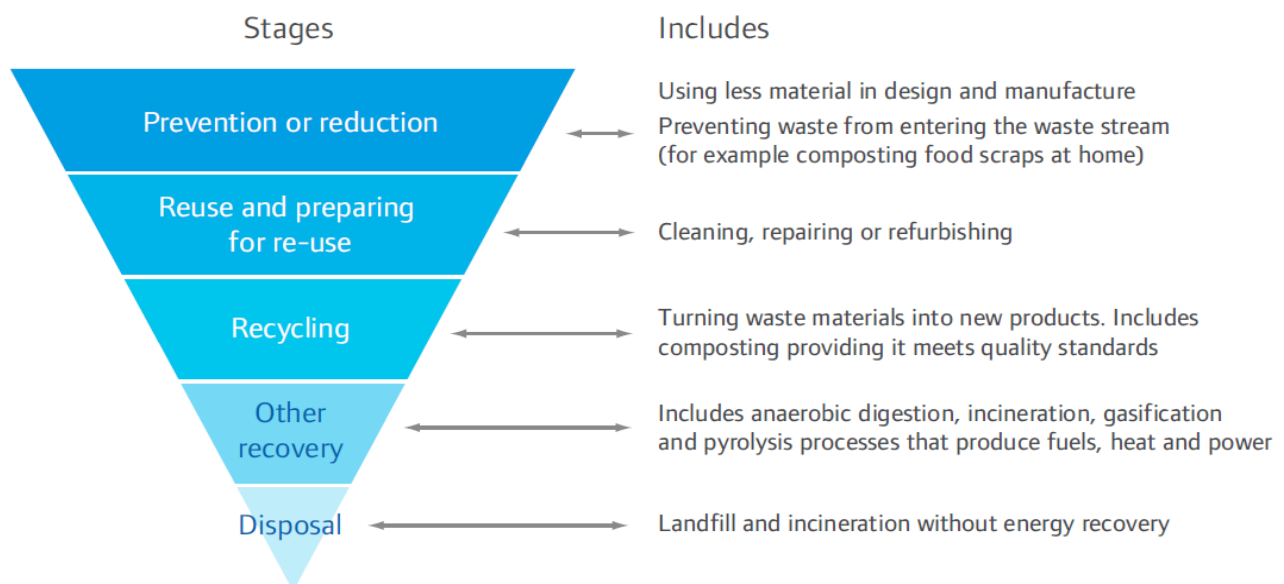
Background

London generates a huge amount of waste (about 20 million tonnes in 2010¹), of many types from earth and cement to plastics, paper and organic material. The main destinations for London’s bulk waste are recycling, incineration as fuel to generate electricity and/or heat buildings, and landfill. Of course the amount of waste to manage can be reduced by using less material in the first place, or by passing goods on to another user, rather than discarding them with the rubbish.

The waste hierarchy

The ‘waste hierarchy’ places these alternatives in a preferred order based on their environmental and quality of life impacts.

The Waste Hierarchy



Source: Government Review of Waste Policy in England, June 2011.

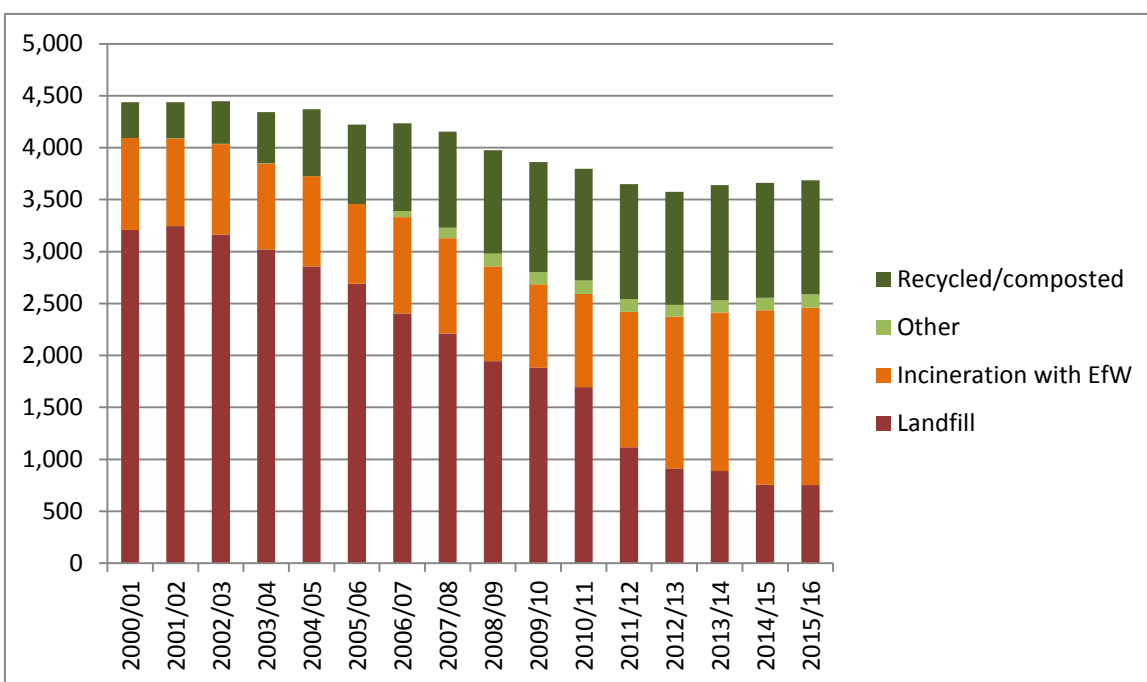
¹ Of which, nearly half was construction, demolition and excavation waste (CDE), nearly a third commercial and industrial waste, with municipal (mainly household) waste only 20%. Most CDE waste is re-used or recycled in some form; municipal waste has the lowest recycling rate and the highest landfill. Data from the (previous) Mayor’s Business Waste Strategy <https://www.london.gov.uk/what-we-do/environment/environment-publications/mayors-business-waste-management-strategy> (see p25) and Municipal Waste Strategy https://www.london.gov.uk/sites/default/files/municipal_waste_final.pdf (see p26)

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Since 2000, landfill (at the bottom of the hierarchy) has reduced considerably, but in recent years waste reduction and recycling (high to medium in the hierarchy) have stagnated and further waste diverted from landfill has instead shifted to incineration (low in the hierarchy).

Chart 1: Stagnation in London’s recycling and the rise of incineration

Collected waste by management method, London (thousand tonnes)



Source: [Defra Local Authority Collected Waste statistics](#)

Mayoral work

The Mayor has strategies for municipal waste and business waste. These date from the previous administration and are to be replaced by an overall Environment Strategy including waste management – a consultation draft is expected in early summer 2017.

Non-GLA actors

Local authorities are a crucial player in waste management, providing or commissioning either individually or in partnership household waste collection, handling and processing services. Private waste management companies provide many of these services on behalf of local authorities and also provide commercial waste services, which are not included in municipal waste collections.

The private sector also is responsible for most of the economic activity that brings materials into the economy; it can therefore affect material amounts and types, and the way they are put together and used.

There are a number of third sector campaigning groups and also charitable, voluntary and social enterprise operators in service delivery, especially in sectors such as re-use and repair.

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Previous Assembly work

The Environment Committee has a body of past work including reports on 'on-the-go' recycling (2009²), waste to energy (2009³), incentives for household use of recycling collections (2011⁴), variations in recycling rates across boroughs and housing types (2011⁵) and separate food waste collections (2015⁶). The committee responded to the previous Mayor's draft waste strategies (2010⁷ and 2011⁸), and covered waste and recycling collections, in its recent report on the environmental implications of London's long-term growth (2016⁹).

² <https://www.london.gov.uk/about-us/london-assembly/london-assembly-publications/go-recycling-case-mayoral-actions>

³ <https://www.london.gov.uk/about-us/london-assembly/london-assembly-publications/where-theres-muck-theres-brass>

⁴ <https://www.london.gov.uk/about-us/london-assembly/london-assembly-publications/carrots-and-sticks>

⁵ <https://www.london.gov.uk/about-us/london-assembly/london-assembly-publications/waste-not-want-not-review-why-recycling-rates>

⁶ <https://www.london.gov.uk/about-us/london-assembly/london-assembly-publications/bag-it-or-bin-it>

⁷ <https://www.london.gov.uk/about-us/london-assembly/london-assembly-publications/assembly-response-mayors-draft-waste>

⁸ <https://www.london.gov.uk/about-us/london-assembly/london-assembly-publications/assembly-response-mayors-draft-business-waste>

⁹ <https://www.london.gov.uk/about-us/london-assembly/london-assembly-publications/growing-growing-gone-long-term-sustainable>

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Waste reduction and the circular economy

Waste reduction

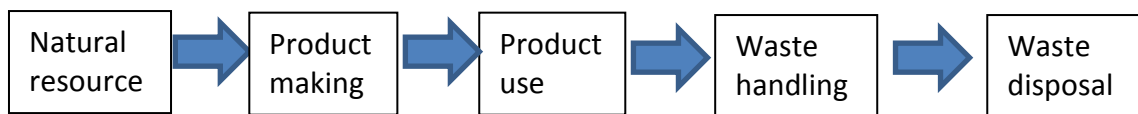
Less waste can be generated by reducing the materials used in making and packaging goods. Product and packaging design can also make recycling easier or harder – for instance in whether single materials are used or composites. Reducing input costs has driven many firms to innovate for more lightweight products, but other commercial considerations can lead to over-packaging or to using composite materials.

An additional incentive to reduce materials use could be ‘producer responsibility’. This includes various forms of obligation for producers either to take back waste arising from their products, or to pay for the cost of managing the waste. Appropriate forms of producer responsibility obligations could drive greater innovation in lightweight and easy to handle materials.

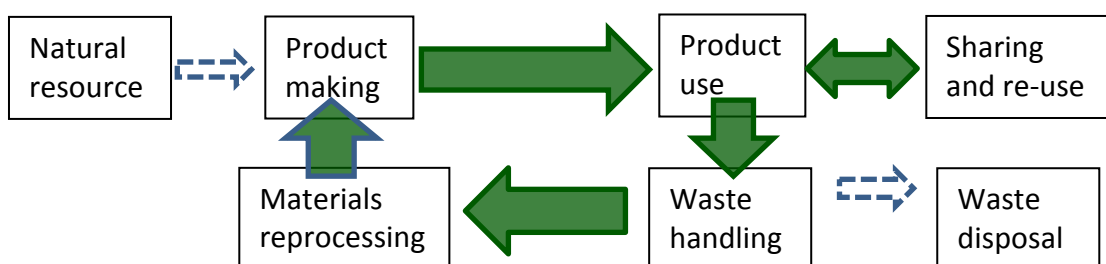
With modern technology, some goods are being ‘de-materialised’, such as electronic books, games and music.

The circular economy

Another newer way of thinking about waste management contrasts a circular system with a linear. The old linear system extracts materials, uses them once, and discards them. This depletes natural resources and brings high economic and environmental costs per use.



A circular system cycles between use, re-circulation and use again. Extraction of new materials and waste disposal are both minimised, bringing economic gains such as reduced exposure to commodity prices, as well as environmental and sustainability benefits.



The circular model highlights the low sustainability of all processes that lose materials from the circle, including burning for energy and ‘down-cycling’ (recycling into a lower-grade product). In waste hierarchy terms the circular economy focuses more strongly on the top levels. Within them, there is a greater emphasis on choosing re-use, repair and recycling processes that minimise the processing costs of each re-circulation cycle. The model also brings out the potential for consumer benefits per unit of material to be maximised by sharing, renting and re-use.¹⁰

¹⁰ These alternatives to owner-consumption are returning to fashion and being enabled by new technologies, with the rise of businesses like Zipcar, Airbnb and cloud computing.

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The arguments for circularity are also being made in economic terms. WRAP¹¹ has estimated that the demand for labour and skills in reprocessing and other circular economy activities could create 87,000 circular economy jobs in London by 2030. The London Waste and Recycling Board (LWARB) has identified opportunities in sectors where London is strong, including digital, finance, media, higher education, and government. These kinds of services will be required to facilitate the business and economic shifts to circularity, including increased renting and leasing, alternatives to manufacturers' guarantees for repaired and re-used products, new designs, marketing of new forms of consumption, and culture change.¹²

Mayoral work

LWARB is currently preparing a 'circular economy route map', building on work from 2015. Publication is expected in June, setting out materials sectors in which progress can be made, and opportunities for short, medium, and long-term actions for the GLA, LWARB and others. Sadiq Khan's manifesto statement that he would see waste as an opportunity to create jobs in re-use, repair, re-manufacturing and materials innovation is in line with this work.

Focus for investigation: circular economy route map

A productive angle on the circular economy could be to look at LWARB's circular economy route map. LWARB could explain the document and the committee could discuss its content and how it will be implemented, and/or partner organisations, including perhaps private sector operators, could be called in to set out their response.

¹¹ The Waste and Resources Action Programme, a charity working on waste reduction and the circular economy

¹² http://www.lwarb.gov.uk/wp-content/uploads/2015/12/LWARB-circular-economy-report_web_09.12.15.pdf

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Recycling

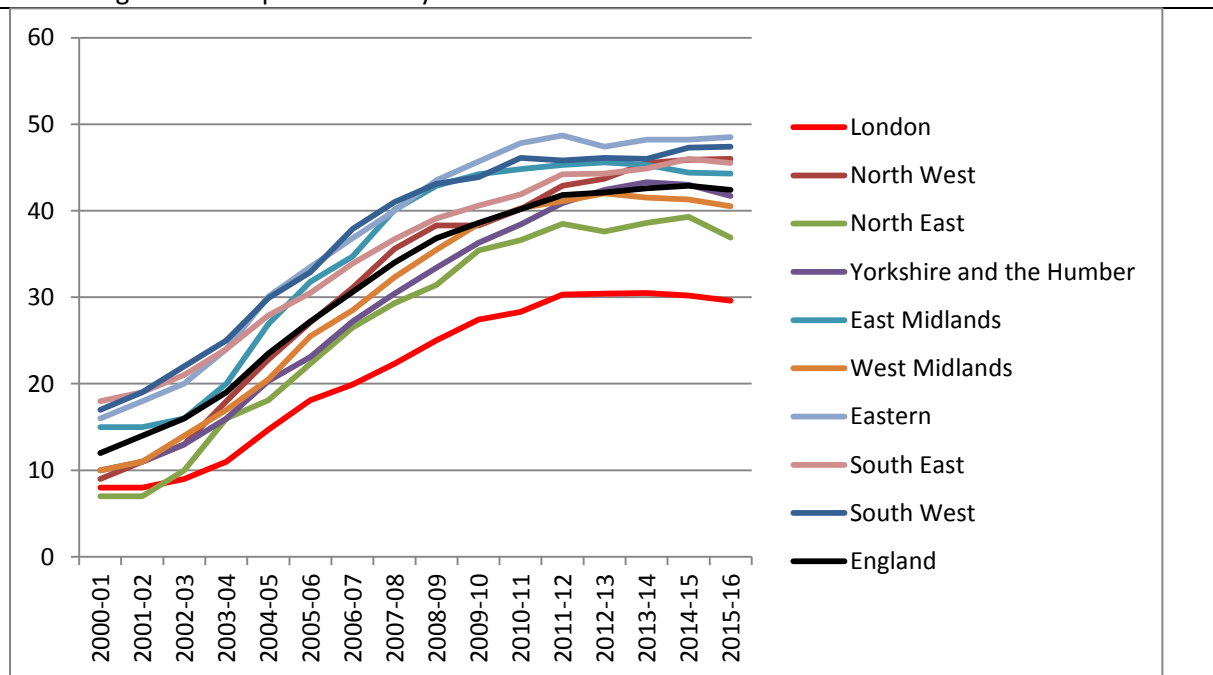
Once materials enter the waste stream, recycling is the most preferred management option, saving on the use of new materials and carbon emissions. The previous Mayor set a target to recycle 45 per cent of London’s municipal waste by 2015 – but performance stalled at about 30 per cent.

Regional and local comparisons

The English average recycling rate was 42 per cent in 2015-16 and London has had the lowest rate of all English regions since 2003, slipping further behind over that time.

Chart 2: London has fallen behind other regions in recycling

Percentage of municipal waste recycled



Source: Defra [Local Authority Collected Waste](#) tables

There are also wide variations between London boroughs. Broadly, inner London boroughs with many flats have lower recycling rates, while outer boroughs with larger gardens have higher rates, but there are specific variations from this overall pattern, which may be related to local policy decisions.

One relevant aspect of local policy is the separation out of recyclable materials in households and the collection and handling of these separated streams. Boroughs vary in their recycling collection regimes: some systems are easier to use than others, and the difference between boroughs can confuse people who move home across boundaries. Separation also has implications further down the waste stream: in the quality of the waste stream reaching recycling facilities, and how much further sorting it may require before that stage.

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Food and organic waste

The Environment Committee has previously investigated the management of food waste. It found that the most sustainable destination (as with other organic waste, also known as volatile waste) was anaerobic digestion (AD). This converts much of the carbon content into methane, which can be efficiently used as fuel (replacing natural gas in energy generation, heating and transport), and also leaves a compost-like organic residue that can be used as fertiliser. The investigation also found that separate collection of food and organic waste was the best way to direct it to AD, rather than landfill or incineration. For these reasons the committee is treating AD at the recycling level of the waste hierarchy, as the most preferred destination for food waste once it is created by households or businesses.¹³

Mayoral work

Sadiq Khan in his election manifesto said he would get back on track with hitting the 65 per cent recycling target by 2030, and the Deputy Mayor for Environment and Energy confirmed to the committee that there was also a target to recycle 50 per cent of household waste by 2020.¹⁴

The Resource London project, a partnership created by LWARB and WRAP, supports boroughs to achieve recycling targets. Its objectives include more consistent and more efficient waste and recycling services. It commissioned a model, the London Recycling Routemap, to understand the costs and effects of different collection scenarios and to inform its work with boroughs.

Focus for investigation: consistent and improved household recycling collections

Looking at the question of separation at source, the committee has already recommended that the potential be explored for boroughs to work towards more consistency in recycling waste streams and collection arrangements. The Resource London project takes this recommendation forwards.

The committee could discuss this work, to explore potential benefits and any drawbacks of the approach, plus the difficulties and barriers to moving in this direction. Attention will be paid to the benefits (and disbenefits) of waste partnership arrangements, long-term waste contracts, and the role of local authorities and waste contractors.

The committee could also consider whether increasing segregation of volatile matter, in particular food waste, allows for greater energy recovery via anaerobic digestion, and potentially the reduction in waste collection frequency of the residual dry waste matter.

¹³ <https://www.london.gov.uk/about-us/london-assembly/london-assembly-publications/bag-it-or-bin-it>

¹⁴ Environment Committee meeting, 13 October 2016

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Waste disposal: incineration and landfill

As it is not anticipated that 100% recycling will be reached in the near future, there will remain some need to dispose of residual waste. The main options are incineration and landfill. Both of these disposal options destroy or lose materials and produce pollutant emissions such as carbon dioxide, so they are low in the waste hierarchy. With the goals to reduce waste and increase recycling, a medium to long term waste strategy can look forward to future reductions in the tonnage of waste requiring these forms of disposal.

Landfill, at the bottom of the hierarchy, is discouraged by high taxation (over £80 per tonne for municipal and general commercial waste). It has now shrunk to a small proportion of London's municipal waste.

Incineration, however, has grown in recent years. When the energy released by incineration is recovered for use (as it is at least to some extent for all of London's waste), it partly qualifies as a renewable energy source, and so may qualify for incentives.

Focus for investigation: energy from waste

There are various environmental implications of processes to generate energy from waste. The greenhouse emissions may be below those from a combination of landfilling the waste and generating the same energy by other means, but may be above those from recycling the waste. There are also emissions of local toxic air pollutants such as particulates, NO₂ and perhaps other toxins arising from components of the waste. The investigation could bring out these implications.

Waste-to-energy contracts may oblige authorities to send a certain tonnage of waste to incinerators or other facilities for some period of years. The investigation could look at whether this will come to stand in the way of increasing recycling or reducing waste arisings, and what action could be taken to ensure that future waste strategy effectively and always prioritises the upper tiers of the waste hierarchy.

Different forms of energy recovery also have different energy yields and other environmental implications. More energy can be recovered if, after generating electricity, the waste heat is also taken via heat networks to warm properties in the area. As well as simple incineration, there are also other energy generation technologies, such as gasification and pyrolysis, which may offer a different balance of energy generated against environmental and other costs.

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Terms of reference

To explore the Mayor's role in reducing the costs and environmental impacts of London's waste and how it is handled, with a particular focus on:

1. Reducing overall waste (informed by the 'circular economy route map' LWARB is expected to publish)
2. The potential to develop greater consistency in household recycling and food/organic waste collections between London boroughs
3. The role of energy from waste plants (incinerators and potentially others) in managing residual waste

Impact

Category	Evidence of impact
Challenging	Evaluating whether existing policies are making fast enough progress at reducing waste and shifting waste management up the hierarchy. Highlighting GLA (or other) strategies and programmes that require improvement.
Influencing	Identifying areas where the Mayor can improve or develop strategies and programmes for waste management. Encouraging other actors to support these goals.
Engaging	Providing additional channels for stakeholders to contribute to City Hall policy making in this area. Contributing to public and stakeholder awareness of positive actions on waste and the circular economy.

Stages of the investigation

1. **Desk research** (ongoing). Could include:
 - Review of recent circular economy papers
 - Review of work towards waste collection convergence
 - Analysis of waste management statistics
2. **Calls for views and information in writing** (June). We are especially keen to hear from:
 - The waste management industry, including collection services, recycling and reprocessing providers, energy recovery companies
 - The materials, manufacturing, packaging and retail industries
 - Waste authorities and waste partnerships
 - Public and third-sector bodies involved in promoting waste reduction and sustainable waste management
 - Academics and other independent experts
 - Members of the public (or groups representing them) with views to contribute on aspects of the materials cycle, from purchase and use, through re-use and sharing, to waste sorting and disposal

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Specific approaches will be made to various organisations. The investigation is also open to contributions from any other organisations or individuals. Guideline questions are set out overleaf but are not intended to restrict input: more general contributions are also welcomed.

Social media could be used to engage with a wider audience and to generate short-format input or survey responses.

3. **Potential site visit/s** (to be confirmed). It could be informative to visit sites involved in generating, handling or disposing of waste, if such are identified during the project.
4. **Meetings** (summer and autumn). It is suggested that one meeting be devoted to each of the topics of waste reduction/circular economy, recycling collections and incineration/waste disposal – in that order to reflect the journey of materials through the waste cycle, and the order of the waste hierarchy. The committee has meeting dates approximately one a month, with a break in August. Given other business provisionally agreed for June and September, the most likely months for meetings on this topic are July, October and November (note that, since the June meeting is the first of a new Assembly year, the timetable is subject to agreement by the committee at that meeting).
 - a. The first (July) meeting, on waste reduction and the circular economy, could focus on the Circular Economy Route map which LWARB is then expected to have published. The committee, with other guests with expertise in waste reduction and in the new business models and practices in the emerging circular economy, could examine the proposals in the route map and how they can be taken forwards.
 - b. A second meeting (October), on waste collection and handling, could focus on the question of whether London should look to converge towards more consistent models for collecting recyclables and, if so, how. The meeting could include waste authorities and waste management contractors, including food waste collectors, and experts working on models for waste collection regimes, including frequency of collections.
 - c. A final meeting (November), on energy from waste, could look, with waste authorities again, energy-from-waste operators, and stakeholders with knowledge of the environmental impacts, at what role energy from waste has in London's future waste management.
5. **Report** (likely to be published in early 2018). The committee plans to publish a report setting out findings and recommendations from the investigation. The report may identify issues for the Mayor to consider as he develops programmes and other work under the new Environment Strategy.

Interim outputs could be produced, such as letters, videos or mini-reports, on elements of the project. This may be useful in the window to influence policy after the publication of the draft Environment Strategy in summer.

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Guideline questions for written views and information

1. As the Mayoral administration reviews the GLA's policies and programmes, what are the issues and challenges in seeking to reduce the costs and environmental impacts of London's waste and how it is handled? You may wish to consider:
 - a. Reducing the materials content of goods and packaging
 - b. Re-use, repair, sharing and other 'circular economy' methods for keeping used goods out of the waste stream
 - c. How to increase recycling rates and improve household recycling collection systems and Londoners' use of them
 - d. How to increase anaerobic digestion and the segregation of volatile waste matter from residual dry waste
 - e. Disposal of waste that is not recycled, and the role and environmental implications of energy from waste by incineration or other methods

If you could provide or point to specific evidence or evaluations that would be very helpful.

Views and information about issues and challenges varying across London, or in specific parts of London or for specific groups of Londoners, are welcomed.

2. How, and how well, do the Mayor's current policies and programmes promote the sustainable management of London's waste?
3. What new or different ideas and approaches could improve the Mayor's policies? Are there examples from other parts of the country or the world?

If you could provide or point to specific documents setting out these ideas or approaches this would again be very helpful.

4. How should the Mayor change policies or programmes?

Consideration could be given to the Environment Strategy, the Resource London project, the London Energy Plan, the London Plan and other relevant policies and programmes.