



Waste Review and Preliminary Strategy Sustainable Eastside

Robert Long Consultancy Limited

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GROUNDWORK BIRMINGHAM

**WASTE REVIEW AND PRELIMINARY
STRATEGY FOR THE EASTSIDE AREA**

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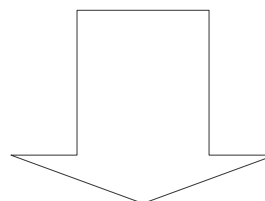
1.0 INTRODUCTION

- 1.1 Groundwork Birmingham has appointed Robert Long Consultancy Limited (RLCL) to undertake a review of existing waste management facilities in the Eastside area of Birmingham and to develop a preliminary waste strategy for the area that would be applicable during the planned regeneration of the area and into the future.
- 1.2 Implicit in the review and development of a preliminary waste strategy are the principles that underpin sustainable communities and sustainable waste management. National waste policy is centred on the four principles of:
- Best Practicable Environmental Option (BPEO);
 - The proximity principle;
 - Regional self sufficiency; and
 - The waste hierarchy.
- 1.3 Waste policy states that waste management decisions should be guided by considerations of the *BPEO* for each waste stream. The BPEO should be identified through a systematic and consultative process of assessment of the environmental effects of different management strategies and their performance against objectives.
- 1.4 The *proximity principle* requires waste to be managed as near as possible to its place of production, to avoid or minimise transport-related environmental effects. The principle of *regional self-sufficiency* indicates that facilities should be provided to enable waste to be treated or disposed of within the region in which it is produced.
- 1.5 The *waste hierarchy* states that, wherever possible, the creation of waste should be avoided at source (waste minimisation). Where this is not possible, the waste hierarchy sets out a framework for waste management decision-making by setting out the options in order of preference. Thus, after waste minimisation, re-use is top of the hierarchy, followed by recycling, composting and digestion, recovery (energy from waste) and finally landfill. The waste hierarchy is a reliable guide for waste management decisions at the generic level, although local circumstances and particular waste streams may indicate some variation to the strict hierarchy in order to derive the best environmental option.

A simple waste hierarchy

The waste hierarchy should be applied flexibly, but is a broad guide to the order in which waste management options should be considered – starting from the top:

Waste minimisation
 Re-use
 Recycling, composting, digestion
 Recovery (energy from waste)
 Disposal (landfill)



- 1.6 Under the current proposals described in ‘Eastside Design and Movement Framework’, Eastside will be transformed from its present-day mix of commercial and industrial premises, into a high quality sustainable environment with a mix of residential, learning, technology and retail activities, linked by a strong network of pedestrian, cycle, canal, rail and road routes.
- 1.7 In order to fully reflect the Eastside project this study has included a review of:
- Eastside – Design and Movement Framework. July 2003;
 - Eastside Development Framework. June 2001;
 - The Birmingham Plan. Alterations and Appraisals. Draft for Public Deposit. May 2001;
 - The Birmingham Plan. Second Deposit Changes. January 2002;
 - The Birmingham Plan. Inspectors report 27 August 2003;
 - Sustainability Strategy and Action Plan 2000 – 2005;
 - ‘Towards a Sustainable City’ Birmingham Local Action 21. 1992-2002; and
 - Birmingham City Council Waste Management Strategy, January 2000.
- 1.8 Achieving the objectives described in these documents will not only provide dramatic improvements to the environment and character of this area, but will also provide opportunities to put the principles of sustainable waste management, based on the waste hierarchy, into practice.
- 1.9 This review and preliminary strategy considers the opportunities for waste reduction in both the household and commercial sectors. It considers the potential for considering wastes as resources for re-use and recycling, thereby reducing the use of raw materials. It considers the synergies between considering waste as a resource and waste as a fuel to allow the recovery of energy from waste in the Tyseley Energy from Waste Plant.
- 1.10 Any waste strategy developed for Eastside must support and complement the city-wide waste strategy, Unitary Development Plan (UDP) policies, the meeting of any Best Value Performance Indicators for recycling, recovery and collection, recommendations of the Strategy Unit and current and future obligations under

European Union (EU) Directives and UK legislation. Accordingly, this study has included reviews of:

- Relevant parts of the EU Landfill Directive and UK Landfill Regulations 2002;
- The Birmingham Plan – Alterations and Appraisals. Draft for Public Deposit. May 2001;
- The Birmingham Plan. Second Deposit Changes. January 2002;
- The Birmingham Plan. Inspector’s Report. 27 August 2003;
- Best Value Performance Indicator Targets – Birmingham;
- Waste Not Want Not. Strategy Unit Report. November 2002.
- Household Waste Recycling Act 2003
- Recent and forthcoming EU Directives on:-
 - Biowaste Directive
 - Waste Electrical and Electronic Equipment (WEEE)
 - Hazardous Household Waste

1.11 The study has also drawn on the experience of other local authorities and municipalities in the UK and Europe, paying particular attention to examples of good practice, high performance in waste minimisation and recycling, and the use of new technologies.

1.12 The review has looked at the existing waste management facilities in Eastside, and considered their use and function during and post redevelopment in the area. It has also considered waste management during the redevelopment process, identifying sustainable waste management principles and making recommendations for putting these principles into practices.

1.13 The study has considered the proposed activities in Eastside into the long term, following its regeneration, to identify the principles of sustainable waste management in the area post-regeneration, making recommendations for waste management practices that will enable this area of Birmingham to set an example to other authorities seeking to adopt similar objectives.

2.0 CURRENT FACILITIES AND INFRASTRUCTURE

- 2.1 Due to the commercial and industrial nature of most of Eastside, existing waste management facilities are principally aimed at serving this market. There are no facilities that are principally managed to handle household waste in Eastside, although based on information contained on the Birmingham City Council website, we have identified eleven recycling centres within the Aston area of the city.
- 2.2 A small number of waste transfer stations and skip hire companies are located within the Eastside area. These are as follows:
- SITA, Montague Street, Birmingham, B9 4BA – The site accepts approximately 430 tonnes of biodegradable waste per day. Recyclable waste is transported to nearby reprocessors whilst non-recyclable waste is taken to SITA's Packington landfill;
 - Almec Waste Management, 4 Great Barr Street, Digbeth, Birmingham, B9 4AY – A skip hire company which accepts domestic, commercial and industrial wastes. The company covers the majority of the city centre together with the Digbeth area;
 - Hicks Metals and Alloys Limited, 170-176 Fazeley Street, Birmingham, B5 5SE - The company accepts recyclable scrap metal and builders waste, which is collected from the entire West Midlands area and is transferred to a transfer station (Weir Waste Services). The recyclable scrap metal is eventually sent to steel works, smelters or refiners in the UK or abroad;
 - Weir Waste Services Limited, Fawdry Street, Digbeth, Birmingham, B9 4BE – The company accepts a wide range of wastes and is licensed to transport asbestos (but not store on site).
- 2.3 We note the comments contained in the Birmingham City Council (BCC) Eastside Development Framework (June 2001) that much of the current area around the proposed Rea Village development '*is under-utilised with low intensity, often bad neighbour uses which could be accommodated elsewhere in the City*'. The waste transfer station operated by SITA and the BCC Environmental and Consumer Services Depot located on Montague Street are within this area.
- 2.4 We understand that the Environmental and Consumer Services Depot presents a major residential redevelopment opportunity and that it is the intention of BCC that the waste transfer facilities on Montague Street and the wider Eastside area are relocated. In the context of the Eastside redevelopment project we would support this proposal. Amenity and nuisance issues commonly associated with waste management facilities will almost certainly conflict with plans to develop an urban village which would provide a substantial amount of residential development along the canals and River Rea. Furthermore, relocation of these facilities would allow the vacant sites to be incorporated into the Eastside plans for redevelopment, improving the character of the area, whilst allowing for environmental improvements.

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- 2.5 Assuming that the long term plan is to relocate the waste management facilities based within the Eastside area, we would suggest that consideration is given to the timing of their relocation. It is likely that a significant quantity of construction waste will be generated throughout the demolition period of each development phase and this material will need to be sorted prior to re-use, treatment or final disposal (see Chapter 3).
- 2.6 The retention of one of the waste transfer stations within the area until the latter stages of redevelopment would provide the contractors with a convenient facility for the sorting, treatment and collection of the waste materials, thereby minimising the need to transport the waste out of the area.
- 2.7 In the context of waste management, Eastside must be considered within the wider Birmingham area. Considering the city as a whole, the following sites are located within 2km of the Eastside area:
- Holborn Waste Limited, 305-335 Lichfield Road, Aston, Birmingham, B6 7ST - No information is currently available for this site;
 - Olympic Waste Management, 1 High Street, Saltley, Birmingham, B8 1JN – The company accepts all waste types with the exception of toxic or chemical wastes. Waste is collected from B8 and B9 postcodes (including Bordesley) and is transferred to the Packington landfill (SITA).
- 2.8 There are a number of public waste disposal (PWD) sites near to the Eastside area, although none are situated within Eastside itself. The five sites are located in Tyseley, Kings Norton, Perry Bar, Castle Bromwich and Sutton Coldfield, at approximate distances of between 4km and 9km from the Eastside area. The sites are open seven days per week and accept household waste, including hazardous or toxic household waste, but do not accept asbestos. Trade or commercial waste is not accepted at these facilities.
- 2.9 Planning applications for new waste management facilities within the Eastside area should be assessed and determined on a local need basis, with an awareness of the future nature of the neighbourhoods and their waste management needs and the implications of any imminent legislative changes.

3.0 WASTE MANAGEMENT DURING REGENERATION

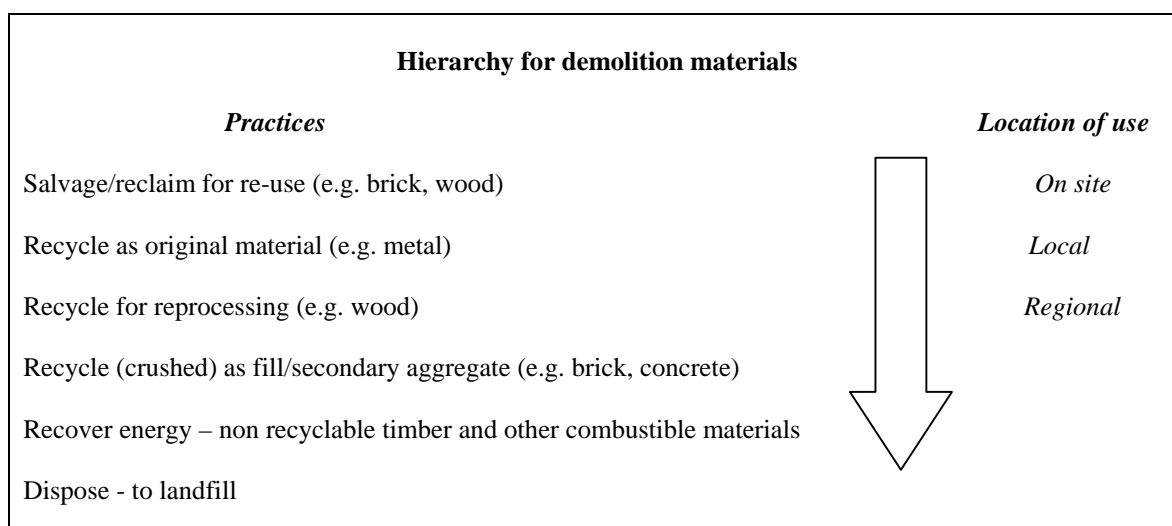
- 3.1 The regeneration of the Eastside area will lead to significant improvements in the local environment. The minimisation of waste during the regeneration project is a key objective and should be given a high priority for the duration of the works.
- 3.2 Notwithstanding this, the demolition and construction phases of the redevelopment are likely to generate large quantities of waste material which have the potential to be re-used or recycled. There is considerable scope for the Eastside initiative to become a model for best practice with respect to the sustainable management of waste. This Chapter highlights some of the key issues and outlines a number of important opportunities for the management of waste during the regeneration of Eastside.

Relocation of companies – vacating premises

- 3.3 This will give the opportunity for waste minimisation through the re-use of items of furniture and equipment:
- Encouragement should be given to companies to re-use redundant office furniture and computers through BCC's involvement with Urban Mines and by using local businesses (see Chapter 4);
 - Architectural salvage – there is potential for re-using doors, window frames, brick and brick decorations, either for sale or re-use in new developments.
- 3.4 This will be facilitated by involving organisations such as Urban Mines, with whom the City Council is already working, or volunteer groups and charitable organisations that have the necessary contacts for channelling second-hand materials into re-use. Architectural salvage needs to be carefully managed in order to prevent abuse, but within the control of a redevelopment contract this may be achieved.

Demolition of existing structures

- 3.5 In terms of volume and tonnage, the main opportunities for waste minimisation and recycling are likely to occur in connection with the demolition of existing buildings. There are many examples of waste minimisation during demolition, principally crushing and screening concrete and other construction materials such as brick for use as secondary aggregate, and separation of structural steel and timber for recycling.
- Demolition contracts should require the effective separation of materials during demolition with penalties for not complying;
- 3.6 It is recommended that a waste hierarchy for managing demolition wastes be adopted to guide decision-making during redevelopment. This can be applied to both the practices and the destination (see box below). Wherever possible, materials should be re-processed and re-used on site or in the immediate locality. Where this is not possible, consideration should be given to the transport distances to reprocessing companies. If distances are prohibitive, non-reclaimable combustible materials could go to the Tyseley Energy from Waste plant for energy recovery.



- 3.7 Demolition and site clearance contracts should allow sufficient space for this work. Alternatively, where demolition of larger areas is being planned a central materials recovery area should be set up for the sorting and bulking up of materials from the current phase of demolition and/or clearance.
- 3.8 Consideration should be given to retaining and using one of the currently licensed transfer facilities during the regeneration works, as their use and skip wagon/HGV access are well established and this would cause minimal additional impact on the area. Based on a preliminary inspection it would appear that the SITA facility is best placed and equipped to serve this function.
- 3.9 Careful planning and location of any new waste recovery centres will be necessary to minimise adverse impacts (traffic, noise, dust and visual intrusion) during the redevelopment works, especially upon newly developed residential, learning and retail areas during the phased regeneration of Eastside.
- 3.10 The transport of demolition and construction materials during the regeneration works will require careful thought to minimise transport impacts and promote a sustainable solution to this question. A feasibility study to investigate the practicalities of using alternative forms of transport, e.g. canals and rail, to transport materials into and out of the Eastside area during regeneration should be conducted. The investigation should consider the following aspects:
- the ability of these alternative systems to carry the traffic caused by transporting demolition and construction materials (widths of canals and dimensions of locks, rail availability in the daily timetables);
 - the locations and availability of suitable river or canal wharfs and rail sidings and the feasibility of loading and unloading materials at these locations;
 - the need for transfer vehicles to transport materials to and from wharves and sidings to the places of production and use;

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- the potential impact on local communities, users and other receptors during transit.
- 3.11 Redevelopment contracts should be co-ordinated on the basis of materials balance calculations. For example, anticipated volumes of secondary aggregates (demand and supply) should be assessed to avoid exporting material from one contract and importing new materials for another contract.
- 3.12 Contract plans should require working Method Statements which are auditable for recovery and/or recycling, proposals to survey materials prior to demolition and proposals for dealing with hazardous materials, such as asbestos.

Site Clearance

- 3.13 The land use history and the likelihood of contaminated land materials should be assessed, with intrusive investigation if necessary for each plot, prior to redevelopment. In the case of sites that have had contaminative uses in the past, or where investigation reveals the presence of contaminated materials, discussions should be held with the Environment Agency in order to develop a strategy for its disposal. This will be particularly important following the cessation of co-disposal landfilling in July 2004. The prohibition of co-disposing hazardous wastes with non-hazardous wastes will inevitably lead to a scarcity of disposal sites for contaminated soils and other hazardous materials arising from site clearance works. The options for these materials are as follows:
- Undertake an environmental risk assessment and leave in situ if significant harm is unlikely, especially if proposals call for extensive hardstanding;
 - On-site treatment using most appropriate techniques.
- 3.14 There are a range of techniques for the treatment of hazardous materials arising from contaminated land clearance. These are described in the following paragraphs, and it should be noted that most of these methods will increase the cost of clearing contaminated sites, and will either lengthen the duration of the site clearance works (if carried out on site) or pose additional hazards during the transport of contaminated land materials to a place of treatment or disposal.

Soil washing

- 3.15 This method uses classification (screening/cycloning) and gravity concentration as its basic methods. It takes advantage of the fact that contaminants are preferentially adsorbed on soil humic matter and clay compounds. It involves the dispersion of contaminated material in water and the separation of contaminant carrying fine particles from the bulk of the material. Waste water should be completely recycled to prevent contaminant emissions.

Stabilisation and solidification

- 3.16 Stabilisation of soils is frequently carried out using lime treatment and involves the addition of reagents to a contaminated material (e.g. soil or sludge) to produce more chemically stable contaminants. Solidification involves the addition of reagents to a contaminated material to encapsulate the contaminants and reduce access by external agents. These technologies can provide both chemical and physical improvements.

Erection of New Buildings

- 3.17 It is important to recognise that the encouragement to contractors to re-process building wastes will be most effective if the re-use of these materials is a clear objective. As with all economic systems demand will encourage supply, whereas supply without demand is not sustainable.
- 3.18 BCC with their partners, Groundwork Birmingham, holds an influential position which could help to create a demand for recycled materials, and thereby encourage the supply of such materials, by promoting quality design that encourages the use of recovered and recycled materials in Eastside and elsewhere in the city.
- 3.19 The rebuilding phases of the Eastside regeneration will therefore present further opportunities for sustainable waste management, and (as with the potential opportunities during demolition) these will be improved with co-ordination and leadership based upon a coherent strategy:
- Architectural design and construction contracts should encourage the use of recovered and recycled materials.

4.0 WASTE MANAGEMENT STRATEGY FOR EASTSIDE FOLLOWING REGENERATION

Introduction

- 4.1 When considering the principles of a waste strategy for Eastside post-regeneration it is important to base this on the key principles of waste management: the waste hierarchy, proximity principle and regional self-sufficiency. In order to identify ways by which these concepts can be brought into practice, it is also important to consider the different sectors of the community who will be implementing the strategy. This may suggest slightly different priorities and objectives for the different neighbourhood areas of Eastside, such as residential areas, and areas where the principal activities are related to commercial/retail/educational activities.
- 4.2 This preliminary strategy, therefore, considers the following sectors of the community and neighbourhoods:
- Local residents/residential areas;
 - Local businesses, commercial, leisure and educational organisations/private sector;
 - Local authority/public sector.
- 4.3 For each sector of the community the preliminary waste strategy is anchored in the waste hierarchy, drawing on the experience of other authorities and providing outline recommendations for measures that will assist in moving waste up the hierarchy and meeting national and international targets and obligations.

Local Residents/Residential Areas

- 4.4 When considering the practicality and deliverability of a waste strategy that anticipates a radical change in the way waste is managed by a community, by substantially increasing the amount of waste minimisation and recycling, three aspects need consideration:
- The ability and willingness of the community to participate in new schemes for minimisation and recycling;
 - Support and information from the local authority and other key stakeholders;
 - The development of reliable markets and market price for the increased amounts of recycle.
- 4.5 Household behaviour patterns are gradually changing, with increasing environmental awareness. By the time the residential areas of Eastside are being occupied, these relatively new patterns of behaviour will be more firmly established. It will still be important to ensure that the systems are in place to encourage behaviours that promote sustainable waste management by local residents. This includes increased understanding of waste minimisation, increased recycling and continuation of these practices. Certain systems and facilities must be available to enable local residents to

recycle, and regular support and encouragement should be provided by the local authority.

- 4.6 The third issue relating to the development of markets falls outside the scope of this report, but is being extensively researched by organisations such as WRAP and ReMade. WRAP is a not-for-profit company that seeks to promote sustainable waste management by creating stable and efficient markets for recycled materials and products. If recycling schemes across the country are to succeed in the long term, the development of these markets will be essential.
- 4.7 Local residents can be encouraged to participate in delivering a sustainable waste management strategy at all levels of the waste hierarchy. The following paragraphs provide some indicators and recommendations to assist in developing and maintaining this participation and support.

Waste minimisation

- 4.8 Waste minimisation is difficult to encourage and monitor at the household level but can be improved through the provision of literature about buying habits (to reduce packaging waste), junk mail registration and through discouraging free newspapers. Many householders will be encouraged to develop habits of sustainable waste management through information, education and encouragement.
- 4.9 There is considerable scope for reducing waste and one obvious target is the use of disposable nappies. Better participation could be gained by increased education through literature and giving talks to interest groups.

Re-use

- 4.10 Re-use of materials to divert them from the waste stream can be encouraged through literature about choice of products, e.g. avoiding disposable goods and encouraging goods that are built to last.
- 4.11 The involvement of the voluntary, charity and community sectors can be helpful in collecting, sorting and re-directing used goods for re-use. One example of this is the use of dedicated containers at Bring Sites for collecting shoes, clothes and books for re-use. Depending on the demographics of the new communities within Eastside, this may be an area for collaboration and integration between the Eastside communities and other parts of the city.

Recycling/composting

- 4.12 The householder has a highly important role to play in promoting sustainable waste management practices, and in encouraging the local authorities to play their part in increasing their recycling performance. If the residents of a community are supportive of recycling the level of participation will be higher and the scheme will be more successful. It will make a greater contribution to resource recovery, minimise the use of natural resources, improve the quality of recyclate in terms of its freedom from contamination and thus improve its usefulness to the reprocessors and make the scheme more cost-effective.

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- 4.13 The experience of UK local authorities who have had recycling schemes established for some years (Beacon Councils, Hampshire Project Integra area and Bath and NE Somerset) is that participation gradually increases as the community becomes more familiar with and supportive of the Council's efforts to recycle more and landfill less.
- 4.14 Householder participation in recycling schemes can be increased by literature, making the public more aware of the system, and by improving the convenience of facilities. Feedback on the recycling performance of the local area and providing comparisons of performance between neighbourhoods can help to generate a feeling of 'ownership' of the scheme, as well as a helpful competitive spirit that may increase performance. It is important to make recycling enjoyable (fun) and league tables of recycling performance that are published in a local newspaper or through local schools can help to do this.
- 4.15 Recycling schemes and systems that are considered for, and implemented in the Eastside area must be compatible with BCC's collection, recycling and sorting arrangements. We would propose that a network of recycling facilities is developed, in addition to the routine kerbside collection of recyclables and residual wastes. Through the use of kerbside collection and the network of supporting facilities, it should be possible for all residents to recycle paper, glass, metals, plastic bottles, textiles and cardboard.

Recovery

- 4.16 Residual, combustible waste generated from the Eastside area could be transported the short distance to the Tyseley Energy from Waste (EfW) plant for incineration with energy recovery. The local community should be kept informed about the contribution the EfW plant makes in terms of energy recovery and its environmental performance.

Disposal

- 4.17 Residual waste which is non-recyclable and/or non-combustible, together with inert residues from treatment processes, such as the EfW plant, will be sent for final disposal to landfill. There are a number of landfill sites near to Birmingham city centre which accept municipal waste, such as the Packington Landfill operated by SITA. However, as landfill capacity reduces and the costs of landfill disposal increase, this is an increasingly unacceptable waste management option. Local residents must be encouraged to adopt alternative, more sustainable options so as to minimise the amount of waste that is sent for disposal. However, it must be recognised that all waste recycling and treatment options result in a residue that needs final disposal.

Local businesses/Commercial Sector

- 4.18 The commercial or private sector within the Eastside area is likely to comprise retail, leisure, food establishments, general commerce and education, both at the university and in the learning and technology neighbourhoods.
- 4.19 The principles of the waste hierarchy can also be applied to this sector of the Eastside community, as indicated in the following paragraphs.

Waste Minimisation

- 4.20 Waste minimisation in the private sector can be achieved by introducing ‘waste aware’ purchasing or packaging policies which encourage the reduction of waste. The introduction of paperless systems can provide a significant reduction in paper waste and even small companies can minimise packaging waste, either through changes in product design or by exerting pressure through the supply chain to minimise packaging of raw materials.
- 4.21 Businesses can be advised and encouraged through the use of literature, showing examples of good practice and the potential contribution to the sustainable community. Organisations such as Envirowise (www.envirowise.gov.uk) provide both generic and industry specific information on waste minimisation which would help those companies which require guidance.
- 4.22 Once changes have been implemented, companies may wish to seek feedback from their customers and suppliers to determine whether further waste minimisation measures are practicable.

Re-use

- 4.23 The production and dissemination of literature that provides guidance on the various options for the re-use of waste materials is considered to be an important step in achieving sustainable levels of re-use in the private sector.
- 4.24 Companies and organisations should be encouraged to address material re-use through their purchasing and stock policy, such as the reduction of disposable or non-returnable goods.
- 4.25 Office furniture and IT equipment is discarded in vast quantities. A growing number of companies (often not-for-profit), such as Green-Works, based in London and Portsmouth, and End of Life Computers (an Urban Mines project) in Huddersfield and Halifax, refurbish and recycle office equipment. Green-Works, has diverted 2,080 tonnes of office furniture from landfill since June 2000. It currently takes 300–500 tonnes per month and approximately 70% is redistributed or recycled. Similar local companies could be approached to identify how they may re-use and recycle old office furniture and equipment arising from the redevelopment works. It is important to identify ways in which these principles and organisations can be introduced or replicated in Eastside, and BCC’s existing relationship with Urban Mines will assist in this.

Recycling/ Composting

- 4.26 Businesses and organisations should be encouraged to separate waste materials at source. For most companies and organisations, it should be possible to separate wood, cardboard, paper, cans, glass, plastic bottles and compostables (such as food and green waste). Separate containers would need to be provided with clear labels identifying the accepted waste type. Any plans for the source separation of commercial or industrial waste should complement and support those of the BCC trade waste collection arrangements.

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- 4.27 Fast food retailers should be encouraged to use packaging made from materials which are recyclable or readily biodegradable, such as cardboard.
- 4.28 In the retail, leisure and education sectors where there is significant access and use by members of the public, companies can encourage improved recycling awareness and opportunities for their customers by providing suitable, clearly labelled containers for discarded materials, such as drinks cans, leaflets and cartons which can then go for recycling
- 4.29 A number of recycling centres (Bring Sites) should be developed on the university campus where students can deposit separate fractions of waste. New below-ground facilities could be constructed (see Chapter 5) in order to minimise the visual impact of the containers, and to reduce amenity issues, such as noise, odours and litter.
- 4.30 Private (commercial) sector waste recycling, especially for materials such as cardboard and metals is well-established. However, there are a number of important considerations to be taken into account for some materials. The following information on wood or timber recycling serves to illustrate the potential complexity of the industry, especially where supply is encouraged, resulting in mixed qualities of materials.
- 4.31 The re-use of timber should be carried out wherever possible. However, its recovery and re-use is often problematic. Timber is often seen as a cheap, renewable material with little value being placed on waste wood. This is especially the case for companies such as furniture manufacturers, where margins are relatively high. Also many companies that produce wood waste are small and the amount of wood waste generated is also likely to be small. The bulk of wood recycling that does occur is in the making of panel board, where manufacturers are introducing more waste wood into their feedstock to drive prices down.
- 4.32 A significant factor in determining whether wood waste is recyclable is the level of contamination. Recycling companies usually specify that they will not collect treated timber because the chipping process releases dangerous chemicals. Panel manufacturers are also unwilling to accept treated timber. Much of the waste timber collected by the wood recycling industry is nevertheless mixed and this leads to a labour intensive and costly separation process.
- 4.33 While small amounts of timber waste are collected out of the waste stream for re-use by a well established network of architectural reclamation yards, most wood recycling that occurs in the UK can be termed 'downcycling'. Timber is shredded into a form where further recycling is not currently feasible. Reprocessors will only tolerate small percentages of panel board in their feedstock so after waste timber is incorporated into panel board, it is no longer recyclable. Time and cost pressures during the wood chipping process mean that there is little or no sorting of high grade timber from low grade. Consequently, material is either recycled into woodchip or landfilled, resulting in reusable timber and even desirable and expensive hardwoods being lost to the downcycling process. It is therefore important that before any wood recovery/recycling scheme is implemented, consideration is given to these issues.

Recovery

- 4.34 Material which is non-recyclable and non-compostible should be transported to the Tyseley EfW plant for energy recovery. The removal of compostables, metals and glass from the residual material may improve the quality of the feedstock, by reducing the proportion of materials with a high moisture content and low calorific value. Whilst this would lead to a reduced volume of feedstock for the plant, the quality of the material as a fuel for energy recovery is higher.
- 4.35 Any systems within Eastside for the collection and handling of residual waste must be compatible with the BCC trade waste collection arrangements.

Disposal

- 4.36 All non-recyclable waste which is non-combustible would be sent to landfill in the short term. Local businesses should be encouraged to minimise the volumes of residual waste through waste minimisation and recycling. Alternatives to landfill for residual waste may be developed in the medium to long term as the cost of landfill rises.

Local Authority (Public Sector)

- 4.37 The local authority (public sector) has a key role to play in promoting and implementing a sustainable waste management strategy for Eastside, and other areas of the city. Some of the ways in which this may be done are set out in the following paragraphs, using the waste hierarchy as a structure.

Waste Minimisation

- 4.38 The local authority has a key role to play in promoting waste minimisation through information literature, education and in the provision of support for schemes. Education in local schools may be particularly productive. However, in order to maximise the effectiveness of waste minimisation initiatives, the local authority needs to commit to a sustained programme of information and encouragement, rather than 'one off' events.

Re-use

- 4.39 As with waste minimisation, the provision of educational literature is an important way in which the local authority can promote and encourage the re-use of waste materials. Support should be given for new or existing re-use schemes and where possible, specialist advice should be sought, for example, from organisations such as Urban Mines, Groundwork Trust and external consultants.
- 4.40 Designs for new buildings or developments should encourage the use of secondary or re-used materials. This could be promoted through the planning system and disseminated in advice leaflets or on the planning website.

Recycling / Composting

- 4.41 The local authority has a crucial role to play in assisting the residential and private sectors to maximise recycling. It has been found (*Community Network Recycling*) that good, effective local authority systems with feedback can significantly increase participation in, and support for recycling schemes.
- 4.42 Feedback to the community on their recycling performance will provide encouragement and may increase recycling participation. Such systems can also be used by the local authority to benchmark their performance against peer groups. Where participation is low, feedback may help to identify the reasons for poor performance so that improvement measures can be implemented and better participation achieved.
- 4.43 The local authority may wish to consider the involvement of the community sector, perhaps through a partnership approach setting up a Community Recycling Consortium with not-for-profit organisations. Similar organisations have been set up in other authorities, such as Bath, Bristol and North East Somerset, Stroud District and South Gloucester (with Avon Friends of the Earth), Emerge in Manchester and South Molton Recycle Limited (kerbside collection to 50,000 households in North Devon and recycling ‘pavilions’ in villages around Devon). Such arrangements can increase participation because residents feel they are supporting “good causes”. They also provide useful models for other local authorities considering ways of increasing recycling.
- 4.44 In order to establish an efficient and cost-effective recycling scheme with a high level of participation, the local authority will wish to consider the full range of options available. These include kerbside recycling, co-mingled recyclables (“green bin” systems) with Materials Recycling Facilities for sorting and bulking, Bring Sites and Household Waste Recycling Centres (Public Waste Disposal Sites). These are described in the following paragraphs.

Kerbside collections of separated materials

- 4.45 We anticipate that, in accordance with the Household Waste Recycling Act, BCC will have to separately collect at least two materials from the kerbside for recycling. Kerbside collection of recyclables in Eastside must be compatible with the city-wide collection strategy.
- 4.46 Careful consideration should be given to the frequency of collections of recycled materials. Recycled materials are commonly collected on the same day as the residual waste, or on alternate weeks. Residual waste collections can play an important role in the uptake of recycling schemes. The less frequent or comprehensive the residual waste collection and the more frequent and convenient the collections of separated materials, the more materials will be segregated (*Research for the Community Recycling Network*).
- 4.47 The size and type of container provided for households can also affect the performance of recycling. The provision of 240-litre wheeled bins can increase refuse arisings compared to the use of smaller bins or refuse sacks and so suppress recycling
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performance. The Audit Commission suggested that the increase in refuse arisings resulting from the introduction of 240-litre bins could be up to 25%, although this does not take account of reductions that may occur in waste deposited at household waste recycling centres (civic amenity sites).

- 4.48 Where Bring Sites are not provided, kerbside collections in high-rise developments or accommodation for the elderly could include special arrangements, such as chutes, to facilitate moving waste and recyclable materials from the residential unit to the collection areas.
- 4.49 It must be recognised that increasing kerbside recycling will also increase traffic movements within the Eastside area and may lead to congestion. Increased transportation is an important issue when considering sustainability. Traffic movements will be dependent on the recycling options chosen and, in the case of kerbside collections, the relationship between collections of recyclables and residual waste. Kerbside recycling collections can potentially treble the road traffic associated with the collection of waste, although this can usually be reduced by careful choice of systems and re-organisation of collection rounds. However, even slight increases in traffic movements can have an adverse impact on the local road network or the community, and must be carefully considered in promoting sustainable communities.
- 4.50 There are ways in which other local authorities have sought to reduce the degree of additional road traffic. One way has been to introduce pedestrian controlled vehicles (PCVs) to collect the kerbside recyclables from each household. These are electrically-powered, thereby minimising vehicle exhaust emissions, and operate on the footway, thus reducing congestion on the highway. These are being used in the London Boroughs of Islington and Haringey where 40,000 and 15,000 households respectively are served by PCVs.
- 4.51 There are advantages and disadvantages to these vehicles and some local authorities, such as Manchester, have withdrawn them from use. We understand that PCVs are being used in Birmingham by a not-for-profit organisation serving 2,000 homes in high density housing estates, but difficulties have been reported with the suppliers of the units in terms of delivery to specification.
- 4.52 A transfer station would be required for the bulking up and dispatch of materials, although this would not need to be a local Eastside facility but could in fact service the entire city centre if it was of a suitable capacity and appropriately located.

“Green Bin” Collection

- 4.53 Some local authorities operate a “green bin” collection system that collects a mixture of dry recyclables, such as cans, plastic bottles, paper and cardboard. This co-mingled recyclate requires separation in a Materials Recycling Facility (MRF), and may be subject to greater levels of cross contamination, reducing the quality of the recyclate so that it is less attractive to reprocessors and commands a lower price. The “green bin” system can result in savings in collection vehicles and collection rounds, and give higher levels of recycling, because it is an easy system for householders to understand and adopt.

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- 4.54 The Household Waste Recycling Act will require the separate collection of at least two materials, and the Green Bin system may become simply a support to the kerbside recycling collection, taking additional materials that can be easily sorted or where cross contamination is not a problem.

Bring Sites

- 4.55 Bring Sites are small scale facilities, often located in supermarket and public car parks. Bins or other containers are provided to collect a variety of materials which usually include paper and different colours of glass. Some facilities also offer bins or containers for old clothes, shoes and cans.
- 4.56 These facilities are often associated with broken glass and trip hazards (from excess bags of bottles and paper) and there is potential for localised noise and traffic. Correct siting of these facilities is therefore an important issue, as is their management and maintenance. There should be a balance between the need to minimise nuisance and to maximise their convenience.
- 4.57 Bring Sites will be used more frequently if they do not necessitate the householder making a special journey, so locations such as supermarkets, leisure centres and road sides are preferable. This also reduces the transport impacts associated with their use, making them more sustainable.
- 4.58 Mini Bring Sites should be incorporated into new or existing high-rise developments (see Chapter 5), the university campus and low-rise neighbourhoods. They should be sufficiently accessible and frequent to allow non-car users to use them. This is important for social inclusion where lifestyle, principles or family finances make the use of a car infrequent or impossible.
- 4.59 Underground storage bins should be considered for community Bring Sites to reduce the risks of litter, noise, odour and anti-social behaviour and improve the visual appearance of such sites, especially if sited close to residential areas. Large volume underground storage containers should also be considered as a means to reduce road traffic (see Chapter 5). These are widely used in Europe and comprise above ground chutes which are labelled for specific waste types. The underground storage containers require specialised equipment to unload and empty them but their large volume reduces the number of collection visits required, thereby reducing traffic movements.
- 4.60 Communal Bring Sites or 'recycling centres' could also be provided at convenient locations such as supermarkets or leisure facilities. Consideration could be given to partnership arrangements between BCC and supermarkets, whereby the recycling centre is located at the front of stores and is operated in-house by the supermarket. This arrangement can help local authorities meet their recycling targets and the supermarket to attract customers who are using the recycling centre.

Household Waste Recycling Centres (Public Waste Disposal Sites)

- 4.61 These facilities (also known as Civic Amenity Sites) provide a collection point for the recycling of bulky wastes, such as furniture, cardboard, waste electrical goods or
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household DIY waste, such as timber and bricks. The principal function of these sites is to allow householders to recycle waste materials which are not collected by the routine kerbside collection. They may also encourage self-reliant recycling behaviour patterns amongst car-owning residents, which may ultimately reduce the cost of recycling to local authorities.

- 4.62 However, consideration should be given to the risk of excluding access to recycling centres by residents who do not drive, where car ownership or the use of the car is low.
- 4.63 Sites vary in terms of their quality, design and appearance. Sites should be well managed by an adequate number of well-trained staff who are aware of the key issues, such as health and safety, good segregation of materials and environmental protection.
- 4.64 Household Waste Recycling Centres (Civic Amenity Sites) also vary enormously in terms of their recycling performance. The National Assessment of Civic Amenity Sites, funded by Biffaward and the National Association of Waste Disposal Officers (NAWDO), was launched in April 2003 and is due to report in January 2004. However, the research has identified a number of key areas which appear to influence recycling rates:
- Sites with re-use systems generally achieve higher recycling rates than those with no capacity for separating items for re-use;
 - Higher levels of staffing increases the tonnage that can be managed by each site and increases the recycling rate;
 - Direct Service Organisations (local authority staff) manage a high proportion of urban sites but generally perform the least well;
 - The best performers are small regional companies and the community sector.
 - Good, clear signage also plays an important role, particularly clear directional signs; good signage not only reduces the need for staff intervention but also minimises the contamination of materials with non-compatible wastes;
 - Elevated signage is generally considered to be preferable, particularly at busy sites where a large number of cars may use the site.
- 4.65 It is considered likely that one or two Household Waste Recycling Centres may be appropriate for Eastside. Consideration could be given to opening the site to local (i.e. Eastside) traders and businesses but levying a charge to all other commercial users.

Green Waste Composting

- 4.65 The absence of extensive gardens in Eastside, both currently and as part of the future plans for the site, and the lack of allotments mean that home composting schemes are

not likely to play a significant part in the future waste management strategy for the area.

- 4.67 Composting schemes for kitchen and garden waste must meet specific standards, including those set out in the Animal By-Products Regulations 2003, and any collection of kitchen wastes including meat products would necessitate systems that meet the Regulations.
- 4.68 The development of a neighbourhood green waste composting facility in the Eastside area will be a useful method of managing the waste from the proposed city centre park, arboricultural waste from the redeveloped streets and boulevards and source-separated biodegradable waste, such as vegetable and plant waste.
- 4.69 Ideally, the facility would be located close to the park for maximum convenience and efficiency. The city centre location and proposed public access, the requirements of the Animal By-Products Regulations and the need to minimise the emission of odours and bioaerosols mean that an in-vessel aerobic facility would be most appropriate. These composting vessels can be designed and constructed to meet the needs of the site, but generally can be accommodated within a relatively small scale agricultural style building.
- 4.70 Compost from the facility could be used within the park, for street landscaping and other communal landscaped areas within Eastside, thereby creating a local incentive. If considered practical, local businesses and residents could contribute their compostable materials, although this would need to be managed to ensure that only acceptable materials were provided.
- 4.71 Community groups could be encouraged to use the composting facility. It could be used for educational visits by local community groups and other interested parties, such as schools, in order to promote the principle of composting and to encourage people to 'try it at home'.
- 4.72 Organisations, such as the Community Recycling Network, have studied the participation of different social groups in recycling and composting initiatives. Their involvement and guidance on schemes such as this may be helpful and lead to a higher level of public participation.

Recovery

- 4.73 For non-recyclable and non-compostable materials, we would propose that the waste is used for energy recovery at the nearby Tyseley EfW plant, or other appropriate facilities within the region. In the medium to long term, technologies such as Mechanical and Biological Treatment (MBT) with anaerobic digestion and biogas utilisation may become more widespread, but do not offer the same efficiencies of energy recovery (per tonnes of waste) as Tyseley EfW plant. However, the number of options for recovery is likely to increase with time.

Disposal

- 4.74 All residual waste which is not capable of being re-used, recycled or recovered must be disposed of to landfill. The Landfill Directive requires that all waste sent to landfill should be pre-treated, by sorting or other accepted methods, in order to minimise the risk to the environment.
- 4.75 Before waste is sent to landfill, consideration should be given to recovery/reduction methods such as MBT where waste is physically sorted prior to undergoing biological treatment. The two treatment phases can significantly reduce the volume of residual waste sent to landfill. Other recovery options, which BCC may wish to consider for the medium to long term are anaerobic digestion and technologies such as pyrolysis and gasification.
- 4.76 Given the character of Eastside post-regeneration, the location of major waste treatment and disposal facilities within Eastside area is not appropriate. Such facilities should be located in industrial areas, away from residential, leisure and educational areas.
- 4.77 The draft Directive on hazardous household waste is likely to lead to significant changes in the way materials such as paints, bleach and batteries are managed. Currently most of these materials are disposed of to landfill. However they will need to be diverted from the general household waste stream by separating them at source and this will have implications for both the waste collection and disposal authorities. Within Eastside, BCC will need to establish facilities and systems for the separate collection of hazardous household waste.

Management of specific waste materials

Batteries

- 4.78 EU Directive 91/157/EEC, adopted in March 1991, aims to reduce the level of heavy metals in batteries and to ensure the separate collection of both single use and rechargeable cells for recovery or disposal. The Commission has approved a proposal for a further draft Directive which will set new collection and recycling targets for all types of batteries and accumulators and require that they can be easily removed from appliances.
- 4.79 Under the new Directive it is likely that Member States will be obliged to set up schemes for collecting waste batteries and accumulators separately from other household waste, with a target of 75% by weight of all used batteries and accumulators to be met by 31 December 2004, and a minimum 95% by weight of all used industrial and automotive batteries and accumulators – these targets would have to be reviewed no later than 31 December 2008.
- 4.80 As well as ensuring batteries and accumulators are disposed of in accordance with the Framework Directive on Waste, Member States will also be required to aim for recycling of 55% by weight of materials in used batteries and accumulators by 31 December 2004.

Waste Electrical and Electronic Equipment

- 4.81 The Waste Electrical and Electronic Equipment (WEEE) Directive (2002/96/EC) was published on 13 February 2003. Various requirements of the Directive will come into force in late 2004, 2005 and 2006.
- 4.82 Under the Directive, manufacturers will have to recover or recycle electrical or electronic equipment, thus reducing the amount sent for final disposal to landfill or incineration without processing. Householders will be able (but not compelled) to return WEEE to retailers on a 'one for one' basis without charge. Retailers will be allowed to establish alternative collection systems so long as these are no less convenient for householders. There are targets for recycling and recovery of materials and components from the separately collected waste. The Directive will cover household appliances such as toasters, toys, washing machines and audio-visual equipment together with equipment used for professional purposes, such as printers and computers.
- 4.83 The implications of the Directive are likely to be that the amount of electrical and electronic equipment taken to civic amenity sites, or disposed of in the household waste stream, will reduce significantly. Currently it is uncertain as to how awareness of the scheme will be publicised, but it is likely that promotional literature, for examples, notices in local papers, may help to raise awareness.

5.0 CASE STUDIES AND EXAMPLES OF BEST PRACTICE

Waste Minimisation

Re-usable trays eliminate waste, improve handling and save money

A brewery in Finland, Hartwell Bryggerier, has developed a re-usable tray system for transporting drinks that eliminates the need for secondary packaging. The system comprises moulded plastic trays on wheeled trolleys. The trays are five times lighter than previously used crates and enable 40% more bottles per lorry load. The trays are ideal for bulk distribution and merchandising of drinks in PET bottles.

The tray is designed to be used in either a totally automated or a manual environment. The product can be packed automatically at the time of production onto the new tray and trolley combinations and rolled directly onto the shop floor, eliminating the need for crates or cardboard trays altogether. The bottles are held securely in moulded depressions in the tray.

The benefits of this system compared with the crate system include:

For the manufacturer:

- direct cost savings on every bottle distributed (approx £1.10 per 100 bottles);
- nearly 15% more bottles distributed each load;
- nearly 15% more 'in stock' without occupying more space;
- lower obligation where packaging reduction targets are set, e.g. in national waste policy; and
- reduced production labour due to automation between production and point of sale.

For the supermarkets:

- the new trays are made from recyclable polypropylene;
- bottles are ready-packed for supermarket display;
- higher quantity of product on the same floor space; and
- reduced manual handling cost in stacking on shelves.

(Source: Envirowise)

New technology encourages recycling of electrical equipment

The amount of waste electrical and electronic equipment discarded is expected to double by 2010. Such waste materials often incorporate toxic metals, such as lead and cadmium, which can potentially cause pollution.

The high turnover of these products, caused by the short product lifetime, has encouraged the European Commission to publish the Waste Electrical and Electronic Equipment (WEEE) Directive which introduces new “take back” legislation. European Union Member States may have to recycle or re-use 80% of electrical components as early as 2006. Under new EU laws, the industry will be expected to take back their products once the consumer has finished with them.

As a result new technology is needed that will make products easier and cheaper to recycle. Currently most items of electrical and electronic equipment are sent to landfill for final disposal. Many waste products comprise hundreds of components which would have to be carefully separated before recycling, making the process both complex and expensive.

Now however, new technology is being developed at Brunel University, UK, which allows electrical goods to “take themselves to bits” at the end of their lives, ready for recycling. It is hoped that the technology, known as ‘active disassembly’, will reduce the complexity and cost of reducing electrical products to their constituent parts. To date the self-recycling technology has been developed on mobile phones. It is achieved by incorporating within the phone, a series of ‘smart’ devices in the form of springs, fasteners and screws made from ‘shape memory’ alloys and polymers. These metals and plastics can hold different shapes at various temperatures. When the waste phone is heated, the smart fastenings trigger the casing to pop open, the springs to push the screen out and the screws to lose their grip and let the circuit boards drop out. It is hoped that careful grading of the smart materials could see products dismantle themselves on a conveyor belt in a systematic way.

In assessing the life cycle of a product and considering its environmental impacts at the design stage, manufacturers of electrical equipment have been impressed with the new technology. It is likely that self-recycling products will be available by 2010.

(Source: Envirowise)

Recycling

Mini bring sites at high rise developments

Hounslow Borough Council has approximately 15,000 high-rise households. A recycling scheme therefore needed to be suitable for this type of housing. The scheme uses a near entrance 'estate frame' system of mini bring sites. The system comprises five 240 litre wheeled bins to collect newspaper and magazines, cans and three colours of glass. The bins fit into a sturdy metal frame which locks the bin lids shut. On large developments, there are some 260 litre or 360 litre bins and sometimes an additional paper bin. Instructions for what each bin accepts are printed in bright colours onto the bin lids. Great efforts have been made to deter vandals and the holes where materials are placed are guarded by thick plastic flaps to prevent arms reaching in for glass or cans to use as weapons.

When Hounslow Council signed a new seven year contract with collection contractors ECT in April 2002, it stipulated that every single home would receive some sort of 'near entrance' recycling service, including flats.

The decision about which blocks of flats receive the near-entrance frames is based simply on their size. If a block of flats has at least 30 properties, it will be included in the scheme.

There are three important key elements to the success of the scheme:

- *Siting the bins sensitively (not too close to houses/flats incase they are set on fire, and not overlooked by windows);*
- *Informing the residents of the new system;*
- *Ensuring everything runs smoothly once the bins are in place.*

The high-rise scheme was helped initially by London Re-Made which paid for the first 40 sites as part of a pilot in 2002. Now under the contract the council pays for all the capital elements of the scheme, such as the frames and banks, which cost £400 per site to install, and vehicles. The council can then claim recycling credits, while ECT pays for the collection's manpower and then keeps any profit made on materials collected.

(Source: 'Resource Management and Recovery' 3 October 2003)

RABBITT Recycling

RABBITT Recycling (RABBITT stands for “recycle all batteries, bulbs, inkjets, toners and telephones”) is a nationwide dry recyclables management company based in Gloucestershire. It offers a ‘one-stop’ recycling shop and raises money for its clients by selling on the materials it collects.

The company was developed in response to the WEEE Directive as the company’s founder, Mike Morris, saw that the Directive was going to pose problems for businesses. RABBITT expanded its range of collected materials to include plastic, paper, cardboard, metals and all dry recyclables.

The Company has an unusual pricing structure. It charges only £10 per premise per week, plus 15 per cent of the revenue generated from the sales of the recyclables – and the rest of the profits go to the client. The company is able to make money because the revenue from valuable recyclable, such as cartridges, mobile phones and computers, more than offsets the low value materials.

RABBITT itself collects smaller items such as cartridges and phones, using a carrier or by FREEPOST pouches, but larger items are managed by a number of different firms. For example, Mercury Recycling collects the fluorescent tubes whilst Smurfit collects the paper and pays RABBITT a good price based on the guaranteed supply of high-quality material. RABBITT provides the centralised logistics and organisation and acts as a broker.

(Source: ‘Resource’ November –December 2003)

Newport City Council strives for exemplar status

Local authorities in Wales are working towards recycling and composting targets of at least 15% by 2003/04 and at least 40% by 2009/10 which were set by the Welsh Assembly. However, Newport has been chosen, along with four other authorities, to work towards exemplar status.

These authorities are being given support to apply for funding sources, including the New Opportunities Fund, European structural funds and the Landfill Tax Credit Scheme, to achieve a recycling and composting target of 50% by 2006.

Newport's recent recycling and composting performance has been impressive, rising from 6.4% in 1999 to 17% in 2002, making it one of the best performing authorities in Wales. This has been due to a number of different recycling initiatives.

In the past 12 months the council has launched its 'Rethink Rubbish' campaign, carried out a garden waste collection trial, opened a purpose built composting facility and introduced plastic and cardboard recycling banks at its civic amenity site.

The council has also appointed a recycling warden who visits all areas of the city to encourage residents to use the green box scheme. He also advises people on how to use their wheelie bins and contacts those who put out too much rubbish, to help them avoid this.

The council has also adopted a 'return to sender' campaign, for any unsolicited brochures and catalogues that are sent to the council's mailroom. The council receives more than 2,500 items of unwanted mail each year. The council now returns the mail to the sender, unstamped, along with a request to remove the council's details from their mailing list.

The local authority has also set up a partnership arrangement with community group Newport Wastesavers, and this has enabled more than 50,000 single storey households to have a fortnightly (soon to go weekly) green box kerbside collection of paper, glass, cans and textiles. Newport Wastesavers is a community organisation that has been providing recycling boxes in the city for more than a decade. As well as the green box scheme, it also runs a school education project and an office paper collection. Its charitable arm runs a community furniture project collecting unwanted furniture, making repairs and passing the items on to people in need. The group is currently pulling together more than £3 million of grants from various sources including the New Opportunities Cleanstream Funding, the Welsh Assembly, Wales European Funding Office and Corus Steel Packaging. The aim is to use the money to build a recycling centre that will be a base for all of Newport's recycling services, and working with the Centre for Alternative Technology, the building will be constructed to the highest environmental standards.

(Source: 'Resource' November-December 2003)

Stacking Containers Increase Participation

Egbert H. Taylor and Company Limited's stacking kerbside boxes have been helping North East Lincolnshire Council increase their overall recycling rate from 9.4% in 2001/02 to 15.4% in 2002/03. The segregation system uses three differently coloured containers, labelled to indicate the items that should be placed inside them – glass in the bottom box, paper in the middle box and cans in top box.

The stackability of the boxes reduces the floor space taken up, and it is tidier for residents who often may have to store the boxes in a kitchen area. The main advantage is that the boxes are helping the council to reach their recycling targets, allowing them to reinvest the returns into improved services.

(Source: CIWM 'Wastes Management' November 2003)

Colour Coded Bin Lids Help With The Recycling Message

Sulo MGB Limited has launched a new range of printable lids on their wheeled waste containers. The lids have been redesigned with a large flat area on which Sulo can stamp or screen print any name, logo or other information, such as promotional messages. Interchangeable coloured identification plates can be also fitted to the handle of the lid, to enable easy identification of the bins.

(Source: CIWM 'Wastes Management' November 2003)

British Airport Authority Strives For Waste Minimisation and Recycling of Construction Waste

In 2001, British Airport Authority (BAA) began to look at its approach to construction waste. Its main concerns were to increase waste segregation, re-use and recycling and to promote waste minimisation.

Waste minimisation has been achieved by reconsidering the approach to both materials use and their transportation and storage, centred on BAA's Construction Consolidation Centre. The centre, in conjunction with its contractor SITA, supplied 20,000 pallets to Heathrow last year while managing to cut CO₂ emissions by 37% and reduce total journey times by 24,000 km. Another part of the drive to minimise on-site wastes has seen more off-site fabrication. Around 100 standard products have been developed such as toilet modules and piers (passenger walkways), standardised to control the use of materials.

Recycling has also been a key objective of BAA. In 2001 BAA entered into an arrangement with a recycling plant near to Heathrow. Now, all of the authority's construction waste from its airports in the South East is taken for sorting and recycling.

The results of the authority's recycling performance are impressive. During 2002/03, 81% by weight of the 6,005 tonnes of mixed construction waste was recycled, leaving only 1,141 tonnes going to landfill. An additional 48,033 tonnes of inert material was sent to landfill as a result of waste generated from runway and taxiway renewal works. However 69,783 tonnes of concrete, inert material and planings waste from these works was crushed and re-used on site at the airports as a sub-base for new works, saving the export of waste materials, the import of thousands of tonnes of virgin aggregate and all of the associated vehicle miles.

For Heathrow's Terminal 5 project, BAA plans to use an in-vessel composter on-site to deal with all the canteen waste generated. This will not only reduce the waste by 50% but will minimise the traffic movements required to dispose of the material.

By March 2010, BAA aims to have reduced its total waste sent to landfill to 60%.

(Source: CIWM 'Wastes Management' November 2003)

Waste timber is diverted from landfill

It is estimated that more than a quarter of the UK's waste timber is sent to landfill and 12% is incinerated without energy recovery. This equates to a loss of around 40% to unsustainable disposal methods.

The National Community Wood Recycling Project, launched in March 2003, is a nationwide campaign looking to divert wood from landfill through re-use. The project was set up to replicate the success of Brighton and Hove's outstanding community scheme which has seen 3,500 tonnes of wood waste collected from builders and recycled since 1998. Builders are charged a collection rate lower than the cost of the space the wood would take up in their on-site skips. After sorting, about 2 tonnes of timber a week, worth about £1,500, is sold cheaply to the public for any number of DIY uses.

Organisations such as WRAP and ReMade are exploring other markets for waste wood such as the manufacture of wood-plastic composite, already produced in quantity in the USA.

(Source: 'Resource' November -December 2003)



Underground glass recycling container (Dordrecht)

Underground Recycling Containers in The Netherlands

Netwerk, is a company owned by four local authorities in the southern part of the Netherlands. Netwerk's Dordrecht operation serves 120,000 people and collects 66,700 tonnes per annum (tpa) of household waste. Of this, 40% is recycled or composted (not including construction/demolition waste or ash recycling) and the remainder incinerated at a 240,000 tpa incinerator in Dordrecht that serves some 17 local authorities. Only incineration residues go to the one large landraise facility as landraise void is at such a premium (literally a premium at £78/t including tax). It is illegal to landfill mixed household waste in the Netherlands.

Five years ago a pilot waste collection scheme began using underground containers for collecting both residual household waste and recyclables in the historic centre of Dordrecht. This scheme was developed when, in an attempt to reduce the amount of sick leave taken, the workload of each 3-man crew was limited to emptying 1130 (number) wheelie bins per day. This limit had reduced Netwerk's productivity by 25%. Netwerk decided to try OMB's mechanised collection scheme that allows one-man operation, in this case collecting both above and below ground containers with existing but modified side-loading vehicles.

The underground containers in Dordrecht are mainly used for multi-occupancy buildings. The underground glass recycling containers are quiet and unobtrusive, leaving just the metre high posts above the ground, one for each colour of glass. In Dordrecht, commercial waste is also collected in the underground containers.

Netwerk believe that the automated collection system makes for better working conditions for the operatives and a better environment around the containers as waste should no longer left outside the containers. The capacity of the containers can be much larger underground, so instead of 1100 litre wheeled bins, they now use containers with 3000-5000 litre capacity for glass, paper and biowaste for recycling and also for residual waste. Between 2% and 3% of Dordrecht's household waste is collected in underground containers and Netwerk as a whole has 25 underground containers. Each container costs about £6,250, but the associated concrete construction costs anything from £1,500 in the suburbs to £9,400 in the city centre where the cables in the ground make installation difficult. The investment is repaid by the productivity of the collection operatives, who can empty each container in less than two minutes, giving staffing efficiencies.

Each underground container has access for the fire brigade to flood it with water if there is an arson attack. The same access can be used by a gully emptier to remove any water which might seep in from the water table which is just as high in Dordrecht as it is in the UK at the moment. OMB is developing a remote weighing system to help schedule collections for when the containers are nearing capacity. At present the drivers are relied upon to know from experience when each container will need emptying.

(Source: Robert Long Consultancy visit in 2001)

