# Metals

1.0 This paper summarises the Metal opportunities in Hampshire required to meet the Vision of the MRS. The waste stream overlaps with waste streams covered by other papers on **ELVs, WEEE and Construction and Demolition Waste**.

1.1 The main opportunities to meet the MRS Vision

1.2 **Locally:**

- Local Authorities need to become more involved in the monitoring and the management. This may involve integrating metal waste further into the household waste management system at a greater level, investigating the feasibility of providing waste collection facilities and establishing facilities and services as appropriate.

- MRS partners to support and promote public sector procurement of recycled metal products and exploit opportunities to increase the use of recycled / re-used metal waste in the future

- MRS partners to support projects which demonstrate best practice and develop solutions to overcome the barriers to ensure the highest level of metal recovery from the household and commercial waste stream.

- The MRS partners should support the wider data collection to establish quantities and end use of metal products.

**1.3 Regionally:**

- The MRS partners should keep a close working relationship with SEERA, SEEDA and other relevant organisations in order to maximise the opportunities for infrastructure development within the county and to ensure that the right methods are introduced.

**1.4 Nationally:**

- The MRS partners should work with national organisations to highlight the need for greater metal recovery.

- The MRS partners should lobby for the development and investment of processing and recycling infrastructure in the UK.

**Current metal waste resources in Hampshire**

2.0 Many objects in daily use contain metal and range from the simplest drinks cans to sophisticated machinery such as cars and aeroplanes. The metals used in everyday objects have usually been subjected to processing techniques such as heating, coating with non-metallic substances, alloying with other metals and reacting with chemicals. The type of metal selected for use in an application depends on its physical and chemical properties. The sheer diversity of these properties has made metals the cornerstone of engineering and technological developments.

2.1 **Sources and types of metal waste arisings**


2.2 The main source of metal wastes in Hampshire is from industrial and commercial activities. It is estimated that metals account for approximately 5.0% of the total household waste stream. Additionally, waste metals are also considered in other papers such as end-of-life vehicles and WEEE. Metals are typically classified as ferrous or non-ferrous depending on whether they contain iron or not. Most metals are not hazardous in their metallic form, although there are exceptions such as mercury and thallium. However, many metals form part of hazardous components which may be present in scrap.

2.3 Ferrous metals are the most widely used types of metals and include iron and steel. Non-ferrous metals include aluminium, copper, lead, mercury, nickel, tin, zinc, brass, gold and silver.

2.4 The sheer quantity of household and industrial goods that contain metal make it difficult to calculate the quantities of metals. This is further complicated because a significant proportion of scrap metal is used in the production of some metals. However, reliable statistics covering metals in the household waste stream are available from the County Council waste disposal contractor (Hampshire Waste Services). This data is shown in Table 1.

**Table 1 Metals Arising in Hampshire, Portsmouth and Southampton 2000/01 - 2002/03 (tonnes)**

| Source | 2001/02 | 2002/03 |
|---|---|---|
| *HWRCs and Bring Sites | 19 985 | 19 765 |
| *Household waste Collections[1] | 28 217 | 28 655 |
| *Commercial Metal/Scrap[2] | 94 940 | 96 459 |
| +Metals from construction and demolition waste | 13 300 | 13 300 |
| xELV metals | 50 160 | 50 160 |
| ^WEEE metals | 13 700 | 13 700 |
| **TOTAL** | **220 302** | **221 949** |

*(*Source: Hampshire County Council Waste Management, 2003; and SWMA for the South East, Environment Agency, 2000) 1 - Calculated using the results of the 1999 Hampshire Household Waste Compositional Study, which estimated that 5.02% of household waste collected from the kerb-side was metal (by weight). (NB. Metal is not collected as a recyclable at the kerbside in the study area). 2 - For calculation purposes, commercial and industrial metal arisings have been have been calculated to grow from 2000/01 in accordance with the metals arising from the kerbside collections (1% and 1.6% respectively). The 2000/01 figure is based upon 1998/99 data - the only year for which data has been available.)*

*(Other Sources: +Virids,2004 (MRS Construction and Demolition Waste Topic Paper xHampshire County Council,2004 (MRS ELV Topic Paper) ^ Hampshire County Council,2004 (MRS WEEE Topic Paper))*

2.6 The Environment Agency's Strategic Waste Management Assessment for Hampshire details the inputs to licensed metal recycling centres in Hampshire during 1998-99. It estimates that 275,000 tonnes was handled during this period 98.5% of which came from industrial and commercial sources. Of course this figure doesn't include metal wastes handled by Hampshire's recycling centres.

2.7 Figures are also available from Hampshire County Council's Waste Volume Service Plan, and information held by the Waste Collection Authorities.

**2.8 Current Legislation**

2.9 Regulation of the metals resource stream varies depending on source and type. Legislation includes:

- End of Life Vehicle (ELV) Directive (2000/53/EC)
- Waste Electrical & Electronic Equipment (WEEE) Directive (2000/96/EC)
- Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (2000/95/EC)

- The Landfill Directive (1999/31/EC) and the Landfill (England and Wales) Regulations 2002
- Packaging & Packaging Waste Directive (94/62/EC)
- Producer Responsibility Obligations (Packaging Waste) (Amendment) (England) Regulations 2002, SI 732
- Regulation (EC) No 2037/2000 on Substances that Deplete the Ozone Layer

**What recovery routes now and infrastructure in Hampshire**

### 3.1 Current Resource Management

3.2 There is an existing network of facilities recycling the metal resource stream. Facilities vary from large national and international players, such as Sims Metal (Yateley) and European Metal Recycling (Southampton) to smaller more local facilities such as A.W. Smith (Gosport). The sites are rather variable, generally the larger sites manage a high throughput of lower value steel and iron scrap whereas the smaller sites tend to focus on the more valuable non-ferrous scrap. There is some cross-over however. Similarly, although not focussing directly on waste cars some processors, such as C.D. Jordan (Portsmouth), have historically accepted this waste. It is likely that, with the advent of the ELV Directive there will be some consolidation in the market and the number of mixed sites will decrease. Several sites, such as C.D. Jordan (Portsmouth) and Sims Metal (Yateley) have fragmentizers. EMR (Southampton) have a wharf and are able to load directly into ships. C.D. Jordan have a site with a wharf in Newhaven. A list of currently licensed metal recycling sites (excluding those that deal principally with ELVs) is shown in table 2.

**Table 2 List of Licensed Metal Recycling Sites – Hampshire, Portsmouth and Southampton.**

| Site Name (Location) | Licensed Annual Capacity (tonnes) | Metals handled per year (tonnes) |
|---|---|---|
| J Hirst & Sons<br>(St Mary Bourne) | unknown | unknown |
| Huntley Bros Ltd<br>(Buriton) | unknown | unknown |
| Basereel Limited<br>(Fareham) | unknown | unknown |
| W Collins<br>(Burridge) | unknown | unknown |
| A.W. Smith (Gosport)<br>Ltd (Gosport) | Unknown | Ferrous – 4,570<br>Non ferrous – 3,187 |
| Sims Metals (Yateley) | Unknown | Unknown |
| Pounds Marine Shipping<br>Limited (Portsmouth) | Unknown | Ferrous 123.97 (1999) |

| | | |
|---|---|---|
| C.D.Jordan & Sons Ltd (Portsmouth)[2] | Unknown | Unknown |
| C.D.Jordan & Sons Ltd (Winchester)[3] | Unknown | Unknown |
| Scrap Processing (Portsmouth) Ltd (Portsmouth)[4] | Unknown | Unknown |
| J. Wells & Sons (Portsmouth) | Unknown | Unknown |
| L. Smith & Sons (Portsmouth) | Unknown | Ferrous – 50, 000<br>Non ferrous – 1,500<br>turnings chippings etc – 1,000 |
| James Huntley and Sons Ltd (Portsmouth) | Unknown | 160,000 (parts) |
| C & J Bulloch (Portsmouth) | 5,000 tpa | Unknown |
| Tilbury Metals (Portsmouth) | 80 tonnes per week | 2,315 (2000) |
| EMR Ltd (Southampton) | 1000 vehicles<br>50 tonnes residual wastes from depollution | Unknown |
| W. Forfar Ltd (Southampton) | Unknown | Unknown |
| A.H. Jackson & Sons Ltd (Southampton) | Unknown | Unknown |
| A.M. Thery (Southampton) | Unknown | Unknown |
| James Huntley & Sons (Southampton) | Unknown | Unknown |
| Gough Partners (Morestead) | Unknown | ferrous - 215 (1999) |
| Ring and Bring (Horndean) | Exempt site | ferrous - 13.5 |
| **TOTAL** (including ELVs and WEEE) | **1,200,000** | **291,000** |

*Notes: 2. Aggregated figure for 3 of their sites in Dundas Spur (Portsmouth), 3. Their site in Winchester, 4. The other Jordan's site in Portsmouth.*

3.3 Shredders process a mixed range of equipment to recover different materials. Large hammermills, also known as fragmentisers, shred a mixed stream of metal-rich materials, including end-of-life vehicles, household appliances and other light iron which are then separated into different metal types using processes such as magnets, eddy currents and cyclones. They produce a clean shredded metal product and a mixed non-ferrous product. They also produce a waste stream, made up of dirt, glass, concrete, rubber and plastics, which is known as "fluff". Shredders have traditionally handled large household appliances like cookers, washing machines, refrigerators and freezers, which they process with end-of-life vehicles and light iron. The British Metals Federation estimates that 2,750,000 tonnes of waste was fragmentised nationally in 1998 with a 71% recovery rate. It was estimated that 55-60% of the waste input was ELVs, whilst white goods and light Iron were 15% and 25% respectively. These ratios may have changed significantly since the advent of the Directive on Ozone depleting substances.

### 3.5 Current Management Options

**3.6** Recycling is often the best practicable environmental option for waste metal (DTI, 2003). The properties of metals make them ideal for recovery and recycling. Metal recovery is a long-established industry and tends to be split into ferrous scrap metal businesses, and non-ferrous metal processors. Ferrous metal dealers break down large, mainly low value scrap to produce graded material for British and overseas steel producers, and to a lesser extent, broken cast iron for direct foundry use. Non-ferrous metal dealers generally break down smaller volumes of scrap products containing metals of higher value such as Brass, Copper, Zinc, Lead, and Aluminium for sale to refiners. The majority of scrapyards are small operations licensed to accept less than 10,000 tonnes per year. C.D. Jordans (Portsmouth) and EMR (Southampton) are licensed to accept up to 250 000 tonnes per annum. The total licensed capacity of Hampshire transfer and recycling infrastructure stood at almost 1.2 million tonnes per annum in 2000/01, with only 291 000 tonnes of this capacity being used in the same year (Entec,2004).

3.7 The recycling of metal cans has increased significantly over the past decade, and is now an established industry. This process also reduces the energy used in the refining process and the quantity of waste produced as a by-product.

3.8 In the UK 90% of the metal recovered each year is Iron and Steel (Wasteline, 2004). The biggest recycler nationally of metals is the Steel industry. Aluminium and its alloys can be melted and recast without loss in quality with today's technology. Aluminium has been recycled in the UK since the metal was first used commercially. The recycling rate for Aluminium packaging is not so high because recovery of the material is a problem.

3.9 It is generally accepted that 100% of solid metal waste is recyclable, although, it is important to note that the recycling of some heavy metals can be difficult, for example, there is a limited market for recycled Cadmium and Mercury. Additionally the recovery and recycling of these also produces by-products which may be hazardous.

3.10 Minimising the production of waste metals is challenging because their applications are diverse. Cosmetics, toiletries, medicine and domestic cleaners all contain metals, as do fridges, cars, ovens and computers. Metals are disposed of via various routes, including some illegal ones, such as the fly-tipping of white goods by householders.

3.11 Waste metal that is not recovered for reuse or recycling is often disposed of to landfill or Incineration**.** There is some recovery of ferrous metal from the bottom ash produced by incinerators, however, other non-ferrous metal wastes within the domestic waste stream, entering the incinerator, will either be vaporised by the incineration process or will remain as contaminants within the bottom ash. Fragmentizer waste is typically disposed of to landfill, however, as a result of inefficiencies within the system, there will be a small amount of metal within this waste. Information on batteries is contained in the 'Hazardous and Chemical' Resource Stream paper.

3.12 It is difficult to determine precisely what the overall recycling rate of metals is, and it is subject to change depending on markets. At the current time large quantities of ferrous metals are being shipped to China where they are recycled, although this may not necessarily remain the case. The data required to produce a robust estimate does not exist and so the recycling rate has to be estimated using professional judgement. The situation with metals is also more complicated than for some other resource streams do the significant inter-regional, and international movements of the material. However, it is known that all metal is potentially recycleable, and Hampshire has an over provision of infrastructure. A current recycling rate of 75% has been estimated (which includes material recycled in other Countries, such as China), with an estimated 25% either landfilled or processed through an EfW facility.

**3.13 Social Issues**

3.14 Metal recycling is becoming more common place and the barriers to its development are now being challenged by increasing consumer awareness and the designing of equipment to assist the recycling process (Wasteline, 2004). Increased awareness and availability of recycling facilities in Hampshire should help maintain public participation and boost the recovery of this valuable resource.

**3.15 Environmental Issues**

3.16 Metal recycling uses less energy and reduces demand on virgin materials. Recycling provides a high grade feedstock to the refining processes which consequently reduces the use of raw materials, energy and quantity of residues arising from the process.

3.17 Some metals can have an impact on the environment because they are toxic. Metal waste that is exposed to the elements will break down over time, and be released into the soil in the form of metal salts. These metal salts will be washed into rivers where they can be taken up by aquatic organisms to detrimental effect. The production of many metals can also have detrimental environmental impacts, for example, the production of virgin Aluminium involves open-cast Bauxite mining. Aluminium refining and smelting produces leachate, air-borne emissions and dusts, all of which can be hazardous.

**3.18** There are a number of regulations which seek to control the effect of metals (and their production, use and disposal) on the environment. These include Regulation (EC) No 2037/2000 on Substances that Deplete the Ozone Layer which includes controls on production, importation, exportation, supply, use leakage and recovery of controlled substances and establishes a licensing procedure for all imports of Ozone Depleting Substances (ODS) and the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (2000/95/EC). Similarly, many large industrial processes such as smelting, refining, metal plating etc. come under the control of the Integrated Pollution Prevention and Control Regulations.

**3.19 Economic Issues**

3.20 The reuse of metal items is standard practice for some applications and the provision of metal items for reuse has become an industry in itself. There are also major commercial advantages to recycling including recovery of valuable metals such as Iron, Steel, Copper and Aluminium. The high intrinsic value of Aluminium for example, makes recycling economically attractive. Selling back metals for recycling creates revenue and also represents a huge saving for metal refineries that would otherwise have to rely on raw materials.

3.21 Repairing items will also reduce the amount of waste destined for disposal. The market for recovered non-ferrous and ferrous metals is strong and these markets extend abroad. An average of 3.5 million tonnes a year of scrap metal is exported to other countries, earning some £400 million in revenue (British Metals Federation,1997). EMR (Southampton) operate a wharf. C.D. Jordans (Portsmouth) also operate a wharf at Newhaven.

3.22 Market prices for scrap metals are relatively volatile. In 2000 and 2001, the ferrous metal market crashed, however, in Summer 2004 the market is very strong. Generally, this means that in times of low prices storage on site will increase and sales will decrease. A number of new markets are beginning to develop following the introduction of new legislation such as the WEEE Directive and the ELV Directive. Also, the Producer Responsibility Obligations Regulations 2002 implements the requirement for certain businesses to recover and recycle specific packaging waste tonnages.

3.23 The cost of recovery, collection, sorting and removal of unwanted impurities from waste metals tends to be favourable when compared with the cost of producing metal from metal ore. New pressures on costs, such as the introduction of the ELV Directive, will increase the financial burdens on metal waste recyclers.

3.24 **Codes of Practice**:

- British standards apply to virgin, secondary and recycled metals and alloys.

- International and aerospace specifications also apply to metals used for specific applications. Alloys are regulated by internationally agreed classifications system or nomenclature for wrought alloys and by various domestic nomenclature schemes for the casting alloys
- There are various guides available that focus on educating the public about the benefits of steel can recycling, for example, ***The Steel Can Recycling Information Bureau (SCRiB)***, and also the benefits of aluminium packaging recycling, for example, ***Aluminium Packaging Recycling Organisation Ltd (Alupro).***

**3.25 Current Key players**

3.26 ***European Metal Recycling*** is 1 of the world's largest recycling companies - and the largest in the UK.

3.27 ***Sims Metal*** is the country's second largest recycler of ferrous and non-ferrous metals. The three main recycling processes undertaken by SimsUK are shredding, baling and shearing.

3.28 **Alcan Aluminium Can Recycling** (AACR) is part of Alcan Inc, the world's second largest aluminium company. AACR promotes aluminium can recycling and purchases UK sourced aluminium cans and foil for recycling. Alcan set up a 'Cash for Cans' service in 1989 when less than 2% of aluminium drink cans were recycled. Today this figure stands at more than 42%.

**3.29 Supporting Organisations**

3.30 ***British Metals Recycling Association*** works to establish the most favourable operating environment for the recycling of metals by acting as a hub for the sector, providing key support services and a forum for generating consensus on strategic issues.

3.31 ***The Aluminium Federation*** is a trade association which represents the UK aluminium industry, from the primary sector through to the end users and recycling sectors. ALFED has over 200 member companies which are grouped into 12 member associations, representing a total workforce of over 20,000 people.

3.32 ***The Association for Iron & Steel Technology (AIST)*** was formed from the coming together of the Association of Iron & Steel Engineers and the Iron & Steel Society. AIST aims to advance the technical development, production, processing and application of iron and steel.

3.33 ***The UK Aluminium Packaging Recycling Organisation (Alupro)*** is a not for profit company that is responsible for encouraging and developing recycling collection initiatives, for consumer education and for representing the aluminium packaging industry to Government.

**3.34 Current Examples of Best Practice**

3.35 ***ALCAN*** can recycling plant was set up in 1989 when Alcan invested £28 million in building Europe's largest dedicated used aluminium beverage can (UBC) recycling plant in Warrington, Cheshire. The plant produces ingots for the beverage can manufacturing industry and has the capacity to recycle every aluminium drink can sold in the UK.

3.36 ***Kan-a-Can*** based in Sleaford, Lincolnshire was set up in 1989 to collect used aluminium beverage cans. The Company works with local authorities, supermarkets and the waste management industry nationwide, supplying and servicing can banks and recovering valuable UBCs from Materials Recycling Facilities (MRFs). The Kan-a-Can bank network has stretched across the UK at 2,500 sites. All UBC material is taken to Sleaford for processing, sorting and baling before being shipped to Alcan. More recently Kan-a-Can has been working with local authorities and waste management companies taking aluminium collected in kerbside programmes and/or recovered from MRFs for recycling with Alcan. The Company also handles steel cans collected in this way.

3.37 In 1999 British Steel established a new collection network for steel cans. The scheme, named ***Canroute***, is designed to help collectors of clean steel cans sell and transfer them to British Steel for recycling. The aim is to increase the quantities of cans returned at the community level through kerbside collection or 'bring' schemes. The scheme provides a network of regional centres to which steel cans can be delivered. These centres store the cans, then bale them before supplying them to the Steel Industry. It is intended to provide a stable market for steel cans, make smaller collections economical and increase the number of cans recycled each year

3.36 Brazil has successfully set up a effective aluminium can recycling scheme. In 1997 Brazil recycled a staggering 64% of aluminium cans, more, in percentage terms, than wealthier countries such as France, the UK and Australia. A non-profit organisation, Cempre, has been established to oversee the recycling. Cempre reported that a total 61,700 tonnes of aluminium was collected in 1997, an increase from 40,700 tonnes in 1996.

## Potential waste metal issues up to 2020

### 4.0 Future Data Required

4.1 Very limited data exists on the sources of commercial and industrial waste metal arisings and the current recycling rates. It is necessary to collect more information regarding the metals managed in this sector in order to be able to plan their future management in a more holistic sense.

### 4.2 Future legislation

4.3 The management of metal wastes in the future will be effected by the Batteries Directive and the RoSH Directive. The Directives on WEEE and ELV will also have an influence, but these are covered under other waste stream papers.

### 4.4 Future Metal waste arisings

4.5 Metal waste is expected to increase at a rate of 1% per year in line with waste growth predictions in the Regional Waste Strategy. This is split as 90% is ferrous, 10% is non ferrous.

**Table 1 Estimated Future Metals Arising in Hampshire, Portsmouth and Southampton (tonnes)**

| Source | 2002/03 | | | 2010 | | | 2020 | | |
|---|---|---|---|---|---|---|---|---|---|
| | arisings | | Volume recycled | arisings | | Volume recycled | arisings | | Volume recycled |
| HWRCs and Bring Sites | 19 765 | 100 | 19 765 | 21 191 | 100 | 21 191 | 23 408 | 100 | 23 408 |
| Household waste Collections[1] | 28 655 | 75 | 21 491 | 30 722 | 90 | 27 650 | 33 936 | 90 | 30 542 |
| Commercial Metal/Scrap[2] | 96 459 | 75 | 72 344 | 103 414 | 90 | 93 073 | 114 233 | 90 | 102 810 |
| Metal in construction and demolition waste | 13 300 | 30 | 4 000 | 13 632 | 51 | 7000 | 13 973 | 72 | 10 000 |
| Metal from ELVs | 50 160 | 75 | 37 620 | 68 970 | 90 | 62 073 | 79 252 | 90 | 71 327 |
| Metal from WEEE | 13 700 | 75 | 10 275 | 15 618 | 90 | 14 056 | 18 084 | 90 | 16 276 |

| TOTAL | 222 039 | 7<br>5 | 165 495 | 253 547 | 8<br>9 | 225043 | 282886 | 9<br>0 | 254363 |
|---|---|---|---|---|---|---|---|---|---|

*(Source: Hampshire County Council Waste Management, 2003; and SWMA for the South East, Environment Agency, 2000) 1 - Calculated using the results of the 1999 Hampshire Household Waste Compositional Study, which estimated that 5.02% of household waste collected from the kerb-side was metal (by weight). (NB. Metal is not collected as a recyclable at the kerbside in the study area). 2 - For calculation purposes, commercial and industrial metal arisings have been have been calculated to grow from 2000/01 in accordance with the metals arising from the kerbside collections (1% and 1.6% respectively). The 2000/01 figure is based upon 1998/99 data - the only year for which data has been available.*

## 4.6 Future Options for Resource Management

4.7 The metals industry is already active in recovering and recycling used materials. This, as the industry develops will place greater demands on the existing network of collection and reprocessing that exists, and will see the need to make a greater use of the available capacity. The emergence of new initiatives already suggests that the Packaging Regulations and the Landfill Directive are having the desired effect of increasing recycling rates. The implementation of the WEEE and ELV Directive will also ensure that a greater percentage of metal waste is recycled as targets will be set and financial responsibility for the management of the waste produced will lie with the manufacturers of the products. The Directives will ensure that a greater percentage of waste metal is recovered and reused or recycled through target achievement and by promoting sustainable design.

**Table 4 Metals transfer capacity compared with future arisings**

| Year | Licensed Capacity | Arisings Ferrous | Arisings Non-Ferrous | Surplus/(Shortfall) |
|---|---|---|---|---|
| | | | | |
| 2003 | 1 200 000 | 199 835 | 22 204 | 977 961 |
| 2010 | 1 200 000 | 228 192 | 25 355 | 946 453 |
| 2020 | 1 200 000 | 254 597 | 28 289 | 917 114 |

4.8 Aluminium is processed by Alcan (cans/foil). There are numerous facilities in the UK for processing other non-ferrous metals, and significant demand currently exists for metals on the world markets.

## 4.9 Social Issues

4.10 Co-ordinated response by MRS to publicise issues.

4.11 It is necessary to stimulate community sectors with regards to metal waste to highlight the necessity and benefits of metal recycling. More education of householders is required in order to change habits and increase the amount of metal waste taken for recycling or reuse. This could be done through Initiatives in schools and other education facilities The County Council Education Department could help through liaison will schools, and Hampshire Waste Services teaching aids should be actively promoted and developed with regards to metal wastes.  More guidance also needs to be provided to householders with regards to the benefits, ease and process of metal recycling.

### 4.12 Environmental Issues

4.13 Many environmental benefits can be associated with the further development of recycling and reuse of metals.  Greater recycling and reuse of metals will lead to the continued decrease in demand on virgin materials which can only seek to give environmental benefits due to the decrease in the impacts of extraction and processing.

4.14 If different metals are mixed together, significant implications with regards to  contamination makes the separation and segregation process more difficult. To make the recovery, reuse and recycling of metal wastes more effective, here possible it would be beneficial to avoid the mixing of metal in the future. In addition, metals treated with other products also makes the processing of metals more difficult.

### 4.15 Economic Issues

4.16 Cost of providing new infrastructure for effective sorting facilities to avoid sector contaminations and aide recycling is needed. It should be investigated whether Household Waste Recycling Centres could to be developed to accommodate new metal recycling facilities.

4.17 Metals have a returnable investment and many market opportunities exist. The expansion of markets and infrastructure for recycled or reused metals must develop.  For example, the aluminium industry has an established system of collection and reprocessing for used products but its this collection network does not fully utilise the available capacity of reprocessing facilities within the UK at present (DETR,1999). Following the introduction of the expected new legislation, recycling firms will receive a guaranteed supply of metal which will galvanise the markets making this source of materials as economic as using virgin material.  As metal waste is diverted from landfill sites to recycling facilities the markets for secondary and recycled material will be supported and strengthen.  The capture rates for all metal types should increase as the end markets become more stable.

4.18 The introduction of the ELV Directive will prove a financial burden to the producers of metal wastes. The main requirements mean that producers will have to limit the use of certain hazardous substances in the manufacture of new vehicles and automotive components, that ELVs will be subject to de-pollution prior to dismantling, recycling or disposal; and will set  certain recovery and recycling targets to be met by 1 January 2006 and 1 January 2015 along with the introduction of a producers pay philosophy where producers will pay for  ‘all or a significant part’ of the costs of treating negative or nil value ELVs at treatment facilities by 2007.

## References

Hampshire Minerals and Waste Framework: Waste Forecasting Interim Baseline Report (Entec, March 2004)
MRS Construction and Demolition Waste Topic Paper (Viridis,2004)
MRS WEEE Material Sector Strategy (Hampshire County Council,2004)
MRS ELV Topic Paper (Luckraft Consulting,2004)

**Websites**

Department for Trade and Industry www.dti.gov.uk
Waste Book - www.recycle.mcmail.com/content.htm
Waste Online www.wasteonline.org.uk/resources/Wasteguide/mn_wastetypes_metals.html
http://www.recyclemetals.org/
http://www.hollowaymetals.co.uk/

## Appendix 1 Metals Waste Recycling Options

**Issues/Opportunities** (general)

- There appears to be overprovision of metal transfer and recycling capacity in the County currently. There are two fragmentisers which are able to recycle metals from products made up of several types of material.

- Hampshire produces 208,720 tonnes of waste metals per year (including ELVs and WEEE considered under other papers) but processes 291,074 per year.

- Fragmentisers produce a residue called "fluff" which requires landfill.

**Proposed Actions** (for MRS Partners)

- Try to capture more metals waste from the trade and commercial sectors.

**Proposed Policies** (wording is indicative)

- Safeguard infrastructure that allows transportation by sea, and fragmentisers.

**Proposed Options**

Option 1 (baseline)

Current situation retained

Percentage recycled – 75%.

Infrastructure Required – None

Cost - This would have no costs to both households and business.

Option 2 (stretching best practice)

More separated trade waste is recovered through promotion of good recycling practice to businesses

Percentage recycled – 89% -2010 90% - 2020.

Infrastructure required – None

Cost – medium cost to household, no cost to industry.

**APPENDIX 2 MRS RESOURCE STREAM ANALYSIS**

**RESOURCE STREAM APPRAISAL**

**KEY FEATURES OF PREFERRED OPTION FOR METAL WASTE**

**Option selected – Stretching Best Practice (with additional transfer infrastructure)**

**Arisings (tonnes per annum)**

| | 2002/03 | | 2010 | | 2020 | |
|---|---|---|---|---|---|---|
| | Household | C&I | Household | C&I | Household | C&I |
| Metal (ferrous) | 43,578 | 86,813 | 46,722 | 181470 | 51,610 | 202,988 |
| Metal (non-ferrous) | 4,842 | 9,646 | 5,191 | 20,163 | 5,734 | 22,554 |
| TOTAL | 48,420 | 173 619 | 51 913 | 201634 | 57 344 | 225 542 |

**Resource Recovery (tonnes per annum)**

| | 2002/03 | | 2010 | | 2020 | |
|---|---|---|---|---|---|---|
| | Household | C&I | Household | C&I | Househld | C&I |
| Ferrous Metal Reuse | 0 | 0 | 0 | 0 | 0 | 0 |
| Ferrous Metal Recycling | 32,684 | 65110 | 41582 | 161508 | 46449 | 182689 |
| Ferrous Metal Recovery | 0 | 0 | 0 | 0 | 0 | 0 |
| Non-Ferrous Metal Reuse | 0 | 0 | 0 | 0 | 0 | 0 |
| Non-Ferrous Metal Recycling | 3,632 | 7,235 | 4,620 | 17,945 | 5,160 | 20,299 |
| Non-Ferrous Metal Recovery | 0 | 0 | 0 | 0 | 0 | 0 |
| Unavoidable Waste | 12,104 | 24,122 | 5711 | 22181 | 5,735 | 22554 |

**Existing Infrastructure**

| **Site Name (Location)** | **Licensed Annual Capacity (tonnes)** | **Metals handled per year [1] (tonnes)** |
|---|---|---|
| J Hirst & Sons (St Mary Bourne) | unknown | unknown |

| | | |
|---|---|---|
| Huntley Bros Ltd (Buriton) | unknown | unknown |
| Basereel Limited (Fareham) | unknown | unknown |
| W Collins (Burridge) | unknown | unknown |
| A.W. Smith (Gosport) Ltd (Gosport) | Unknown | Ferrous – 4,570<br>Non ferrous – 3,187 |
| Sims Metals (Yateley) | Unknown | Unknown |
| Pounds Marine Shipping Limited (Portsmouth) | Unknown | Ferrous 123.97 (1999) |
| C.D.Jordan & Sons Ltd (Portsmouth)[2] | Unknown | Unknown |
| C.D.Jordan & Sons Ltd (Winchester)[3] | Unknown | Unknown |
| Scrap Processing (Portsmouth) Ltd (Portsmouth)[4] | Unknown | Unknown |
| J. Wells & Sons (Portsmouth) | Unknown | Unknown |
| L. Smith & Sons (Portsmouth) | Unknown | Ferrous – 50, 000<br>Non ferrous – 1,500<br>turnings chippings etc – 1,000 |
| James Huntley and Sons Ltd (Portsmouth) | Unknown | 160,000 (parts) |
| C & J Bulloch (Portsmouth) | 5,000 tpa | Unknown |
| Tilbury Metals (Portsmouth) | 80 tonnes per week | 2,315 (2000) |
| EMR Ltd (Southampton) | 1000 vehicles<br>50 tonnes residual wastes from depollution | Unknown |
| W. Forfar Ltd (Southampton) | Unknown | Unknown |
| A.H. Jackson & Sons Ltd (Southampton) | Unknown | Unknown |
| A.M. Thery (Southampton) | Unknown | Unknown |
| James Huntley & Sons (Southampton) | Unknown | Unknown |
| Gough Partners (Morestead) | Unknown | ferrous - 215 (1999) |
| Ring and Bring (Horndean) | Exempt site | ferrous - 13.5 |
| **Totals** | **1,200,000** | **291,074** |

**Additional Infrastructure Requirements**

More dirty MRFs required to assist with separation of metal waste, particularly from the household waste stream.

**Collection Infrastructure Requirements**

None

**Societal Change Requirements**

Promotion of good recycling practice

**Market Development / Initiatives**

None

**Cost**

medium cost to household, low cost to industry.

**Government Action Required**

None