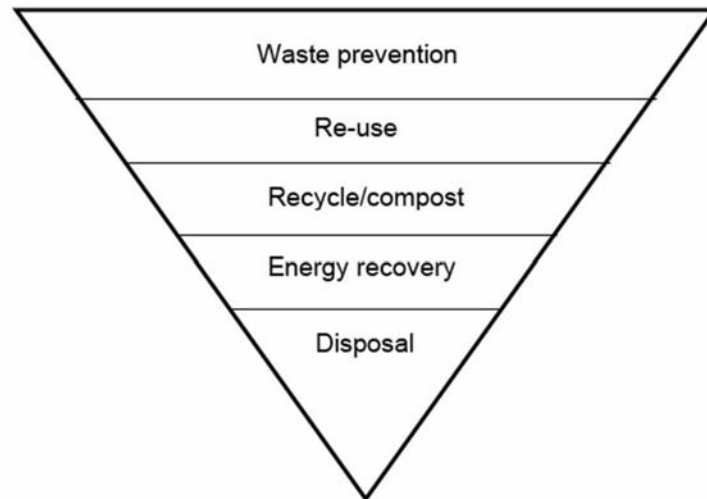


## 6 Retrofitting solutions: other issues

### Waste management

- 6.1 Defra's Waste Strategy for England 2007 is based on the sequential approach or 'waste hierarchy' illustrated in Figure 6.1 below. In principle, it is a sound approach generally adopted by local authorities and a good starting point for considering a waste strategy for Soho.



**Figure 6.1: Defra's Waste Hierarchy** (Source: Defra d)

- 6.2 In practice, however, the waste hierarchy approach has limitations in the Soho area. Waste prevention, as the first port of call, puts the onus on occupants to reduce the amount of waste they produce. Indeed the Packaging Waste Regulations require businesses to pre-sort their waste. Businesses and households can undoubtedly become more efficient in their daily practice to reduce the amount of waste they produce (e.g. not purchasing food that is subsequently left uneaten and thrown away). | 73
- 6.3 Campaigns to influence this behaviour may have some impact, although the authorities must also been seen to be doing their bit to overcome barriers and offer incentives. However, much of the business activity in the area such as restaurants and shops inevitably produce waste.
- 6.4 Sustainable Procurement Action Plans provide one innovative way to good management and companies can take the initiative by requiring suppliers to take back packaging or to use renewable delivery boxes. Again, by the very nature of the place and the activities that take place within it, however, there will be irreducible amounts of food waste, packaging and office waste that need to be recycled or disposed of.
- 6.5 Much of the waste produced by all activities in Soho, including office-based and domestic, takes the form of packaging. Those responsible for producing the packaging are manufacturers and suppliers, for the most part unrelated to the businesses operating in the area. Initiatives already taken by large retailers with green corporate social responsibility plans might be copied by other companies but very little is evident. Government legislation or other forms of persuasion are therefore necessary.
- 6.6 Ironically, the regularity of Westminster City Council's refuse collection service (driven by environmental health requirements and the nature of the commercial activity in the area and the insufficiency of on-site waste storage in some premises) and the insufficiency of on site storage in some premises does not encourage waste reduction and prevention, or recycling. Where in Westminster, in general, all residential dwellings receive a minimum of two collections a week, in Soho and other areas with significant commercial premises the frequency is much higher.

- 6.7 Chris Best of the Soho Housing Association sees Westminster's (and the various private contractors) refuse arrangements as an inhibitor for effective waste management. Collections are made three times a day. 'If you know your rubbish is going to be removed 24/7, you are not persuaded into kerbside collection (of recyclable waste)'. This may well be true except where rubbish collection charges are higher than those for recycling services. While some larger properties can accommodate the large 'euro' bins, small properties are not well served. However, kerbside collections are difficult to make work in Soho as recycling systems based on containers or rubbish bags left on the narrow pavements quickly get overturned or broken and spill their contents due to high levels of pedestrian movement.
- 6.8 Waste separation for recycling is space intensive, whether in the home, building, street or street block, and space in Soho is at a premium. The City Council operates a residential waste collection service in many Soho streets. Specified items do not need sorting and all go into blue recycling bags that can only go out on the morning of the specified collection day.
- 6.9 Soho's narrow pavements present a challenge to recycling as there is little space for the on street storage of waste prior to collection. Many businesses and households in Soho and Chinatown have to negotiate several flights of stairs for both deliveries and waste/recycling, which is a further deterrent.
- 6.10 The Council's policy is to minimise the volume of waste placed on pavements for collection in order to improve the quality of life for residents, visitors and those working in Westminster. The aim is that 'all premises must have adequate storage space to contain waste, including separate storage for dry recyclable material.'<sup>1</sup>
- 74 | 6.11 This is fine in principle but not so easy to achieve in Soho. Where larger businesses may find space for separation and storage of recyclables, it is rarely cost effective for small and medium-sized enterprises. In this respect, there is a need for innovation by building on the Council's strategic approach, and involving both the public and private sector.
- 6.12 Adequate storage facilities can only be retrofitted where space allows and the Council's remit, in planning policy terms, only applies when a new development, extension or change of use is submitted for planning approval. (Premises serving food and drink, of course, have to meet environmental health requirements to obtain licenses).
- 6.13 On-street recycling which can be used by shoppers, tourists and workers is best done through separation in collective storage areas. At present this is limited to two micro recycling centres (collections of euro bins) in the northwest sector of the area, at Dufours Place and Ramillies Street, and a paper bin at the Tottenham Court Road end of Oxford Street. The rest of Soho and Chinatown is not served. With very limited and inadequate communal space within street blocks for waste management facilities, it becomes more critical to provide more neighbourhood micro-recycling facilities.
- 6.14 The City Council's policy observes that 'Where appropriate, in major new developments, the City Council will require the provision of a public micro-recycling site, to provide additional facilities for the local community. This will need to have storage space for a minimum of four 1280 litre eurobins to provide a small multi-material recycling centre.' Micro-recycling centres are intended for residents, for whom the costs of waste and recycling collections are covered by their Council Tax. Non-residential organisations pay for their waste and recycling collections pro rata.
- 6.15 Surprisingly, given the policy requirements to area improvements quoted in the previous paragraph we can find no mention of recycling facilities in the Soho Action Plan.

1. Westminster City Council. 2004d.

- 6.16 However, it is a recommendation of this study that there should be a survey to identify potential space for small and large scale, local solutions (through commercial enterprise, public-private partnership and/or developers contributions) to enhance the efficiency of recycling of local waste such as anaerobic digestion of food waste and large-scale waste separation. As previously noted, there is scope for a major initiative to fund the provision of well-designed and high profile street facilities throughout the West End. There will always need to be separate facilities for residents only. For commercial occupiers there will need to be contractual and security measures in place to ensure that only those who pay for the service are able to use it to prevent unauthorised 'free-loading'.
- 6.17 Soho generates bulky items of waste to be collected and disposed of on a continuous basis including furniture, equipment and fittings from offices, shops, restaurants and places of entertainment. This should be done sustainably and occupiers should find out which companies can provide a service that ensures that they are recycled or re-used. Some of these items are covered by recent EU directives on Hazardous Waste and Waste Electrical and Electronic Equipment. These require additional access for a larger range of operators whose vehicles add to congestion and pollution in the area.
- 6.18 One of the findings of the research, involving extensive web search, is that there is a considerable amount of information available about waste management, as with almost all other areas of sustainability investigated. Some web sites, like that of the London Community Recycling Network (Box 6.1), Recycle for London and London Remade are simple to use, informative and act as highly effective portals to other sources of information.<sup>2</sup>
- 6.19 Other sites are not necessarily so easy to find, or navigate once you get there. The real danger, with retrofitting sustainability in general, is information overload and the user may need to invest a considerable amount of time into researching the range of options available. Whilst further market research is necessary to confirm this, consideration should be given to investigating the design of web portals (whether existing or new) and other forms of publicity that can better guide users in satisfying a range of information needs.
- 6.20 The main Government-funded free information and advice service on sustainability issues for business is Envirowise, which has a London regional office and produces publications, which include the topic of waste.<sup>3</sup> Waste Watch is the main campaigning group in this area, and offers training mainly in schools and to households, but also to businesses.<sup>4</sup>

### **Box 6.1 London Community Recycling Network and Furniture Reuse Network**

London Community Recycling Network's excellent web site includes a page that lists a wide range of community recycling services available to residents and businesses operating in Westminster (although these are largely services based outside of the borough).<sup>5</sup> Its London Furniture Reuse Network links 17 furniture and appliance reuse projects in London.

It also provides a Guide to Waste Electronic and Electrical Equipment, as a new EU Directive comes into force placing the responsibility on producers of electrical and electronic equipment to recycle or reuse end of life appliances. This web page gives a list of London-based organisations that accept household appliances and computer equipment.<sup>6</sup> All this is very useful to residents and businesses alike, but most will probably be unaware that such advice exists.

*(Source: London Community Resource Network a)*

2. Recycle for London; London Remade.
3. Envirowise. London <<http://www.envirowise.gov.uk/london>>.
4. Waste Watch.
5. London Community Resource Network b.
6. London Community Resource Network c.

- 6.21 London Sustainability Exchange offers a Green Guide for Offices.<sup>7</sup> This provides detailed information on office waste recycling facilities in London and is available to all businesses operating in Soho.
- 6.22 One service focused on SMEs is The Laundry a joint venture between BioRegional, an environmental charity, and London Recycling Ltd, a commercial operator. They supply bags for a limited range of recyclables and they are collected at fixed time each week. Another service is Paper Round.
- 6.23 Designing an integrated recycling and waste management strategy for an area like Soho is a major challenge. However, with Soho's narrow streets and pavements, leaving waste or recycling materials out for collection even for a short period is an unsightly way of carrying out this function. There are added hazards in that bags are occasionally broken into by scavenging people and dogs or blow or are kicked into the highway creating obstacles and further mess. It is a problem that only the local authority can drive forward with any likelihood of success, although larger landlords could have a significant role to play by initiating green action plans involving their own tenants.

### **Water and drainage**

- 6.24 There is limited potential for retrofitting sustainable urban drainage to Soho's heavily used streets and narrow courtyards. Adapting buildings internally and externally offers the better chance of managing the flow of water, through rainwater storage, grey water recycling and more efficient fittings. Water use also has related carbon emissions implications, while solutions that are covered elsewhere in this section, notably the installation of green roofs, can also have a significant impact of water management and conservation.

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- 6.25 Water management is best first addressed through reductions in use. Existing fittings can be replaced with new fittings that are more economic in their use of water. Toilet flushing accounts for about 30% of domestic water consumption, and even more in offices. Old cisterns can have a capacity of up to 10 litres whilst water regulations now require this to be reduced to 6 litres.<sup>8</sup>
- 6.26 Existing cisterns can be retrofitted with bags to reduce the volume of water but new low flush toilets are more effective. Dual flush toilets have a standard 4 or 6 litre flush and a reduced flush of 2.5 or 4 litres. Waterless urinals can save up to 30% of the water used in offices and can be cost-effectively retrofitted.<sup>9</sup> Spray taps and water saving washing machines and dishwashers all help reduce water use significantly.<sup>10</sup>
- 6.27 As well as for use in watering gardens (including roof gardens) recycled rainwater can be used for flushing toilets or in washing machines. Grey water from sinks, showers and baths can be recycled in toilet flushing. Recycling of grey water and rainwater, however, often requires bulky and heavy storage tanks. With rainwater butts or storage tanks, these are best located underground or at ground floor level where outdoor space is at an absolute premium. There is some potential for them as part of roof gardens and terraces, depending on roof levels. There are also opportunities to incorporate rainwater harvesting and grey water recycling during major renovations (see Box 5.4), but space limitations remain an issue in all other contexts.

7. LSX.

8. Westminster City Council. 2003. p41.

9. *ibid.*

10. *ibid.* p42.

- 6.28 According to our preliminary analysis of satellite image and aerial photo surveys, approximately 65% of the surface area in Soho is roof.<sup>11</sup> Without rainwater harvesting almost all rain falling in the area will end up in storm water drains, from run off from roofs of hard paved street and courtyard surfaces. The opportunities for incorporating sustainable urban drainage systems through retrofitting semi-permeable surfaces at ground floor level are limited, with most outdoor space being public street space. The City Council could examine whether there are parts of the area where semi-permeable street services would be acceptable. However, given the large extent of flat roofs in the study area, retrofitting green roofs could have a significant impact on the management of rainwater run-off.
- 6.29 Whilst Soho, itself, may not be in particular danger from flooding from the Thames, any way in which retrofitting measures can contribute to storm water management in the larger Central/West End area, which includes areas that are more vulnerable, is to be encouraged. In this respect, green roofs and rainwater harvesting from roofs have potentially an important role to play.
- 6.30 Interestingly, there has been more of a threat from below rather than above. As previously noted, the abstraction of water from the Chalk of the London Basin has been in decline over the last century and groundwater has begun to rise in the centre of the Basin. By the late 1980s, this was recognised as a risk with potential consequences of flooding of subsurface infrastructure, including deep tunnels and the basements of tall buildings and possible settlement of foundation structures of tall buildings and Underground escalators. Action plans were developed by London Underground, Thames Water and the Environment Agency and a new scheme put in place to manage the groundwater levels which has reduced the significance of this issue.<sup>12</sup> Soho lies on the edge of the area of greatest potential water recovery.

### Transport, noise and air pollution

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- 6.31 Transport, noise and air pollution are closely inter-related as traffic is the main source of local air pollution and one of the main sources of noise pollution.
- 6.32 As previously noted, the introduction of quieter, cleaner vehicles could address some of the noise and local air pollution issues over time. Electric cars and delivery vehicles are making an appearance, which are quiet and significantly less polluting at the point of use (and also overall independent of how the energy to charge batteries is generated).<sup>13</sup> These are permitted to park without charge. Hybrid and LPG-fuelled vehicles have similar benefits. Provision of on street electric vehicle recharging points in Soho would undoubtedly help in this respect.
- 6.33 A number of other technologies are being explored as alternatives to petrol-driven vehicles. Some, such as bio-fuels, being simple hydrocarbon substitutes for burning in internal combustion engines, offer little advantage in terms of noise and air pollution. Others, such as fuel cells, though better in this respect, are not yet practical or effective in most cases (there are a limited number of London buses which are trialling the use of hydrogen cells) because of space needed to store the very light hydrogen gas required to fuel them. There continues to be improvements in battery technology but batteries remain heavy in relation to the weight of the vehicle they are powering.

11. More accurate aerial and high level photographic surveys are necessary to provide an accurate estimate of the extend of flat roof and its location in the area.

12. Jonas. M.

13. Noting that particulates are also emitted from tyre and brake wear whatever the source of power.

- 6.34 There is also potential for the development of niche vehicles such as electric scooters, which are easy to use, cheap to run, easy to recharge and quiet and non-polluting. These are popular in major urban centres in China. Scooters now being made there have a top speed of 45kph, can travel 150km on one charge, have an easily extracted battery weighing approx 5kgs which can be taken into the home and recharged in 1-2 hours. They are stylish, well designed machines which, with the right marketing, could become the 'must have' means of transport in city centres. Electric scooters and motor-cycles (such as Vectrix) already operate in Westminster and have been promoted at several electric vehicle events, in Covent Garden and at the launch of on-street re-charging points.
- 6.35 These types of vehicles are exempt from the congestion charge. As a result of the congestion charge there are now a number of large West End car parks operating well below capacity. We do not know what the case is with car parks in Soho but note that the Brewer Street NCP car park is regarded as a development opportunity site in the Unitary Development Plan. A suitably chosen site would provide the opportunity for conversion into a highly visible sales, marketing, leasing and hire centre for electric scooters.
- 6.36 Cycling is being encouraged, with two planned strategic cycle routes – part of the London Cycle Network Plus which Transport for London (TfL) aims to complete by 2010. The City Council is also looking at improving cycle storage provision beyond the 5,000 spaces that exist in Westminster. Again, space is a limitation and possibly a sustainability strategy should be looking to turning over car parking space to secure cycle parking.
- 6.37 As far as personal movement is concerned, most people are likely to rely on public transport in Soho, which is extremely well served by bus and Underground services. Most people working in the area are likely to get there by public transport although more could be done to encourage cycling by employers providing showers and lockers and more on and off street cycle parking.
- 6.38 Company green transport plans are required in relation to some planning applications and could have an extended role. Most residents in Soho live in flats above the ground floor and this reduces their use of cycling because of the need to keep a bicycle in the flat and the effort in taking it up and down stairs. The City Council could look to produce a cycle storage scheme for residents similar to ResPark for cars so that local residents had access to a nearby cycle store either on street or within the existing car park network.
- 6.39 Bus routes and the four major Underground stations are located around Soho rather than in it. The issue for visitors to the area is finding their way to the appropriate bus stop or Underground station. This applies in particular to tourists at night, but also visitors using the area's narrow and sometimes confusing street layout during the day.
- 6.40 This is something that could be addressed as part of Westminster City Council's short term plans to design a programme of streetscape and signage improvements (including 'waymarking' the West End) as outlined in the Soho Action Plan.
- 6.41 This should be seen as part of a larger and longer-term programme of street and public realm improvements to tip the balance in favour of pedestrian movement, whilst managing necessary traffic movement, in particular for service vehicles. This may require limiting access for service vehicles in specified streets to certain times of the day, and particular surfacing and street furniture treatments.

- 6.42 A number of streets in Soho and Chinatown have been pedestrianised (see Figure 7.5). We are not able to explore traffic management issues in any depth in this study but any strategic plans to improve the sustainability of Soho would have to look further at the issue of the management of the public realm and its relationship to the sustainability issues discussed in this report (e.g. the effect of street noise and pollution on the use of windows for natural ventilation).<sup>14</sup> Any improvement to street environment, and the quality of life of occupiers of the properties fronting on to the busiest streets, depends on confronting the traffic issue.
- 6.43 Early morning deliveries to, as well as late night noise from traffic and clientele of bars, pubs and clubs is an additional problem for residents living in their proximity. Air conditioning and mechanical ventilation can cause additional noise problems for residents and other occupants. Noise, and pollution, from various sources in turn constrains the use of windows to provide natural ventilation and cooling, creating a vicious circle leading to increasing demand for more ventilation by mechanical means. Therefore, improving energy efficiency also depends to a degree on making streets quieter and cleaner. The City Council has carried out noise monitoring in 2008 and this will contribute to the development of a citywide Noise Strategy
- 6.44 We note two action points in the Soho Action Plan that address this issue:
- Develop a strategy to deal with ambient noise levels in Soho (including noise from late-night traffic, air conditioning units, patrons of licensed premises and waste collections), and
  - Carry out a traffic survey, to include pedestrian priority
- 6.45 As a subject of ongoing concern within the community and City Council, it would be interesting to know what lessons had been learned from existing pedestrian and traffic management schemes in Soho and nearby Covent Garden. One of the problems noted with pedestrianisation has been that if it is permanent and in an area with a concentration of bars it turns into an all night party. For this reason the experimental pedestrianisation in the mid-1990s of Old Compton St had to be withdrawn. It was shown that some traffic movement had a sobering effect. We understand many residents oppose complete pedestrianisation and prefer traffic control measures and highways that are shared surface.

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### Biodiversity

- 6.46 Green space within Soho is at a premium and there are only limited opportunities for increasing biodiversity in the public realm. However, with 65% of the surface area in Soho being roof, and a substantial proportion of this being flat roofs, there is potentially a large opportunity for increasing biodiversity at roof level through the construction of 'living' or green roofs. As the City Council's SPG on *Sustainable Buildings* notes, there are three main types of green roof:
1. Intensive – accessible roof gardens, requiring frequent maintenance, normally constructed over reinforced concrete roof decks.
  2. Simple intensive – mainly lawn and ground cover plants – occasional accessible but requiring regular maintenance and irrigation. More moderate structural demands.
  3. Extensive – self-sustaining, not irrigated, with minimum maintenance requirements. An example is sedum roofing. This is composed of lightweight, free-draining material supporting tough, drought-resistant succulent plants. As it is lightweight, it can also be laid on sloping roofs up to 15°.

<sup>14</sup>. Identified as a key issue by Adam Ritchie of Max Fordham Consulting Engineers, recently involved in the design and in new build project in Beak Street. Email 27 August 2008.



- 6.47 Green roofs can be used in association with solar panels as the green roof helps to reduce solar PV temperatures and improve their efficiency in hot weather.<sup>15</sup> The shade provided by the panels reduces the evaporation rate from the green roof and the required watering.<sup>16</sup>
- 6.48 Apart from introducing biodiversity at roof level and, in the case of intensive types of green roof, an amenity space for occupants, green roofs have other benefits in terms of environmental sustainability.
- 6.49 They can form part of a Sustainable Urban Drainage System (SUDS) because they are very effective at retaining rainwater. The Environmental Agency highlighted the use of green roofs in their publication, *Sustainable Urban Drainage System (SUDS) – an introduction*.<sup>17</sup> Research suggests that green roofs reduce annual run-off from roofs by at least 50% (depending on the depth and absorption capacity of the growing medium).
- 6.50 In adding thermal mass, green roofs can also help in cooling buildings in the summer. This would be a particular advantage in terms of energy use in Soho. In retrofitting a green roof, obviously the affect of the additional weight of the growing medium on the existing roof structure is a major factor. From the point of view of cooling, a simple intensive green roof will perform better than an extensive roof which is lightweight, with a lower thermal mass.
- 6.51 At ground level, the few existing green spaces within the public realm that exist need to be carefully managed and protected but there are some opportunities to increase the biodiversity in the area. Smaller scale street-planting with small trees and shrubs might be possible with permanent pedestrianisation and landscaping of certain street sections, as part of a larger public realm strategy for the area. As well as adding biodiversity, leafy plants absorb some local air pollution.
- 6.52 There may be opportunities to introduce green walls, which serve a similar purpose to green roofs, to the rear of properties and on blank walls.

15. A valuable information source is Livingroof.org.

16. Total solar energy.

17. The Environment Agency.