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***TOWARDS A  
WASTE REDUCTION  
PLAN FOR LONDON***

**Prepared for London Waste Action**  
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A consultancy and support service from the  
UK's national centre for municipal waste  
statistics, surveys and solutions  
**M.E.L RESEARCH LIMITED**

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## FOREWORD

**London Waste Action** is pleased to publish “*Towards a London Waste Reduction Plan*”, written by MEL Research. The amount of waste produced in London has increased by almost 30% over the last 15 years. London cannot continue to produce waste in the amounts that it has been doing. Its waste management capability cannot keep up and it is damaging the environment and economy of the region. Our Report shows how the responsibility for the situation is shared by all of us whether at work, in recreation or at home.

Waste reduction is part of a bigger picture of waste management and we promote a broadly based strategy to manage the increasing tide of our waste. As well as targeting waste reduction London Waste Action is mounting a major programme to develop new and increased outlets for recycled waste materials so that market demand will stimulate increased recycling well beyond the current 13% level in the household waste sector. We are facilitating a public debate over the second half of the year with particular emphasis on the urgent need to find large capacity alternative treatment methods to the disposal by landfill of the majority of London's 14 million tonnes of waste. We hope to produce a consensus on the key issues and the main constructs of the way forward. We are also working with the National Waste Awareness Campaign to broaden understanding of the issues in a nationally co-ordinated and constructive manner.

It is not enough to find different ways of dealing with the waste we produce. We must aim to produce less. In this report we go back to the sources of waste, and pose the question to commerce, industry and the householder of how they can each stop the remorseless use and disposal of resources into the waste stream.

The report presents information about the waste produced by all sections of the London community. It will enable each sector to understand more fully the role it plays in London's waste problem and how it compares with other sectors. It identifies the sectors which produce most waste and consequently where a decrease would have the most dramatic effect on the total amount. However, in all areas there is a problem which requires attention. Almost exclusively the solutions require actions to be in conjunction with others for them to have an effect.

This is the first occasion since 1995 that such comprehensive sector by sector information about who produces London's waste has been published. It is the fullest picture we can produce based on the most up-to-date information available.

The report is a step *towards* a Plan for reducing waste. The reduction plan itself must come from the people involved in each sector. They are best placed to understand what they do and are best placed to work out the ways in which they can run their businesses and their homes with lower levels of waste generation.

Over the next 6 months we shall be asking every sector of the London community, and particularly those which produce the greatest amount of waste, to debate and agree the steps which it can take to restrain their wastage of resources and to reduce the amounts of waste. By the end of the year we aim to incorporate these steps into London's First Waste Reduction Plan – a plan which will have been formed by those in the communities of commerce, industry and homes and who will be the ones to implement it. Such a Plan will provide improved information and address short, medium and long range targets for waste reduction in each sector. It will take account of predicted trends in commercial and household activity patterns, and the impact of waste on the environment and ways to reduce it, including the use of other resources such as energy.

We publish this report therefore with a challenge to which we hope all sectors of London will respond. We want to hear from you about how you are already controlling your waste and how we can work with you to support and enhance your efforts.

Colin Roberts  
Chief Executive

London Waste Action

July 1999

## EXECUTIVE SUMMARY

The waste produced by London's householders has increased by 29% in the past 15 years. And although more waste is being recycled, there is still an extra half a million tonnes annually needing disposal compared to 15 years ago.

London's households however produce less than a quarter of all the waste generated in the capital. Most of it comes from commercial business, public administration and the manufacturing sector. It is estimated that in total over 14 million tonnes of waste is produced from all sources in London and remarkably little is known about it - what it consists of, whether it really is increasing, and what if anything is being done to curb it.

If the evidence of household waste is any guide, the likelihood is that recycling alone will not be enough to tackle the long term problem of waste. There is only one fundamental and sustainable solution, which is to address the problem at source.

This document is the first step along this road. *'Towards a London Waste Reduction Plan'* sets out a profile of the main 'waste producing sectors' in London. The aim has been to identify the priority sectors where reducing waste will have the biggest 'bottom line' benefit.

Households, the retail and wholesale business sector (shops, supermarkets and their suppliers) and the general business services sectors, together create half the total amount of London's waste. There are clear steps each of these sectors can take to reduce the waste they produce and this will have a substantial impact on the problem as a whole.

A second tier of waste producers has been identified - the financial services sector together with public administration (including government) and the hotel, restaurant and catering industry. These produce a sixth of the whole, and action amongst these sectors will significantly contribute to the overall goal of waste reduction.

Manufacturing industry (component manufacture plus the assembly of finished goods) is responsible for a seventh of the total. While not the largest player, this sector is still important and has an added influence in being the originator of most of the material products that pass through retailers and into the household dustbin. Action in this sector not only reduces its own waste, but with foresight (such as through the design and production of less waste-creating goods) it can aid the service sector and householders themselves in the battle to reduce their own wastes.

From this it is evident that while we have divided waste producers into sectors, the most effective results will be obtained by these sectors acting in concert to tackle the problem as a whole. The London Waste Reduction Plan can only be properly delivered through a partnership in which all play their respective roles in acting towards the common goal.

A key step now is for all parties to discuss and debate the options before in the end deciding on a balanced, fair and achievable set of actions, both immediate and in the long term. This document *'Towards a London Waste Reduction Plan'* is intended as a basis for a period of consultation out of which should emerge the fully developed Waste Reduction Plan.

## **1. Overall Position and Priorities for Action**

### **1.1 *The need for waste reduction to complement recycling***

Despite the increasing effort and investment expended on recycling, London's waste continues to grow. The waste produced by London's householders has increased by 29% in the past 15 years. And although the amount being recycled has expanded there is still an extra half a million tonnes annually needing disposal, either through incineration or transported for disposal to land, compared to 15 years ago.

It continues to make sense for there to be more recycling, but more recycling alone is not likely to stem the continuing proliferation in the amount of waste needing disposal. It makes no sense to rely solely on recycling when there are other things that can be done to cut the amount of waste. So London's local authorities, working in partnership with leading industries in London through London Waste Action, are developing a Waste Reduction Plan for London. This will run alongside the Capital Challenge Fund investment in household waste recycling. It will also form a central plank in the impending development of an overarching integrated waste management strategy for London grounded in the statutory waste management and regulation system.

The idea is that by both reducing the amount of waste generated in the first place, and recycling as much as practicable of what gets produced, we can turn the tide and start cutting down the amounts needing disposal.

This report is the First Annual Waste Reduction Plan for London. Its main objectives are to describe as fully and completely as possible, the amounts of waste being generated by all the various kinds of social, technological and economic activities going on in the Capital - householders, private companies of various kinds, the public services, tourism - any activity that results in the production of waste.

As well as describing how much waste there is and where it comes from, the First Annual Waste Reduction Plan document sets out an overall strategy for waste reduction, and lists some immediate actions that will start to make a difference. The Plan also contains recommendations on what needs to be done to get better and more accurate data on waste production and how to track changes over time. Although the quality of data will improve soon when the Environment Agency's national waste production survey is published, existing data on the amount of waste generated is not very accurate and we cannot target and monitor the effectiveness of the Waste Reduction Plan without ensuring there is better quality information.

### **1.2 *An overview of London's waste and the priority wastes for reduction***

This First Annual Waste Reduction Plan has involved estimating the total quantity of waste currently generated in Greater London and the sources or origins of that waste. Figure 1 shows these estimates in the form of a pie diagram. The methods used for this estimation are reported separately in a Technical Paper prepared by the consultants to the Waste Reduction Plan, M.E.L Research Limited. They have resulted in an estimate that nearly 14 million tonnes of waste is currently generated in Greater London (before considering quantities being recycled).

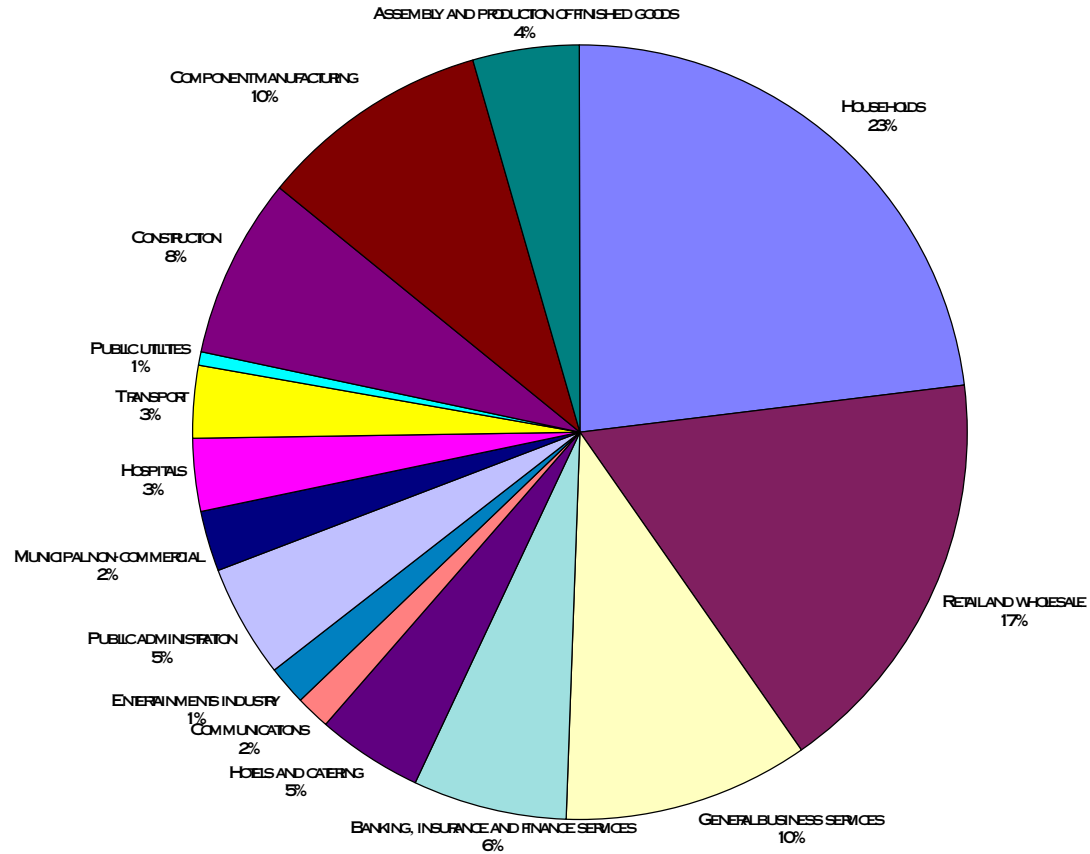
To summarise what leads to most of London's waste, we have divided the waste producing sectors of activity into 16 different groups. These are based on the Standard Industrial Classification 1980 (SIC) system. The quantities and percentages attributable to each of these major waste producing sectors of activity are summarised in Table 1 below and the following Figure 1. The groups are presented broadly in order of total quantities produced, but also having regard to the logic of the 'supply chain' flow discussed in the following section, tracking back from wastes discarded by householders, to the wholesale and retail industries supplying them, the service sector, public administration, and finally the

manufacturing industries originally producing the goods ending up as wastes, but in their own activities also creating production wastes.

**Table 1 : Summary of estimated annual waste production in London and its principal sources (1996/97 data)**

WASTE PRODUCING SECTOR	TONNES PER ANNUM	% OF TOTAL
Households	3,300,000	23
Retail and wholesale	2,444,576	17
General business services	1,490,400	10
Banking, insurance and finance services	873,600	6
Hotels and catering	654,791	5
Communications	215,628	2
Entertainments industry	202,699	1
Public administration	684,572	5
Municipal non-commercial	350,000	2
Hospitals	452,249	3
Transport	418,642	3
Public utilities	102,786	1
Construction	1,078,000	8
Component manufacturing	1,379,829	10
Assembly and production of finished goods	625,577	4
Raw materials extraction and processing	6,367	0
<b>TOTAL</b>	<b>14,279,716</b>	<b>100</b>

### Sources of London's Waste



These estimates show that nearly a quarter (23%) of all London's waste is produced in the form of household waste. The retail and wholesale business sector (shops, supermarkets and their supply infrastructure) is not far behind at 17%, followed by general business services (publishing, printing, PR and marketing, and business services such as cleaning). When banking, insurance and financial services sectors are added, these three key sectors out of the 16 in this list, together produce half of all London's waste.

The remaining sectors account for the other half. Waste from the public services sectors amounts to about an eighth of the total amount of waste generated in London. Public administration (5%) and healthcare (3%) are the largest contributors to this. There is an opportunity for these sectors to give a strong lead in waste reduction and make a significant contribution to the overall goal.

The start-of-chain manufacturing sectors producing only a seventh (14%) of the total, much smaller than the UK average for this sector. The dominance of the commercial sectors in London together with the waste produced by London's households, shows the importance of creating a joint strategy between the public and the consumer industries in tackling waste.

## 2. The Strategy for Waste Reduction

### 2.1 A framework for action on waste reduction

Recycling and energy recovery are useful and beneficial activities once the waste gets produced, but for the most part they are 'actions of last resort'. The key to waste reduction is taking actions that prevent waste being produced in the first place.

To create a sound scientific rationale for waste reduction, there needs to be a simple definition of what it means and a 'framework' that sets out the common actions that will serve the objects of waste reduction.

For the purposes of this Plan, we define 'waste' as material of no remaining value to the waste producer. Waste is material that requires physical removal from the premises of the waste producer - in this Plan it does not include waste that is removed from the producer's premises by means of the sewerage system, and it does not include material that the waste producer burns on the premises. Companies and householders alike do of course remove wastes this way, but to keep this Plan sharply focussed we are concentrating only on the waste materials that have to be physically collected from the waste producer's premises.

The objective of the Waste Reduction Plan is to identify and promote all those actions that can be taken to reduce the amount of waste material that needs to be collected from the waste producer's premises. In line with thinking behind the government's the draft National Waste Strategy, this covers both reduction in absolute quantities and also the reduction of environmental problems associated with the waste.

Recycling under this definition is not therefore 'waste reduction' because it does not affect the amount of waste requiring removal. Recycling, as understood here, is simply another way of treating the waste after it is removed from the waste producer's premises.

Wastes vary enormously in what they are and how they are produced. A key feature of a sound waste reduction plan is therefore to provide a simple and clear common framework within which to consider any specific waste stream. There are five specific and different types of action that can achieve waste reduction which can be applied equally to household, commercial or manufacturing wastes:

#### a) reduce material inputs

For firms this means changing their purchasing so they buy things that eventually produce less waste. The same holds true for householders, for example buying re-chargeable batteries or returnable containers instead of disposable ('one trip') ones.

#### b) process change

For businesses, this means switching to a 'production' technology that is intrinsically less waste-producing. This concept applies equally to commercial firms (e.g. through moving to the 'paperless office') as well as to manufacturing. For householders the equivalent is for example, growing bedding plants from seed instead of buying ones in trays from garden centres.

#### c) improve process efficiency

For commercial businesses this might involve streamlining the way things are done such as cutting down the number of times goods are packed and unpacked (thereby reducing packaging waste).

Amongst manufacturing firms it may mean adapting the existing process so that for example, there are less spillages. For householders this could include more efficient food preparation and making sure consumer goods are fully used up before discarding (e.g. aerosols, toothpaste)

d) increase waste re-use

Materials that might otherwise be discarded as waste, can be re-used on the producers premises. In industry there are already large quantities of items such as off-cuts and surpluses that can get fed back into the production process but the evidence is that with a bit more thought much more of this could be done. For householders there are many ways that 'another use' can be made of waste items.

e) waste exchange

Waste that someone else wants is not a waste - it becomes a resource. Waste exchange is sometimes seen as just another form of recycling but in this Plan we are including waste exchange as an aspect of waste reduction because it is really about preventing discarded materials from entering the 'wastes economy', by establishing that the material has economic trading value.

These five key actions, applying equally to commerce, manufacturing and households:

- reduce materials inputs
- change the production process
- increase the process efficiency
- re-use waste on site
- encourage waste exchange

are the core foundations for the London Waste Reduction Plan. Some of the actions are quick and easy to bring about. Others (such as substituting a wholly new production process in a large manufacturing operation) are long term and require possibly up to 10 years to complete the associated R&D and re-investment. Examining these options must start now however if the benefits are to be experienced in the foreseeable future. The Plan therefore contains both short term actions with immediate effects, and longer term strategic actions the benefits of which may not be fully felt for a generation.

## **2.2 The seven priority waste producing sectors in the plan**

From the above it is evident that while the principles of the five key actions are the same whatever waste producing activity they are applied to, the practical actions are going to be very different in different contexts. We have already highlighted the differences between what commerce and industry can do and what householders can do. To extend this further and to prepare a more particular set of actions, we have focussed this Plan on London's seven key priority waste producing sectors. Taking account of the summary statistics presented in section 1, we propose that these should be:

- households
- the wholesale and retail sector
- commercial businesses in the service sector
- the public services including government
- construction and demolition activities
- manufacturing industry

- and 'wastes that escape' the established systems of waste management and control, such as flytipping

The logic to this structure is two-fold. Firstly, it starts from the larger waste producing sectors (households, wholesale and retail) and moves to the smaller ones. Secondly and more importantly from the viewpoint of waste reduction, it moves 'up the chain' in terms of materials flow - householders dispose of wastes they acquire through retail and wholesale, and the services sector, which are in turn supplied by products from manufacturing.

There is a very important 'supply chain' concept here. Integral to the political and democratic aspects of the Waste Reduction Plan will be for there to be a mechanism whereby Londoners, as the people ultimately paying for waste treatment and disposal and exposed to the environmental impacts of waste, can exert a pressure 'up the chain' and influence the wider waste generation process. The structure of the sections in this document is intended to reflect this concept.

The next sections of the Plan take each of these sectors in turn. In each case:

- we look at the available evidence on the current amounts and types of waste created in that sector
- we propose possible 'indicators' that will help to define and measure progress in waste reduction
- we propose some short term actions that can immediately start to 'make a difference'
- we look ahead to the strategic steps that need to be taken over the years to achieve a sustained and long term effect
- and we look at proposals for further developing and monitoring the Plan in relation to that specific sector.

The data contained in this Plan provide a very important cornerstone for the whole approach. We have wherever possible presented the data for the six geographical waste planning areas within London. These are defined in terms of groups of the London Boroughs:

**North London Waste Authority** (Barnet, Camden, Enfield, Hackney, Haringey, Islington, and Waltham Forest)

**East London Waste Authority** (Barking and Dagenham, Havering, Newham, and Redbridge)

**Western Riverside Waste Authority** (Hammersmith and Fulham, Kensington and Chelsea, Lambeth, and Wandsworth)

**West London Waste Authority** (Brent, Ealing, Harrow, Hillingdon, Hounslow, and Richmond upon Thames)

**South London Waste Disposal Group** (Bromley, Croydon, Kingston upon Thames, Merton, and Sutton)

**Other Un-grouped London Boroughs** (Corporation of London, Bexley, Greenwich, Lewisham, Southwark, Tower Hamlets, and Westminster)



### 3. London's Households

#### 3.1 Household Waste collected by the London Boroughs

Compared to other types of waste, the amount of waste that householders put out for their Councils to collect is relatively well measured. There are however a plethora of sources for these statistics. Data have been collected from local authorities by CIPFA (the Chartered Institute of Public Finance and Accountancy) for many years and their data provide the only standard source for identifying overall trends. We have used this data source to extrapolate changes in overall household waste quantities over the past 15 years. Not every authority reports its data to CIPFA and recently the Department of the Environment, Transport and the Regions (DETR) have introduced an Annual Household and Municipal Waste Survey which has become recognised as the most comprehensive, reliable and definitive source of standardised data. London Waste Action has also obtained data from most authorities in London and this source has in particular been used as the means for measuring recycling performance. For this report we have however referred to the most recently published national DETR statistics on household waste for 1995/96, as set of data this allows comparison with other regions nationally.

The published DETR statistics for 1995/96 show (Table 2) the total amount of household waste generated in London and other regions. London's annual total is 3.1 million tonnes.

**Table 2 : Total annual weight of household waste generated in London and other regions (million tonnes) 1995/96**

HOUSEHOLD WASTE SOURCE	London	Met Districts	Non-met Districts	Wales	TOTAL
Refuse collection vehicles	2.3	3.3	9.8	0.9	16.2
Other household collections	0.3	0.5	0.8	0.2	1.8
Civic amenity sites	0.4	0.9	2.7	0.2	4.2
Recycling and composting	0.1	0.1	1.2	0.1	1.5
<b>TOTALS</b>	<b>3.1</b>	<b>5.4</b>	<b>15.3</b>	<b>1.5</b>	<b>25.9</b>

The total of 3.1 million tonnes reported in this DETR survey should be taken as the definitive baseline and starting point for the waste reduction plan. Although there is obviously already a waste management goal for increasing the quantities recycled, the London Waste Reduction Plan should be founded on a separate, specific quantified target relating to this core indicator of household waste production, no matter what the recycling rate may be. As seen shortly, the total quantity of waste produced in London has been steadily increasing for some time and so the immediate goal should be to slow and then halt the increase. There should be a target and date set for achieving this, recognising that for some time the quantities generated are still set to grow. In the longer term it should become a goal to reduce the quantities, firstly back to the 1995/96 baseline, and subsequently below it. Targets will need to be set for this too.

The figures in Table 2 do not include commercial trade wastes collected by the local authorities. These wastes are counted in the later sections of this plan under the headings related to these commercial and trade sectors. However, it is recognised that a certain fraction of the household waste stream does nevertheless stem from commercial sources. Some of the CA waste is trade 'in disguise', and self-employed people working from home often deposit waste generated through their work (for example, office paper or organic waste from small private catering operations) in the household waste container.

The quantities of household waste generated in any area are related first and foremost to the numbers of households living in that area. Population movements can therefore have a dramatic effect on the amount of household waste that gets collected. It would be wrong to set targets purely on the total quantities generated, because any substantial increase in the numbers of households in London would over-ride even the most successful waste reduction initiative. We therefore propose that a second indicator should be set, based on the average waste generated per household.

The 1995/96 baseline position for London in terms of total household waste generated per week is set out in Table 3, which is the 'per household' equivalent to Table 2.

**Table 3 : Total annual average weekly weight of household waste generated in London and other regions (kg/hh/week) 1995/96**

HOUSEHOLD WASTE SOURCE	London	Met Districts	Non-met Districts	Wales	TOTAL
Refuse collection vehicles	13.9	13.5	14.6	15.9	14.4
Other household collections	2.6	1.4	1.1	1.1	1.7
Civic amenity sites	2.5	3.8	3.8	3.6	3.7
Separate recycling collections	1.0	0.7	0.8	1.7	0.9
<b>TOTALS</b>	<b>21.9</b>	<b>21.6</b>	<b>20.4</b>	<b>23.1</b>	<b>20.7</b>

The baseline statistic of 21.9 kg/household/week averaged over 52 weeks a year, should be taken as the second core measurement unit against which household waste reduction should be measured. It will be important to set, agree and monitor performance against both these targets - total waste, and waste per household. This is because changes in household demography - for example trends towards smaller households - could otherwise result in artificially lower 'per household' waste production rates.

Table 3 shows that Londoners have the highest per household waste production rates in England. They are exceeded only by Welsh households where the waste production rates are inflated by the continuing use of solid fuel heating. There are some other notable differences between London and the rest of England - for example there is less Civic Amenity waste collected, but more waste through other collections such as the special street collections and the bulky household waste collection service.

### 3.2 The Composition of London's Household Waste

To identify the items in the household waste stream that are most worth targeting for waste reduction, it is necessary to examine data on the composition of London's waste. Table 4 shows our best estimate of the composition of the waste collected by refuse collection vehicles.

**Table 4 : Estimated composition of London's household waste (Packaging in shaded cells)**

PRIMARY LEVEL	Mean %	SECONDARY LEVEL
Paper & Card 26.8%	18.2	Newspapers and Magazines
	4.0	Other Paper
	1.4	Cardboard
	3.2	Other Paper/Card Packaging
Plastic Film 1.1%	0.3	Packaging
	0.5	Other Non-Packaging
	0.3	Refuse sacks & carrier bags
Dense Plastic 6.1%	1.9	Bottles
	1.2	Food Packaging
	2.3	Non-food Packaging
	0.7	Non-packaging
Textiles 2.5%	2.5	Natural / man made fibres
Miscellaneous Combustible	0.2	Cork
	0.5	Unclassified
	4.1	Disposable Nappies, Sanitary /Clinical I

5.9%	0.8	Wood
	0.3	Wood Packaging
Misc Non-comb'st	7.3	Unclassified
Glass 8.1%	3.8	Clear Glass Packaging
	2.9	Green Glass Packaging
	0.9	Brown Glass Packaging
	0.5	Other Glass Non-packaging
Ferrous Metal 4.6%	2.4	Food Cans
	0.9	Beverage Cans
	0.6	Other Packaging
	0.3	Batteries
	0.4	Other Non-packaging
Non ferrous Metal 0.9%	0.2	Aluminium foil
	0.3	Beverage cans
	0.4	Other Packaging
Organics 33.7%	11.2	Green Garden Waste
	4.5	Woody Items
	8.5	Green Kitchen Waste
	6.4	Putrescible Animal Matter
	1.7	Mixed Putrescibles
Fines 5.5%	5.5	Particles < 10mm screen.

The data are taken from the LPAC/Environment Agency adjusted compositional estimates for London, modified by giving consideration to the results of recent (1997/98) household waste analyses undertaken in parts of London by M.E.L Research. This is not the whole picture because as shown in Table 3, a third of all London's household waste arises through other routes such as bulky collections and analysis of these waste streams is almost non-existent.

Table 4 also shows the estimated proportion of London's waste that consists of used packaging. Over a fifth (23.2%) of the quantity by weight consists of post-consumer packaging and this shows the importance of a partnership initiative between householders, the packaging industry and wholesalers / retailers, in jointly seeking to reduce household waste. This proportion is somewhat higher than the estimated average national fraction of around 20%, and this may well reflect London's' higher than average rate of per capita disposable household income.

The role of packaging should not however be overplayed. Packaging is of course a very visible and tangible fraction of the waste stream particularly in terms of volume, rather than weight. Used packaging makes up over half the volume of the average bin. Once compacted for treatment or disposal to landfill however, it is the total weight that is the best indicator of the demand placed on disposal capacity.

In that regard therefore, it is important to note from Table 4 that the organic fraction of the total weight (estimated at 33.7%) contributes half as much again as the packaging fraction. Actions to cut the organic fraction of household waste are therefore an even higher priority than actions to cut the packaging fraction. Little effort has been given to considering how this might be done, and a priority should be given within the Waste Reduction Plan to the specific steps householders might take to reduce their production of organic wastes.

It is also true that effective packaging helps to reduce waste. The role of packaging is not simply to promote goods - its core purpose is to ensure goods are transported safely and securely from the point of production to the point of consumption. Breakages and spoilt goods caused by inadequate packaging create waste. Any waste reduction strategy needs to balance the merits of reducing packaging against the risks of creating additional waste through ineffective packaging.

### 3.3 Trends in the Quantities of London's Household Waste

The above statistics have been presented in order to benchmark London's current household waste production in terms of quantity and composition. We have noted earlier that waste has steadily increased, and by using CIPFA statistics we have made an estimate of the trends in total household waste generation over the past 15 years. Table 5 shows the estimated total household waste tonnages for each sub-regional grouping, and table 6 shows the 'indexed' waste production level assuming the baseline year 1982/83 = 100.

**Table 5 : Trends in total household waste generated over the past 15 years (tonnes / annum)**

AUTHORITY GROUP	1982/83	1987/88	1992/93	1997/98
North London Waste Authority	574,295	618,337	764,052	731,701
East London Waste Authority	244,509	274,668	341,216	306,941
Western Riverside WA	346,790	397,816	408,827	439,286
West London Waste Authority	390,828	465,085	664,891	539,240
South London WD Group	354,830	387,779	433,299	457,730
Un-grouped Boroughs	604,920	675,912	823,664	780,346
<b>LONDON TOTAL</b>	<b>2,516,172</b>	<b>2,819,597</b>	<b>3,435,949</b>	<b>3,255,244</b>

**Table 6 : Trends in total household waste generated over the past 15 years (base 1982/83 = 100)**

AUTHORITY GROUP	1982/83	1987/88	1992/93	1997/98
North London Waste Authority	1.00	1.08	1.33	1.27
East London Waste Authority	1.00	1.12	1.39	1.26
Western Riverside WA	1.00	1.15	1.18	1.27
West London Waste Authority	1.00	1.19	1.70	1.38
South London WD Group	1.00	1.09	1.22	1.29
Un-grouped Boroughs	1.00	1.12	1.36	1.29
<b>LONDON TOTAL</b>	<b>1.00</b>	<b>1.12</b>	<b>1.36</b>	<b>1.29</b>

The figures in these tables show that London's household waste as reported in the CIPFA statistics, has grown by 29% in the past 15 years. This is an annual compound increase of about 1.7% averaged over this period. The data are before taking into account the effects of recycling, and are therefore consistent with the definitions of waste production given earlier in this document. The data are however vulnerable to inconsistencies in reporting and the need for estimates to be made for authorities not providing CIPFA returns. We recommend that in future, the annual DETR survey data should be used as the basis of monitoring.

The trends reported here show that the fastest increase in waste generation took place in the decade 1982/83 - 1992/93. In total waste increased by 36% over this period - an annual growth rate of over 3%. Since 1992/93 there have been reported reductions in waste. This is particularly marked in the case of the West London Waste Authority area, although the very sharp increase in 1992/93 might reflect an over-reporting of waste in that period. The most recent statistics, over the period of the past two years, have shown year on year increases of between 2% and 5%. Thus while there may have been a dip in waste production in the mid-period of the past five years (for example around the period of the 1995/96 DETR survey data reported earlier), the figures would appear to be on the increase again. It has been argued that one possible explanation for this is the effects of the landfill tax in provoking an increased

diversion of non-household waste into the municipal collected household stream, although definitive proof of this has yet to be established.

One of the key actions in the Waste Reduction Plan should be to gather more detailed investigation of year-on-year trends during the past decade, to get a better fix on what has been going on in recent years and how this might relate to future waste reduction targets. We really need to distinguish between cyclical effects - such as the periods of economic growth in disposable incomes that have a consequent short term impact on waste generation - and structural effects where strategic and sustained long term trends are at work. The Waste Reduction Plan should of course contain measures catering for both these circumstances but it is important to know and understand more than we do at present of the forces at work within the system we are seeking to control and influence.

### **3.4 Key Actions**

For the first year of the Waste Reduction Plan, the following key actions are recommended, as set out in the following table:

ACTION AREA	PRIORITY ACTIONS
1. Better data	<p>a) Further data analysis from local authority records for the past 5 - 10 years should be undertaken to clarify the direction and causes of current trends</p> <p>b) A detailed compositional analysis of London's household waste should be undertaken focussing on items within the waste stream with potential for waste reduction not just recovery</p> <p>c) This survey should specifically incorporate CA waste and bulky waste collection given that very little is known about these waste sources that generate a third of all household waste</p>
2. Setting targets	<p>a) Subject to final amendments should better data emerge, a baseline figure should be agreed and a scheduled set of reduction targets set for the next 10 years</p> <p>b) Waste reduction targets and associated actions should be set specifically for the three largest components of the household waste stream:</p> <ul style="list-style-type: none"> <li>• packaging</li> <li>• organic waste</li> <li>• newsprint</li> </ul>
3. Waste reduction	<p>a) A London-based initiative to reduce generation of post-consumer packaging should be launched in partnership with the major retailers and the packaging industry</p> <p>b) The printing and publishing industry should be invited to take part in a programme designed to reduce the total quantity of newsprint</p> <p>c) Further development of home composting and 'low maintenance gardening' should be encouraged as a means of reducing the organic waste fraction, in partnership with key garden centre chains and major supermarkets</p>
4. Monitoring	<p>a) A survey of household purchasing behaviour should be undertaken to monitor changes in waste related behaviour</p> <p>b) A Panel of households representative of London residents should be monitored annually to check on changes in the quantities and composition of household waste production</p> <p>c) A London-specific sub-analysis of the annual DETR Municipal Waste Statistics should be undertaken and reported every year</p>

## 4. Commercial Businesses

This section of the Plan looks at waste produced by commercial businesses. It follows a similar format to the household waste section, except that there are no reliable statistics on composition and historic trends. It is remarkable, given that commercial businesses taken together produce nearly twice as much waste as all London's households, that so little is known about it. Better data is a key priority in this field, because without the data we cannot understand and manage the waste production process better.

### 4.1 Retail and wholesale - 17% of the total

Estimates of the waste originating from the retail and wholesale sector are provided in Table 7 below.

**Table 7 : Quantities of waste from the retail and wholesale sector, 1996/97**

AUTHORITY GROUP	Tonnes	Percent
North London Waste Authority	439,000	18
East London Waste Authority	180,000	7
Western Riverside WA	301,000	12
West London Waste Authority	461,000	19
South London WD Group	336,000	14
Un-grouped Boroughs	728,000	30
<b>LONDON TOTAL</b>	<b>2,445,000</b>	<b>100</b>

This is the single biggest waste producing sector after London's households themselves, accounting for 18% of all the waste generated in Greater London. The link between post-consumer household waste and the wholesale and retail distribution sector has already been highlighted and the potential for a targeted waste reduction initiative identified. A major contribution to waste reduction will be the increasing use of packaging 'take-back' schemes within the wholesale-retail supply chain. The London Waste Reduction Plan should seek to create a co-ordinated London-wide initiative aimed at providing a national lead in this field. The feasibility of rolling out the 'greening the high street' model being developed by SWAP in Ealing should also be examined.

Householders are often reluctant to embark on waste reduction initiatives themselves when they perceive the retail sector to be responsible for the production of the waste that householders then are left to get rid of. The implementation of the Packaging and Packaging Waste Directive has placed on the wholesale and retail trade a considerable obligation in terms of the recovery of packaging and schemes for achieving this will rest to a considerable degree on householders being prepared to separate out the recovered items for recovery.

It is very important therefore that an 'alliance' of mutual support is created between the industries who in effect 'supply' packaging to the public, and the public themselves. To achieve this there should be a highly publicised London-wide Waste Reduction Initiative where the industry sets its own waste reduction targets as part of a 'deal' in which the public is expected to play its part by participating in waste recovery schemes. London Waste Action is ideally placed to facilitate this initiative, although it will require the active involvement of a wider range of partners together with London's media and communications industry.

Within this arrangement there should be agreed actions to be taken by the retail distribution industries and the public aimed at genuine waste reduction. These initiatives could take a number of forms of mutual interest to the supplier and consumer, for example:

- promotion of re-usable carrier bags instead of mass distribution of plastic carriers (designer suppliers could exploit this marketing opportunity)

- promotion of the merits of bulk purchasing (the larger the purchase volume, the lower the packaging-to-product ratio)
- promotion of the waste reducing merits of selected pre-packed foods (where the food waste trimmings may be more effectively removed and re-used in the food production stage)
- promotion of re-usable and long life products (e.g batteries, light bulbs) which although premium priced, result in less long term cost and waste, possibly incorporating London-wide discount schemes negotiated and badged under the London waste Action umbrella.

A London consumer / producer 'panel' should be set up under the remit of the London Waste Reduction Plan to formulate and agree these actions and how they are to be promoted.

#### **4.2 General business services - 10% of the total**

Other business services include 'high value added' industries such as advertising and PR, marketing, printing and publishing, as well as 'low value added' services such as cleaning, hair dressing and agency work. Estimates of the waste originating from these general business services are provided in Table 8 below.

**Table 8 : Quantities of waste from general business services, 1996/97**

<b>AUTHORITY GROUP</b>	<b>Tonnes</b>	<b>Percent</b>
North London Waste Authority	300,000	20
East London Waste Authority	74,000	5
Western Riverside WA	244,000	16
West London Waste Authority	189,000	13
South London WD Group	139,000	9
Un-grouped Boroughs	546,000	36
<b>LONDON TOTAL</b>	<b>1,492,000</b>	<b>100</b>

For London this business sector is actually very important, contributing 11% to the total waste generated. It is second to retail and wholesale as a non-household source of waste. In further developing the Waste Reduction Plan during year 1, it is recommended that a better 'fix' on the waste produced in this sector is obtained. It should be sub-divided into the high and low value sectors and appropriate initiatives developed separately for each.

A further opportunity exists in the shape of the 'trade bodies' which are found in this sector. This includes bodies as diverse as manufacturing trade associations, industry representative groups and trade unions, most of which have an active base in London. Getting these bodies signed up to an approved waste reduction initiative opens up the prospect of rolling out a consequent series of linked actions in the workplaces of their subscribing members. A year 1 priority action should be to set up demonstration projects illustrating good practice in this sort of area.

#### **4.3 Banking, insurance and financial services - 6% of the total**

Estimates of the waste originating from the financial services sector are provided in Table 9 below.

The un-grouped Boroughs, which include the Corporation of London and Westminster, dominate this business sector. Together with the West London waste Authority area, they create over 60% of the total

amount of London's waste from this sector. The sector itself accounts for 6% of the annual total and is the sixth largest of the 15 waste producing activities listed in Table 1 and Figure 1. Given the strong geographical concentration of these activities, there is a good case for targeting a co-ordinated waste reduction initiative at this high profile and making it a key feature of the Waste Reduction Plan.

**Table 9 : Quantities of waste from the banking, insurance and financial services sector, 1996/97**

<b>AUTHORITY GROUP</b>	<b>Tonnes</b>	<b>Percent</b>
North London Waste Authority	158,000	18
East London Waste Authority	37,000	4
Western Riverside WA	77,000	9
West London Waste Authority	110,000	13
South London WD Group	76,000	9
Un-grouped Boroughs	418,000	48
<b>LONDON TOTAL</b>	<b>876,000</b>	<b>100</b>

Much of this waste is potentially recyclable and certain Boroughs are actively engaged in recovery operations. So far as waste reduction is concerned, we would highlight three key actions:

- increased emphasis on the waste reducing benefits of electronic communications
- development of initiatives for the recovery and re-use of used electrical and electronic equipment, using the work of the Corporation of London as a model for public-private partnership
- a combined supply chain initiative to increase take-back of 'delivery packaging' of stationery supplies, electrical and electronic goods
- a co-ordinated London-wide waste exchange scheme for the re-use of office furniture by new business start-ups and growing young companies; and also by the voluntary sector, which is disproportionately less likely to prevail in the areas where most high quality disposal are generated.

#### **4.4 Hotels and catering - 5% of the total**

Estimates of the waste originating from the hotel and catering services sector are provided in Table 10 below.

**Table 10 : Quantities of waste from hotel and catering sector, 1996/97**

<b>AUTHORITY GROUP</b>	<b>Tonnes</b>	<b>Percent</b>
North London Waste Authority	118,000	18
East London Waste Authority	48,000	7
Western Riverside WA	81,000	12
West London Waste Authority	123,000	19
South London WD Group	89,000	15
Un-grouped Boroughs	195,000	29
<b>LONDON TOTAL</b>	<b>654,000</b>	<b>100</b>

This sector contributes 5% to the total waste production in London. It appears relatively widely distributed geographically and is not simply concentrated in the entertainments centres of 'west-end' London.

The two key waste ingredients to consider are the packaging element in the supply of goods and materials, and the generation of waste food. The former could fall under the umbrella of the packaging initiative with greater concentration on multi-trip secondary packaging from wholesaler to buyer. The latter presents an opportunity for separate collection of biodegradable waste but so far as waste minimisation is concerned, opportunities are more limited. This is an important area for waste management, given that a future Landfill Directive may require the effective removal of the biodegradable components from wastes going to landfill. This may prove easier to achieve for

households than for the hotel and catering sector where the opportunities for on-site composting are often non-existent. Some advisors are moving towards promoting sink/sewer disposal of organics rather than removal as 'waste'. This could be seen as an effective route for waste reduction provided that the waste treatment infrastructure has the capacity to meet the additional demand in an environmentally acceptable way.

This is a growing business sector and in order to ensure an effective 'waste reduction' parameter is established, we propose that an action item in the First Annual Plan is to convert the tonnage estimates above, into 'wastes per occupied hotel bed' and 'wastes per catering customer served'. Targets should then be set in partnership with the industry representatives, to stabilise and then reduce this figure.

#### 4.5 *The entertainments industry - 1% of the total*

Estimates of the waste originating from the entertainments sector are provided in Table 11 below.

**Table 11 : Quantities of waste from the entertainment services sector, 1996/97**

<b>AUTHORITY GROUP</b>	<b>Tonnes</b>	<b>Percent</b>
North London Waste Authority	40,000	20
East London Waste Authority	10,000	5
Western Riverside WA	33,000	16
West London Waste Authority	25,000	12
South London WD Group	19,000	9
Un-grouped Boroughs	75,000	37
<b>LONDON TOTAL</b>	<b>202,000</b>	<b>100</b>

This sector, which includes museums, cinemas, sports and leisure entertainments, produces relatively little of London's waste directly although the knock-on effect on the creation of litter and street sweepings collected by the local authority should not be forgotten. From the viewpoint of the 'mass problem' it is not appropriate to make this sector a priority. Within the context of the London plan however there may be publicity benefits from certain specific initiatives, such as using returnable containers with waste reduction advertising messages, with the proviso that they are explicitly linked to other activities that have a more substantial impact on the 'bottom line' of waste production.

## 5. The Public Services

### 5.1 *Public administration authorities as waste producers - 5% of the total*

Estimates of the waste originating from public administration authorities, including government and local authorities, are provided in Table 12 below.

**Table 12 : Quantities of waste from public administration, 1996/97**

<b>AUTHORITY GROUP</b>	<b>Tonnes</b>	<b>Percent</b>
North London Waste Authority	145,000	21
East London Waste Authority	56,000	8
Western Riverside WA	96,000	14
West London Waste Authority	94,000	14
South London WD Group	92,000	13
Un-grouped Boroughs	201,000	29
<b>LONDON TOTAL</b>	<b>684,000</b>	<b>100</b>

This sector of activity produces 5% of London's waste, the same as the hotels and catering sector. The type of waste will be very different however, with a high proportion of paper, card, delivery packaging and the waste from office clearances and refurbishment.

Many of the waste reduction actions relevant to the banking, insurance and financial services sectors are also relevant here. The actions taken by the offices of government are of course particularly important in terms of setting an example. Because of their status as public bodies, there is a considerable opportunity to influence events by promoting affiliation to a London-wide waste reduction initiative to which all public corporations should be invited to subscribe. This could be a way of formulating the kind of operational 'network' of waste exchanges that for example, supply voluntary and community groups with the usable office furniture and IT equipment as discussed previously

### 5.2 *Hospitals, health and social care services - 3% of the total*

Estimates of the waste originating from the hospitals, medical, health and social care sector are provided in Table 13 below.

**Table 13 : Quantities of waste from the hospitals, medical and healthcare services sector, 1996/97**

<b>AUTHORITY GROUP</b>	<b>Tonnes</b>	<b>Percent</b>
North London Waste Authority	96,000	21
East London Waste Authority	36,000	8
Western Riverside WA	63,000	14
West London Waste Authority	63,000	14
South London WD Group	61,000	14
Un-grouped Boroughs	132,000	29
<b>LONDON TOTAL</b>	<b>451,000</b>	<b>100</b>

Several initiatives are already under way examining waste reduction in the healthcare sector. Although amounting to only 3% of the total waste stream, there is significant potential to cut waste in this sector.

It has been estimated that up to a third of all hospital waste is used packaging. The Thames Region of the Environment Agency is examining waste reduction options in NHS Trusts and the London Waste Reduction Plan should specifically incorporate this work. A key actor in this field is the NHS Supplies operation who have considerable influence on the procurement, packaging and delivery of goods supplied to NHS Trusts. A waste reduction packaging plan should be agreed with the regional NHS Supplies depot for London specifically focussing on packaging. An important ally in this initiative is the Association of British Healthcare Industries who are working in association with NHS Supplies nationally and with the Environment Agency. They should be invited to work with the London Waste Reduction Plan to set targets for other waste reduction initiatives, such as the use, where safety is assured, of re-usable rather than disposable medical equipment.

Waste generation from this sector should be re-expressed in terms of an appropriate 'per unit' parameter. We would recommend that each NHS Trust (including the community NHS Trusts as well as hospital Trusts) in London should prepare for the London Waste Reduction Plan a statement of current waste production 'per consultant bed episode' and 'per outpatient consultation'. The subsequent targets for packaging and for used supplies should be expressed in these per unit terms.

### 5.3 **Transportation and communications services - 3% of the total**

The transportation and communications sector includes the companies running public transport (buses, taxis, trains, the underground, airports), as well as haulage companies, postal, telecommunications and courier firms, car fleet maintenance companies, motor vehicle repair garages. Estimates of the waste originating from the transportation and communications sector are provided in Table 14 below.

**Table 14 : Quantities of waste from the transportation and communication services sector, 1996/97**

<b>AUTHORITY GROUP</b>	<b>Tonnes</b>	<b>Percent</b>
North London Waste Authority	97,000	23
East London Waste Authority	26,000	6
Western Riverside WA	31,000	7
West London Waste Authority	116,000	28
South London WD Group	33,000	8
Un-grouped Boroughs	114,000	27
<b>LONDON TOTAL</b>	<b>417,000</b>	<b>100</b>

The transportation and communication services produce, like healthcare, about 3% of the total. Again while this is a relatively small sector in these terms, there are considerable opportunities for waste reduction. In particular we would highlight the use of returnable packaging in the distribution of component supplies for vehicle maintenance. There are vehicle repair trade initiatives under way on this and the London waste reduction Plan should explicitly incorporate a London-wide initiative as a UK 'first' in implementing this approach.

Similarly a more rigorous approach to the possible re-use of motor oils, solvents, tyres and batteries should be encouraged especially in the large private and public fleet maintenance sectors. The road haulier and London cab industries should also be targeted in this campaign and jointly agreed waste reduction targets and verifiable monitoring systems should be set during the course of year 1.

In the long run the closed circuit recovery of end-of-life vehicles should be an aim. High profile companies such as London Underground and the major London bus and private hire companies should

be approached with a view to securing the first City-wide integrated public transportation waste reduction plan, with commitment over an agreed period to move towards a closed circuit end of life transportation vehicle recovery operation for all London's public transport.

While not a large waste producing sector, it is by its nature a very visible and publicly supported area of economic activity. The publicity value of initiatives taken in association with this sector are therefore potentially considerable. By virtue of its size and the dedicated nature of its public transport services, London could become the world's first City to incorporate a comprehensive waste reduction plan into its integrated transportation strategy. The new London authority will have a considerable interest in transportation issues and it is a high priority for the Waste Reduction Plan to incorporate a factor that relates to waste as a key environmental dimension of an environmentally sustainable transportation strategy for the Capital.

#### 5.4 **The public utilities - 1% of the total**

Estimates of the waste originating from the public utilities sector are provided in Table 15 below.

**Table 15 : Quantities of waste from the public utilities sector, 1996/97**

<b>AUTHORITY GROUP</b>	<b>Tonnes</b>	<b>Percent</b>
North London Waste Authority	not sign.	0
East London Waste Authority	10,000	10
Western Riverside WA	2,000	2
West London Waste Authority	7,000	7
South London WD Group	25,000	25
Un-grouped Boroughs	57,000	56
<b>LONDON TOTAL</b>	<b>101,000</b>	<b>100</b>

The public utilities - principally sewerage, water, electricity and gas supply - are very small contributors to London's waste, assuming for the purposes of this Plan that the generation of treated sewage from water treatment plant is excluded from its scope. Most of the waste is generated in the 'un-grouped Boroughs' and for the next phase of the Plan it might be worthwhile giving attention to the specific location of arisings in these areas in order to identify whether any small but potentially 'low hanging' waste reduction opportunities exist.

## 6. Construction and Demolition

### 6.1 Wastes from construction and demolition - 8% of the total

Estimates of the waste originating from the construction and demolition industries are provided in Table 16 below.

**Table 16 : Quantities of waste from the construction and demolition industries, 1996/97**

<b>AUTHORITY GROUP</b>	<b>Tonnes</b>	<b>Percent</b>
North London Waste Authority	277,000	26
East London Waste Authority	95,000	9
Western Riverside WA	105,000	10
West London Waste Authority	193,000	18
South London WD Group	194,000	18
Un-grouped Boroughs	214,000	19
<b>LONDON TOTAL</b>	<b>1,078,000</b>	<b>100</b>

This is a relatively large waste producing sector, generating 8% of London's waste. Concerns about fly-tipping have raised the public profile of this waste stream to high proportions but it is important to note that this Plan has highlighted several waste streams of much greater overall significance in tonnage terms.

Construction and demolition waste is one of the most elusive of all sources of waste. This is because of the essentially transient and temporary nature of its arising, and the mobile nature of the waste producing operations. The estimates reported here are drawn from work published separately for DETR by the Arups consultancy. These are the best available figures but may well be under-estimates of the true position in London. The limitations of this work are well known however and while recognising the pioneering value of the estimation process, it is recommended that in the early stages of the waste reduction strategy a renewed attempt is made to get a better and more reliable estimate.

Wastes from these activities are also highly dependent on the swings in the economic cycle and associated investment and development decisions. The notion of an 'annual' waste quantity arising with any degree of predictability is at odds with the cyclical nature of the industry, in contrast to the relatively stable waste producing activities of the other economic sectors covered earlier.

Prospects for sustained waste reduction are therefore limited to the opportunities presented in the course of specific developments. We have isolated three specific areas of construction and demolition activity and indicated where the London Waste Reduction Plan might most effectively target effort as opportunities arise.

### 6.2 Roads and transport construction

Government policy and London's commitment to an enhanced public transport strategy mean that there are unlikely to be very many major new highway schemes in Greater London in the next few years. The exception is the proposed extension of the widening programme for the M25 on its western orbital section. This should be targeted as a proposed scheme to be subject to a London Waste Reduction initiative. At the same time, there will be continued programmes of selected roads and highway maintenance that generate road planings on a scheduled programme throughout London. This area of programmed maintenance should also be subject to a London waste reduction initiative.

The objective in both cases should be to set up and agree with the respective client and contractor agencies, a long term programme for 'zero waste' road construction and maintenance practices in

London. This is based on the premise that with the exception of excavated material contaminated from previous industrial use, there should be a potential re-use for all excavated material, whether arising as aggregate, soil or plantings. CIRIA (the Construction Industries Research Association) have been developing models of best practice for this and the London Waste Reduction Plan should contain an early action seeking adherence of all related highways contracting agencies in London (including the local authorities), to specifying a 'zero waste' requirement in future contracts, where practicable having regard to the need for safe disposal of contaminated materials. The effects of the Landfill Tax are of course driving the industry in this direction anyway and the government's steady ratchet increases announced in the March 1999 budget statement will provide a further incentive for contractors to develop practices in line with this scheme.

Completing such an initiative might take up to a decade, but London would become the world's first major City to incorporate such an initiative into a comprehensive waste reduction strategy.

### **6.3 Land development**

Since the private sector drives most land development the same conditions will be harder to achieve for construction and demolition associated with land development schemes. The London Waste Reduction Plan should however seek to exploit the powers and influences of local authorities and other public bodies to promote this aim. As an immediate step, action should be through negotiation with English Partnerships and the Government Office for London, and the shadow RDA Board, to identify opportunities for setting conditions in development grant aid, that land development should seek wherever practicable to achieve the 'zero waste' objective. For much grant aided development this will not be entirely practicable because so much of it takes place on brownfield sites contaminated by previous industrial use. The key objective however is to seek wherever possible to build the waste reduction angle into developers plans.

The London Waste Reduction Plan should also contain a programme to secure the support of the capital's major developers in a 'whole life' waste reduction strategy for new development. This should not be confined to the construction and demolition waste generated during the development phase. It should relate to the design of developments themselves. The Building Research Establishment (BRE) has examined opportunities for 'designing in' waste reduction both within buildings themselves (storage and locations for waste separation for example) and also in the design of estates such as business parks. The Environment Agency's Environmental protection national Service (EPNS) is also looking to pioneer a 'waste minimisation design guide' and it is recommended that an early action in the London Waste Reduction Plan should be to secure an agreement with the Agency to incorporate the Agency's outline proposals within the plan itself.

### **6.4 Building maintenance**

The third key category of construction and demolition waste is that generated from routine building maintenance. Where external contractors are used, this waste arises under the heading of this section (where organisations undertake their own maintenance, the associated waste will arise under the relevant industry sector).

There are major opportunities here to use public sector bodies as leverage for the waste reduction approach. Nearly half the building maintenance contractor's economy derives from the maintenance of public buildings, whether Council housing stock, local authority and health authority premises, prisons and other public buildings as well as the major crown premises previously under the auspices of the Property Services Agency. As an immediate action using the CIRIA and other good practice models, the public services clients should be pressed within the London Waste Reduction Plan to commit in principle to investigating ways to secure contractor agreements to appropriate waste reduction actions within the terms of contract. The next stages of the Plan should be to develop further the specific practices that are to be recommended, ranging from the specification of work and the materials to be used, to the operating practices of the contractors.

Depending on the duration of existing maintenance agreements, this may take several years to complete but the scope for impact on this large and contentious waste stream is very considerable and progress on it should be a priority.

## 7. Manufacturing Industry

Addressing the manufacturing industry within the Waste Reduction Plan is important as the sector in total generates 15% of London's waste. While data analysts M.E.L Research believe this is less as a proportion of the total than for other metropolitan areas in the UK, it is nonetheless a sizeable component. The fact that this is almost exclusively in the private sector makes it all the more important that the London Waste Reduction Plan should be developed in partnership with industry. It is important that specific goals, targets and actions should not be progressed too far without establishing a 'waste reduction group' in partnership with the major manufacturing companies in London and their trade associations, so that they can take and own responsibility for the actions required in this sector.

There are important opportunities here for some high profile flagship initiatives, for example incorporating the Ford Motor Company in the context of its operations in east London. Within the West Midlands Rover (in Birmingham) and the new Toyota plant (Derby) have had major impacts on their component supply chain by setting environmental standards (including waste minimisation standards) for their suppliers and insisting that they will only deal with accredited suppliers meeting the specified standards. London Waste Action should as an immediate priority, identify a set of key manufacturer waste reduction opportunities and draw on the experience elsewhere to roll out this model across the capital.

### 7.1 Component manufacturing - 10% of the total

Estimates of the waste originating from the component manufacturing sector are provided in Table 17 below.

**Table 17 : Quantities of waste from the component manufacturing sector, 1996/97**

<b>AUTHORITY GROUP</b>	<b>Tonnes</b>	<b>Percent</b>
North London Waste Authority	309,000	22
East London Waste Authority	166,000	12
Western Riverside WA	99,000	7
West London Waste Authority	305,000	22
South London WD Group	173,000	13
Un-grouped Boroughs	328,000	24
<b>LONDON TOTAL</b>	<b>1,380,000</b>	<b>100</b>

We have divided manufacturing industry into the two key categories of component manufacture and supply (here) and the manufacture and assembly of finished goods (below) to reflect the key 'supply chain' driver that we propose is used to drive forward the waste reduction strategy in the private sector.

Waste from the component supply sector, at an annual total of 1.38 million tonnes, is a major contributor to London's waste, accounting for 10% of the total (the third biggest non-household waste producing sector). Data on waste generated from this industry sector is traditionally poor however, and we recommend given its potential importance, that further data collection should be a priority in the next phase of plan development. One possible source of better data is the recently completed National Waste Production Survey conducted by the Environment Agency in the spring of 1999. Should the data in some processed form be available to London Waste Action, this will make a substantial improvement in the accuracy of the estimates. If such data are not available, the methodology of the survey (involving survey visits to firms with over 10 employees and telephone surveys for smaller firms) could be replicated in a separate initiative by London Waste Action.

For this business sector it important to ensure that small and medium sized enterprises (SMEs) are covered, as well as the major employers. Many component suppliers are small firms but together they can produce a considerable proportion of the total waste. This is borne out by the fact that SMEs are the main drivers of the London economy. In the next stage of Plan development, we propose that a breakdown should be compiled of the amount of waste likely to be produced by firms of different size. This will allow a better assessment to be made of the relative priority that should be given to SMEs and larger firms in the Waste Reduction Plan.

### 7.2 **Assembly and manufacture of finished goods - 4% of the total**

Estimates of the waste originating from the assembly and manufacture of finished goods are provided in Table 18 below.

**Table 18 : Quantities of waste from the assembly and manufacture of finished goods, 1996/97**

<b>AUTHORITY GROUP</b>	<b>Tonnes</b>	<b>Percent</b>
North London Waste Authority	139,000	22
East London Waste Authority	77,000	12
Western Riverside WA	45,000	7
West London Waste Authority	137,000	22
South London WD Group	79,000	13
Un-grouped Boroughs	148,000	23
<b>LONDON TOTAL</b>	<b>625,000</b>	<b>100</b>

This industry sector does not appear from these statistics to be a very large contributor to London's waste but its importance in the context of the Waste Reduction Plan lies in the supply chain pressure it can impose on its component supply industry above.

Drawing on successful experience elsewhere in the UK and on the continent (especially in Germany) it is important to generate a supply chain pressure that is supportive and not punitive on the component supply industry. The objective for the assembly industries is to work with their suppliers towards agreed environmental goals. Particularly having regard to the tendency for component suppliers to be small, the larger buyer sector can provide infrastructure and technological support to achieve agreed waste reduction goals. In this sense the buyer sector is discharging its 'producer responsibility' through assisting its component suppliers to achieve the goals. To reinforce the point, there should be a shared responsibility towards the possibility of re-specifying the materials, tolerances and fabrication of components such that the waste from both component manufacture and assembly are jointly reduced. It should be a key goal of the London Waste Reduction Plan to foster and support such mutual arrangements between buyer and supplier.

### 7.3 **Raw materials extraction and processing -**

Estimates of the waste originating from the raw materials extraction and processing industries are provided in Table 19 below.

**Table 19 : Quantities of waste from the raw materials extraction and processing industries, 1996/97**

<b>AUTHORITY GROUP</b>	<b>Tonnes</b>	<b>Percent</b>
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North London Waste Authority	1,500	24
East London Waste Authority	800	13
Western Riverside WA	400	6
West London Waste Authority	1,400	22
South London WD Group	700	11
Un-grouped Boroughs	1,500	24
<b>LONDON TOTAL</b>	<b>6,300</b>	<b>100</b>

Not surprisingly, we have found that very little waste is produced from raw materials extraction and processing in Greater London. The figures are based on employment by location of workplaces and so there may be raw materials extraction activities (e.g. sand and gravel) that are taking place within the boundary of greater London but where employees are registered located elsewhere. This should be looked at in the next stage of compiling the Plan but unless major discrepancies are found, this sector of waste production is not a priority for London.

## 8. Wastes that Escape

Up to now, the Waste Reduction Plan has focussed on the identifiable generators of waste. Under the principle of producer responsibility, the idea is that the waste reduction Plan secures the commitment of each waste producing sector to the actions needed to reduce their waste at source (as by definition, only the waste producer can actually undertake waste reduction actions).

This philosophy works in a system where 'controlled' wastes flow in a relatively well tracked waste management process from the identifiable point of arising (described in the waste production data above) to the point of disposal.

However, this system does not always work in practice. Some wastes 'escape' the system because the waste producer either wilfully or unwittingly fails to take responsibility for it. In this short section we have therefore considered how the Waste Reduction Plan can ensure such extraneous waste flows are also minimised. We need to avoid a plan that reduces recorded wastes but simply forces them onto the waste-equivalent of a statistically invisible 'black economy'.

### 8.1 Flytipping

London has had a significant problem from waste that gets flytipped - dumped in an uncontrolled way at unlicensed sites. The problem is a combination of bulky household waste (sometimes attributed to the relative lack of CA sites in the capital owing to high land prices and lack of suitable location), and construction and demolition waste deriving mainly from the long haulage distances to available licensed disposal sites.

Although the problem is reported to have improved during the 1990s it is important that targets are set and monitored in the Waste Reduction Plan to ensure this particular outlet for waste does indeed continue to decline. Pressures such as increases in the landfill tax are only going to stimulate renewed interest in this form of disposal.

### 8.2 Waste deposited at exempt sites

Another poorly charted waste flow is the deposit of wastes at sites or facilities exempt from the requirements of site disposal licensing (termed 'exempt' sites or facilities). Such sites can include construction and demolition sites as well as agricultural land where organic wastes can be spread without the requirement for a waste disposal license.

Exempt activities are required to register their activities with the Environment Agency but there is no requirement for individual consignments of waste to be recorded, and landfill tax is not payable on waste deposited. No records of waste flows into exempt activities are kept.

There have been suggestions that the introduction of the landfill tax has led to a lot more waste being deposited at exempt sites. This may not be illegal but without quantifying the waste it is impossible to gain a 'whole picture' of London's waste flow and to monitor in future the achievement of a waste reduction plan. The chance of illegal deposits of waste at exempt sites, and indeed the operation of exempt activities without registering exempt, are increased by the current poor state of monitoring.

It is therefore recommended that data are gathered through a survey of registered exempt activities, to size up the amount of London's waste passing through this disposal route. If necessary, it will then be possible to develop a waste reduction plan to tackle this sector too if it proves to be significant.

### **8.3 Wastes burnt or flushed to sewer**

Similarly, not much is known about wastes burnt on site or flushed to sewer without an appropriate consent. The National Waste Production Survey includes questions on the burning of waste on site so this aspect can be quantified either in the event of the Agency's data becoming available, or through carrying out an equivalent survey for London.

Getting reliable data on waste deposited to sewer is more problematic. Consented discharges to sewer or watercourse are of course registered with the Environment Agency, but growing 'unauthorised' discharges such as the increase in domestic sink disposal units provide further grounds for undertaking a data collection exercise to establish the scope and scale of this 'alternative waste disposal' route. Once it has been sized up, it will be necessary for the Waste Reduction Plan to establish whether disposal of solid waste to sewer counts as a waste reduction achievement, or is seen as simply changing the disposal route and should still be exposed to waste reduction actions. This is a conceptual and technological issue that should be an important if medium term priority for the London waste reduction Plan to resolve in future.

## 9. Monitoring and Evaluation

### 9.1 *Methods needed to improve existing data*

During the course of this report we have highlighted the following key steps needed to improve the quality of existing data for the final version of the Waste Reduction Plan:

- a) explore local authority household waste records in detail over the past 5 years to get a clearer picture of recent trends;
- b) undertake more household waste analysis, in particular focussing on CA and bulky waste items, to gain a more comprehensive picture of the overall composition of household waste and the specific components that should be targeted for waste reduction;
- c) use the results to provide compositional estimates for each of the six sub-regional local authority groupings to aid overall waste management, recycling and reduction initiatives;
- d) use this data to provide projections of likely change over the next 5, 10 and 15 years under given scenarios;
- e) formalise a system for annual reporting of household waste production using the DETR data returns;
- f) undertake a public attitude and behaviour survey to obtain data on what households are currently doing to reduce waste and their attitudes and perceptions towards waste reduction;
- g) obtain the London data from the Environment Agency's national Waste Production Survey or conduct a supplementary survey using the same protocols;
- h) obtain waste production data from healthcare establishments measured in terms of relevant units of production;
- i) undertake a specific study of construction and demolition waste taking further the methods used in the Arups study;
- j) conduct a detailed analysis of waste production data in the manufacturing sector, focussing on the relative amounts of waste produced by various sizes of SME;
- k) undertake an audit (possibly through the planned Environment Agency project) on the current scope and scale of flytipping in London, and possibly by extending the Tidy Britain Group approach;
- l) undertake a similar audit of the scope and scale of waste entering exempt sites in and around London;
- m) review evidence on the current and likely future trends in the use of sink disposal and other waste disposal outlets including burning waste on site.

### 9.2 *Methods needed to track progress*

The main recommendations in this report in relation to defining the performance indicators against which to track progress, are:

- a) to establish in agreement where possible with relevant industry sectors, a set of per unit waste production parameters against which waste reduction targets can be set
- b) by the end of year 1 of the strategy, to have defined, costed and set in place a transparent, open and verifiable system for monitoring and tracking progress in relation to the parameters and associated targets
- c) to have secured industry agreement and support for the programme and schedule against which the monitoring is undertaken.

## **10. London : World Leader in Waste Reduction**

In conclusion, this first draft Waste Reduction Plan for London has highlighted the four key features that will be integral to the eventual success of the initiative.

### **10.1 Partnerships**

Throughout the Plan it has been evident that delivering waste reduction is impossible without shared responsibility between the public and private sectors. The divide is an artificial one so far as waste reduction activities are concerned. The power of London Waste Action to design and deliver London's Waste Reduction Plan lies fundamentally with its essential composition as a partnership between London's industrial and commercial businesses and the public services within the capital.

No other comparable City world-wide, so far as we can ascertain, has been in a position to put together such a comprehensive and all-embracing Waste Reduction Plan, covering all waste sources within the national capital city. This is almost certainly attributable to the fragmented nature of most metropolitan waste management infrastructure.

For this reason, the initial draft of the Waste Reduction Plan should not be seen as a top-down blueprint but a working document to be taken by the respective public and private partners, and developed into an agreed final document where all the major players are signed up to deliver on their respective actions.

### **10.2 Policies**

To deliver much of the content of the Waste Reduction Plan, both public and private agencies will have to make a policy commitment to it. One of the benchmark performance indicators will therefore be the extent to which Board and senior management team commitment has been formally made to the Plan and its consequential actions.

### **10.3 Practices**

The only way the Plan can be delivered is by changing existing practices. The purpose of this initial Plan has been to highlight the existing practices that generate waste. The challenge to public agencies, private companies and Londoners themselves is to make the changes in current economic and social behaviour that will result in less waste. Changes in practices will be the acid test of commitment and as the Plan is rolled forward in future years, a sharper focus needs to be placed on defining, and measuring, the changes in individual and organisational practice that are required to deliver on the Plan.

### **10.4 Performance**

Finally, the bottom line of the Waste Reduction Plan is performance. Performance will be measured in terms of the finally agreed indicators in the Plan. This is why we have placed such a strong emphasis on the need for all parties to sign up to the measures of performance. These will become the totem by which they, and all around them, will judge performance.

The performance indicators need to stand up to the pressures of time. As London's economy rises and falls, so waste production will change. The indicators must remain credible notwithstanding the point within the economic cycle. In this draft we have proposed some ways forward in defining indicators that will stand as true and reliable measures of progress in waste reduction, but the most important requirement is that the individuals and organisations whose performance is reflected in the indicator, are confident in its reliability. There is a good deal more consultation needed before this position is reached.

However we are confident that this first draft Waste Reduction Plan truly reflects London's ambition to become world leader in waste reduction. The all-embracing scope of the document is testimony to the comprehensive vision of a capital City putting together its full resources in a united effort to combat the seemingly inexorable growth in waste production. Rapid strides can be made if the key initial steps are quickly taken. However it is also important to appreciate that it will take up to a generation for all the longer term strategic waste reduction initiatives to come to fulfilment.

This draft Plan is therefore a first step on a long road. But in taking it, London is launching a globally significant pioneering step as the world's first capital City to seriously tackle the root causes of the growing problem of waste in a wholly integrated way.