Household waste composition analysis final report

Prepared for Merseyside Waste Disposal Authority
by SWAP – a subsidiary of Resource Futures Ltd

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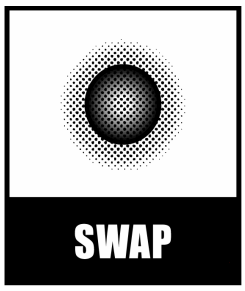

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Executive summary

In autumn 2005 Merseyside Waste Disposal Authority (MWDA) contracted SWAP to undertake the first phase of a four-season household waste composition analysis. Following the delivery of this work in November 2005, MWDA subsequently contracted SWAP to undertake the remaining three seasons of the analysis, in February 2006, March/April 2006 and June 2006 respectively.

MWDA has already received reports and spreadsheets presenting the data collected from all four phases of the analysis. This document acts as the final report for the analysis as a whole, summarising and analysing further all the data collected from November 2005 to June 2006.

As outlined in the project brief, the key objective of the project was to identify the composition of household waste collected/delivered for disposal in Merseyside through physical waste sampling. SWAP undertook analysis of both residual domestic and Household Waste Recycling Centre (HWRC) waste samples from Merseyside during all four phases of the work.

The key recommendations from the analysis are summarised below.

For Merseyside districts:

- The primary priority for the districts should be to maximise the diversion of recyclable material into existing separate collections. Our figures suggest that over a quarter of residual domestic waste is made up of material for which a separate collection already exists. The key materials here are textiles, glass, cans, garden waste and, in particular, newspaper and PAMs.
- The secondary focus for the districts should be to consider extending their existing collections into recyclable/compostable materials that are not currently collected. Our figures suggest that the priority material here should be kitchen (food) waste, which constitutes over a quarter of residual domestic waste.

For MWDA:

- Communications and awareness campaigns should be undertaken to ensure that residents use (and use correctly) recycling services provided on their behalf and, in addition, help to foster a culture of waste minimisation in general.
- Serious consideration should be given to adding to the local reprocessing capacity for food waste, which would support districts' efforts to collect this material.
- Given that around 45% of residual HWRC waste was potentially recyclable/compostable, improved use of existing separate collection facilities and the provision of new facilities could be considered to improve the performance of HWRCs.

We also provide pointers to additional work that MWDA may wish to consider that was beyond the scope of this project, and where SWAP – now part of Resource Futures Ltd – can assist. These include further analysis of the existing data, extending the waste analysis programme into future years and analysing the composition of other municipal waste streams.

1. Introduction

In autumn 2005 Merseyside Waste Disposal Authority (MWDA) contracted SWAP to undertake the first phase of a four-season household waste composition analysis. Following the delivery of this work in November 2005, MWDA subsequently contracted SWAP to undertake the remaining three seasons of the analysis, in February 2006, March/April 2006 and June 2006 respectively.

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As outlined in the project brief, the key objective of the project was to identify the composition of household waste collected/delivered for disposal in Merseyside through physical waste sampling. The achievement of this objective would contribute to the following outcomes:

- provision of essential baseline data to assist in Merseyside's procurement programme for new, long-term waste management contracts
- support Merseyside waste managers in improving existing recycling services
- support Merseyside waste managers in developing waste reduction, reuse and recycling strategies and action plans
- establish any links between household waste generation, season and the socio-economic characteristics of Merseyside local communities.

SWAP undertook analysis of both residual domestic and Household Waste Recycling Centre (HWRC) waste samples from Merseyside during all four phases of the work. By "residual domestic waste" we refer to domestic waste collected for disposal from the district refuse collection services (not including bulky or other separate collections); by "residual HWRC waste" we refer to household waste delivered to HWRCs by residents for disposal in the general waste skips marked "non-recyclable waste".

This final report follows a structure agreed between MWDA and SWAP at a meeting on 18 May 2006. In Section 2 we summarise the methodology adopted for the analysis. In Section 3 we analyse the residual domestic waste data, and in Section 4 we analyse the residual HWRC waste data. Section 5 provides analysis of annual aggregated domestic and HWRC waste arisings. In Section 6 concluding comments are made.

Please note that as of May 2006 SWAP became a subsidiary of Resource Futures Ltd, together with Network Recycling and The Recycling Consortium.

2. Summary of methodology

The methodology adopted for the waste analysis has already been presented in detail in the individual phase reports submitted to MWDA, and thus a shorter summary is presented here.

The methodology adopted was agreed between MWDA and SWAP before the onset of the Phase 1 work. The identical methodology was subsequently adopted for the three succeeding phases of the project.

2.1 Residual domestic waste analysis

The residual domestic waste analysis was undertaken on the following dates:

- Phase 1 (autumn): Monday 7 to Friday 18 November 2005
- Phase 2 (winter): Monday 13 to Friday 24 February 2006
- Phase 3 (spring): Monday 27 March to Friday 7 April 2006
- Phase 4 (summer): Monday 12 to Friday 23 June 2006.

Twenty samples of residual domestic waste were planned to be taken from across Merseyside for analysis over each phase. Each sample was planned to be made up of 50 households' waste, selected from pre-identified sample areas of around 500 households.

The sample areas were selected on the following basis:

- an equal number of collections (four) per district
- to be representative of the socio-economic profile of Merseyside.

The classification of socio-economic variation chosen was "ACORN" (A Classification of Residential Neighbourhoods). ACORN information is based on aggregated 2001 census data returns for enumeration districts (typically 100–300 households). The classification represents the lifestyles and purchasing habits of a section of the population, which is reflected in an area's waste stream characteristics. The full ACORN profile of Merseyside is presented in Appendix 1.

Collections of samples were made by the district councils. For each sample, crews were advised to visit the same sample area, so that a full annual picture of domestic waste composition could be assessed. SWAP issued the districts with sample collection guidance in advance of each phase. In addition, MWDA issued the districts with a standard letter to provide to any householders with queries about the analysis upon collection of their waste – a copy of this letter is presented in Appendix 2. Crews were asked to list the households collected from and other details about the sample areas on a "Sample Information Sheet" provided by SWAP (a copy is presented in Appendix 3). Once collected, the samples were delivered to the South Sefton Recycling Park in Bootle.

Once delivered and unloaded, the samples were weighed and sorted by SWAP staff into a number of categories, agreed between MWDA and SWAP at the outset of the project (these are presented in Appendix 4). All SWAP waste analysis work, and in particular waste sorting, is undertaken in the context of rigorous health and safety procedures; for reference, a copy of SWAP's summary statement on health and safety is presented in Appendix 5. Temporary local staff were appointed to undertake the waste sorting. All temporary staff received a two-

hour training session before commencing work; a copy of our initial training agenda can be found in Appendix 6.

The sample collections by the district councils generally went well, and SWAP would like to thank the districts for their continued co-operation in the project. However, of the planned 80 samples in total, three collections were missed by the districts (on one occasion this was unavoidable due to strike action) and one sample was deemed invalid by SWAP (in agreement with MWDA). In addition, on 14 occasions in total, the districts were not able to collect the full 50 households' waste; reasons reported by the crews included waste already having been collected by the regular crew and black sacks having been placed in communal piles. The actual number of samples and households analysed in each phase is thus presented in Table 1.

Table 1: Actual number of samples and households' waste analysed in each phase

Phase	Number of samples analysed	Number of households' waste analysed
1	20	961
2	19	921
3	19	972
4	18	792

2.2 Residual HWRC waste analysis

The residual HWRC analysis was undertaken at the Sefton Meadows HWRC in Maghull. This site was chosen in agreement between SWAP and MWDA, on the basis of it having a reasonably accurate reflection of the overall ACORN profile of Merseyside living within a rough 3-mile radius. The work was conducted over a five-day period for each phase – the dates selected were:

- Phase 1 (autumn): Saturday 19 and Monday 21 to Thursday 24 November 2005
- Phase 2 (winter): Tuesday 21 to Saturday 25 February 2006
- Phase 3 (spring): Tuesday 4 to Saturday 8 April 2006
- Phase 4 (summer): Tuesday 20 to Saturday 24 June 2006.

Each phase involved work on four weekdays and one Saturday, to take into account variations in HWRC use at different times of the week. In addition, during Phases 3 and 4 the site operated on extended opening hours, and SWAP agreed a staggered working schedule with MWDA to take into account variations in HWRC use at different times of day.

Waste was weighed (and any potential reusability assessed) as site users approached two residual waste skips close to the entrance of the site. A broadly representative sample of site users was selected, loosely based around every tenth vehicle entering the site. Separate bulky items were either weighed or, for very heavy/awkward items, had their weight estimated based on standard weights produced by the Furniture Re-use Network (see www.frn.org.uk/code/members/weights.asp). Items were classified into a number of categories, agreed between MWDA and SWAP at the outset of the project (these are presented in Appendix 4).

At MWDA's request, SWAP asked each sampled site user to state the area of Merseyside in which they lived. In addition, for each phase MWDA again prepared a letter to address any potential queries by site users about the work, and an example can be found in Appendix 2.

2.3 Reporting

At the conclusion of each phase, SWAP produced a report and accompanying spreadsheets for MWDA presenting the data gathered from the analysis.

The reports presented the following information, both by weight and percentage:

- the total waste arisings from each residual domestic waste sample
- the composition of each residual domestic waste sample
- the total composition of residual HWRC waste analysed
- the amount of separately-collected recyclable material present in each residual domestic waste sample
- the estimated composition of residual domestic waste by ACORN group
- the estimated composition of residual domestic waste for Merseyside as a whole.

The spreadsheets presented the following information, again both by weight and percentage:

- the composition of all the residual domestic waste samples
- the composition of residual domestic waste samples collected by each district
- the composition of residual HWRC waste analysed on each day and in total.

The spreadsheets also presented information on:

- the Sample Information Sheets, as completed by the districts' collection crews
- the area in which each HWRC site user whose waste was sampled lived.

3. Analysis of residual domestic waste data

MWDA requested the following analysis of the residual domestic waste data:

- an estimate of the residual domestic waste composition of Merseyside
- an estimate of residual domestic waste compositions for each ACORN category
- an estimate of the proportion of residual domestic waste of Merseyside that is recyclable, compostable or non-recyclable
- a comparison of the annual residual domestic waste composition of Merseyside with a recognised national composition
- an estimate of the annual amount of separately collected materials in residual domestic waste across the whole of Merseyside.

The analysis of the residual domestic waste data is accordingly presented in Sections 3.1 to 3.5 below.

3.1 Estimate of residual domestic waste composition of Merseyside

The estimates of residual domestic composition of Merseyside have been calculated by weighting the data in accordance with the proportion of the population of Merseyside falling within each ACORN category.

3.1.1 Seasonal estimates

Initially, MWDA requested inclusion of the estimated residual domestic waste compositions of Merseyside for each of the four phases of the analysis. These are presented in kilograms per household per week (kg/hh/wk) and percentage (%) in Table 2 (by sub-category) and Table 3 (by category).

Whilst the figures indicate a broadly similar residual domestic waste composition across the four seasons, the following issues can be highlighted:

- waste arisings were lowest in the winter sample (Phase 2)
- waste arisings of electrical items and garden waste were noticeably higher in the summer sample (Phase 4).

Table 2: Estimated seasonal compositions of Merseyside residual domestic waste (by sub-category)

Sub category	Phase 1		Phase 2		Phase 3		Phase 4	
	kg/hh/wk	%	kg/hh/wk	%	kg/hh/wk	%	kg/hh/wk	%
News and PAMs	1.46	9.43	1.37	9.92	1.13	7.58	0.94	6.37
Other recyclable paper	0.17	1.13	0.27	1.94	0.28	1.87	0.33	2.24
Non recyclable paper	1.06	6.85	0.99	7.23	1.03	6.92	0.80	5.42
Corrugated card	0.38	2.47	0.37	2.66	0.28	1.92	0.31	2.09
Flat card	0.64	4.11	0.66	4.78	0.61	4.11	0.60	4.12
Liquid containers	0.06	0.38	0.06	0.43	0.05	0.36	0.07	0.48
Clear PET bottles	0.16	1.03	0.15	1.11	0.15	0.98	0.23	1.54
Coloured PET bottles	0.05	0.34	0.04	0.30	0.05	0.31	0.06	0.38
Natural HDPE bottles	0.11	0.71	0.11	0.82	0.11	0.77	0.14	0.92
Coloured HDPE bottles	0.09	0.56	0.05	0.36	0.07	0.44	0.08	0.57
PVC bottles	0.01	0.04	0.02	0.12	0.03	0.22	0.00	0.00
Plastic film	0.77	5.00	0.74	5.37	0.72	4.86	0.73	4.97
Other plastic	0.74	4.80	0.75	5.43	0.82	5.52	0.84	5.75
Textiles	0.58	3.74	0.56	4.06	0.57	3.81	0.71	4.81
Shoes	0.08	0.53	0.06	0.47	0.12	0.81	0.07	0.50
Clear glass bottles/jars	0.61	3.94	0.50	3.64	0.58	3.87	0.51	3.45
Green glass bottles/jars	0.43	2.77	0.29	2.14	0.27	1.81	0.45	3.09
Brown glass bottles/jars	0.12	0.80	0.12	0.87	0.12	0.79	0.16	1.12
Other glass	0.05	0.35	0.08	0.55	0.11	0.73	0.06	0.39
Wood (not garden waste)	0.12	0.77	0.05	0.40	0.08	0.51	0.06	0.44
Disposable nappies	0.56	3.62	0.62	4.48	0.82	5.52	0.36	2.44
Ferrous cans	0.35	2.28	0.34	2.45	0.30	2.05	0.31	2.14
Other ferrous metals	0.18	1.19	0.08	0.58	0.09	0.62	0.10	0.66
Aluminium cans	0.08	0.53	0.10	0.76	0.08	0.57	0.08	0.52
Aluminium foil	0.09	0.59	0.09	0.64	0.07	0.45	0.06	0.44
Other non-ferrous	0.00	0.03	0.02	0.14	0.03	0.17	0.01	0.04
Electrical items	0.12	0.80	0.12	0.89	0.13	0.91	0.37	2.55
Paint/paint related products	0.01	0.08	0.01	0.11	0.04	0.26	0.11	0.77
Batteries	0.01	0.06	0.01	0.08	0.01	0.04	0.03	0.18
Other hazardous	0.10	0.65	0.06	0.47	0.06	0.39	0.07	0.47
Garden waste	0.31	2.00	0.23	1.67	0.44	2.97	1.06	7.26
Fruit and vegetable waste	2.70	17.45	2.09	15.22	2.35	15.85	1.55	10.54
Meat, cooked food and other kitchen waste	1.55	10.02	1.55	11.24	2.03	13.69	2.10	14.29
Miscellaneous inert	0.61	3.97	0.38	2.75	0.50	3.36	0.52	3.55
Miscellaneous other	0.66	4.24	0.49	3.58	0.44	2.96	0.54	3.68
Fines	0.42	2.74	0.32	2.36	0.30	1.99	0.26	1.81
TOTAL	15.46	100.00	13.76	100.00	14.85	100.00	14.67	100.00

Table 3: Estimated seasonal compositions of Merseyside residual domestic waste (by category)

	Phase 1		Phase 2		Phase 3		Phase 4	
Category	**kg/hh/wk**	**%**	**kg/hh/wk**	**%**	**kg/hh/wk**	**%**	**kg/hh/wk**	**%**
Paper	2.69	17.41	2.63	19.09	2.43	16.37	2.06	14.03
Card	1.08	6.96	1.08	7.86	0.95	6.39	0.98	6.70
Plastic	1.93	12.48	1.86	13.50	1.95	13.10	2.07	14.14
Textiles	0.66	4.27	0.62	4.53	0.69	4.62	0.78	5.31
Glass	1.22	7.86	0.99	7.20	1.07	7.21	1.18	8.05
Wood	0.12	0.77	0.05	0.40	0.08	0.51	0.06	0.44
Disposable nappies	0.56	3.62	0.62	4.48	0.82	5.52	0.36	2.44
Metals	0.71	4.62	0.63	4.57	0.57	3.86	0.56	3.79
Electrical items	0.12	0.80	0.12	0.89	0.13	0.91	0.37	2.55
Hazardous items	0.12	0.79	0.09	0.66	0.10	0.70	0.21	1.43
Garden waste	0.31	2.00	0.23	1.67	0.44	2.97	1.06	7.26
Kitchen waste	4.25	27.47	3.64	26.45	4.39	29.54	3.64	24.83
Miscellaneous Items	1.27	8.21	0.87	6.33	0.94	6.32	1.06	7.23
Fines	0.42	2.74	0.32	2.36	0.30	1.99	0.26	1.81
TOTAL	**15.46**	**100.00**	**13.76**	**100.00**	**14.85**	**100.00**	**14.67**	**100.00**

3.1.2 Annual estimate

In addition, MWDA requested an annual estimate of the residual domestic waste composition of Merseyside, and this is presented in Table 4 (by sub-category) and Table 5 (by category) and Figures 1 and 2 below.

Table 4: Estimated composition of residual domestic waste of Merseyside 2005–06 (by sub-category)

Sub-category	kg/hh/wk	%
News and PAMs	1.22	8.31
Other recyclable paper	0.26	1.79
Non recyclable paper	0.97	6.60
Corrugated card	0.34	2.28
Flat card	0.63	4.27
Liquid containers	0.06	0.41
Clear PET bottles	0.17	1.16
Coloured PET bottles	0.05	0.33
Natural HDPE bottles	0.12	0.80
Coloured HDPE bottles	0.07	0.49
PVC bottles	0.01	0.09
Plastic film	0.74	5.04
Other plastic	0.79	5.37
Textiles	0.60	4.10
Shoes	0.09	0.58
Clear glass bottles/jars	0.55	3.73
Green glass bottles/jars	0.36	2.46
Brown glass bottles/jars	0.13	0.89
Other glass	0.07	0.50
Wood (not garden waste)	0.08	0.53
Disposable nappies	0.59	4.00
Ferrous cans	0.33	2.23
Other ferrous metals	0.11	0.77
Aluminium cans	0.09	0.59
Aluminium foil	0.08	0.53
Other non-ferrous	0.01	0.09
Electrical items	0.19	1.28
Paint/paint related products	0.04	0.30
Batteries	0.01	0.09
Other hazardous	0.07	0.50
Garden waste	0.51	3.48
Fruit and vegetable waste	2.17	14.80
Meat, cooked food and other kitchen waste	1.81	12.30
Miscellaneous inert	0.50	3.42
Miscellaneous other	0.53	3.62
Fines	0.33	2.23
TOTAL	14.69	100.00

Table 5: Estimated composition of residual domestic waste of Merseyside 2005–06 (by category)

Category	kg/hh/wk	%
Paper	2.45	16.70
Card	1.02	6.96
Plastic	1.95	13.29
Textiles	0.69	4.68
Glass	1.11	7.59
Wood (not garden waste)	0.08	0.53
Disposable nappies	0.59	4.00
Metals	0.62	4.21
Electrical items	0.19	1.28
Hazardous items (non WEEE items)	0.13	0.90
Garden waste	0.51	3.48
Kitchen waste	3.98	27.10
Miscellaneous Items	1.03	7.05
Fines	0.33	2.23
TOTAL	14.69	100.00

Figure 1: Estimated composition of residual domestic waste of Merseyside 2005–06 (kg/hh/wk)

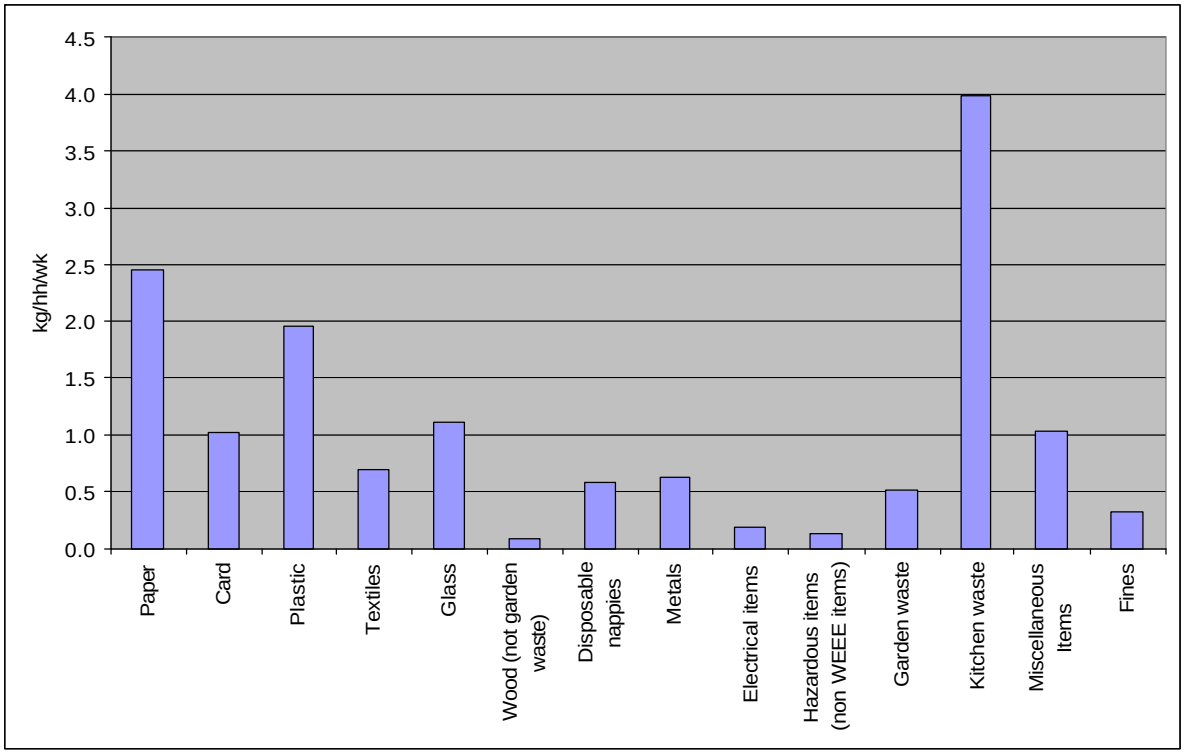
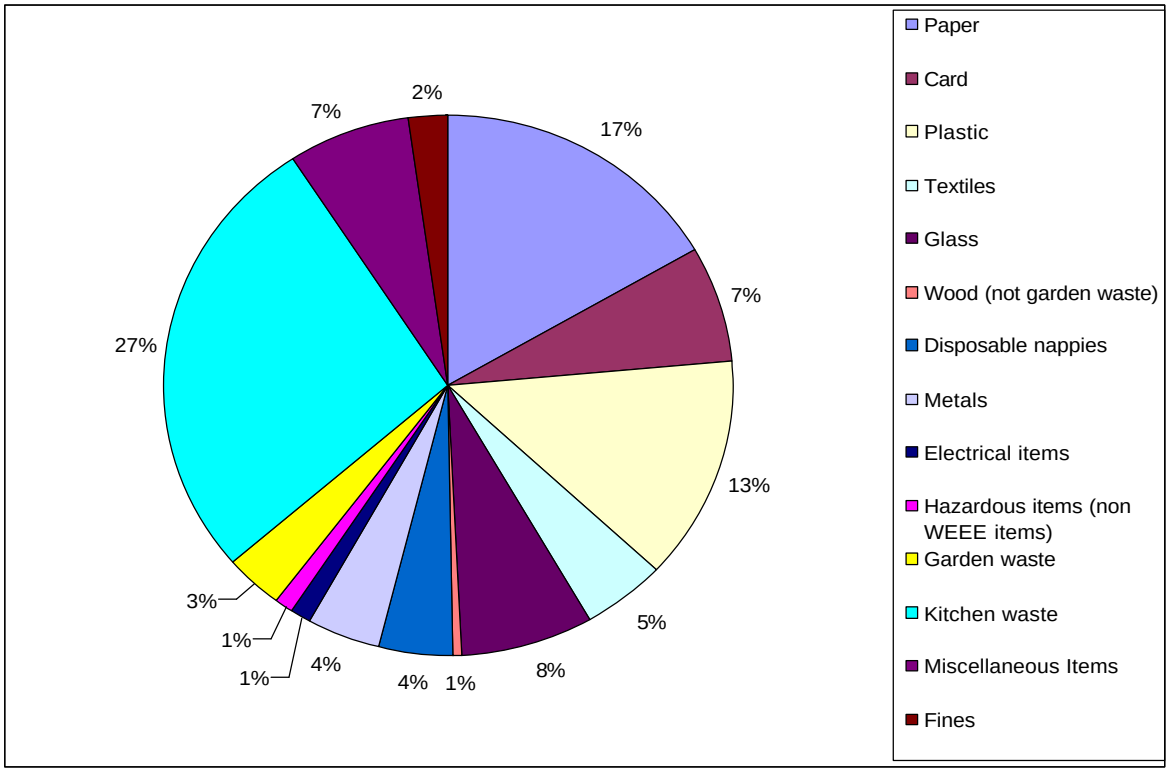


Figure 2: Estimated composition of residual domestic waste of Merseyside 2005–06 (%)



The following trends in the data are worth highlighting:

- the three largest fractions of the residual domestic waste stream are kitchen waste, paper and plastic
- 57.11% of the residual domestic waste stream is estimated to be biodegradable (referring to Defra guidance on the biodegradability of different waste streams, see p.8 of: http://www.defra.gov.uk/environment/waste/localauth/lats/pdf/lats-municipalwasteguidance.pdf).

3.2 Estimate of residual domestic waste compositions for each ACORN category

MWDA requested an annual estimate of the residual domestic waste composition of each ACORN category (ACORN 1, 2, 3, 4 and 5). This is presented in Table 6 (by sub category) and Table 7 (by category) and Figures 3 and 4 below.

Table 6: Annual Merseyside residual domestic waste composition by ACORN category in kg/hh/wk (kg) and % (by sub-category)

	A1		A2		A3		A4		A5	
Sub category	**kg**	**%**	**kg**	**%**	**kg**	**%**	**kg**	**%**	**kg**	**%**
News and PAMs	0.98	8.19	0.94	7.39	1.02	6.98	1.46	8.92	1.44	9.26
Other recyclable paper	0.31	2.62	0.43	3.40	0.31	2.11	0.29	1.77	0.16	1.06
Non recyclable paper	0.88	7.30	0.87	6.84	0.93	6.39	1.09	6.66	1.01	6.49
Corrugated card	0.20	1.64	0.27	2.16	0.38	2.58	0.36	2.22	0.36	2.29
Flat card	0.52	4.37	0.50	3.95	0.60	4.08	0.68	4.17	0.70	4.49
Liquid containers	0.07	0.55	0.05	0.39	0.07	0.46	0.06	0.39	0.05	0.34
Clear PET bottles	0.11	0.93	0.16	1.25	0.16	1.09	0.20	1.21	0.20	1.26
Coloured PET bottles	0.04	0.35	0.04	0.34	0.05	0.32	0.06	0.35	0.05	0.33
Natural HDPE bottles	0.09	0.76	0.16	1.27	0.11	0.74	0.14	0.84	0.12	0.80
Coloured HDPE bottles	0.06	0.49	0.08	0.60	0.08	0.55	0.07	0.44	0.07	0.45
PVC bottles	0.01	0.05	0.01	0.07	0.01	0.05	0.05	0.29	0.01	0.04
Plastic film	0.63	5.29	0.72	5.68	0.71	4.88	0.80	4.86	0.80	5.13
Other plastic	0.76	6.34	0.68	5.34	0.82	5.61	0.91	5.53	0.74	4.76
Textiles	0.34	2.87	0.57	4.49	0.53	3.61	0.72	4.43	0.73	4.68
Shoes	0.02	0.21	0.06	0.51	0.12	0.81	0.06	0.36	0.10	0.63
Clear glass bottles/jars	0.32	2.65	0.51	4.06	0.42	2.84	0.68	4.18	0.71	4.54
Green glass bottles/jars	0.27	2.25	0.38	2.96	0.48	3.31	0.34	2.10	0.30	1.94
Brown glass bottles/jars	0.09	0.75	0.09	0.70	0.16	1.10	0.12	0.76	0.13	0.87
Other glass	0.07	0.59	0.03	0.25	0.09	0.58	0.07	0.44	0.07	0.48
Wood (not garden waste)	0.08	0.67	0.06	0.47	0.11	0.77	0.08	0.47	0.05	0.33
Disposable nappies	0.29	2.44	0.47	3.74	0.57	3.88	0.65	3.97	0.73	4.66
Ferrous cans	0.16	1.36	0.22	1.71	0.26	1.78	0.39	2.40	0.44	2.85
Other ferrous metals	0.11	0.90	0.07	0.59	0.11	0.77	0.10	0.60	0.13	0.85
Aluminium cans	0.04	0.30	0.07	0.52	0.08	0.55	0.11	0.66	0.11	0.70
Aluminium foil	0.07	0.62	0.05	0.37	0.08	0.51	0.10	0.60	0.08	0.50
Other non-ferrous	0.00	0.04	0.00	0.04	0.02	0.15	0.01	0.06	0.01	0.09
Electrical items	0.14	1.15	0.13	0.99	0.22	1.47	0.28	1.73	0.15	0.97
Paint/paint related products	0.03	0.22	0.06	0.44	0.01	0.06	0.02	0.14	0.09	0.60
Batteries	0.01	0.08	0.00	0.00	0.01	0.08	0.01	0.07	0.02	0.13
Other hazardous	0.04	0.30	0.04	0.32	0.13	0.86	0.08	0.49	0.05	0.30
Garden waste	0.67	5.58	0.60	4.76	0.61	4.20	0.38	2.33	0.42	2.67
Fruit and vegetable waste	1.92	16.03	1.84	14.50	2.23	15.27	2.36	14.42	2.22	14.24
Meat, cooked food and other kitchen waste	1.54	12.81	1.30	10.29	1.79	12.24	2.13	13.02	1.88	12.05
Miscellaneous inert	0.33	2.73	0.22	1.74	0.47	3.18	0.66	4.02	0.58	3.74
Miscellaneous other	0.52	4.32	0.76	5.98	0.63	4.33	0.53	3.22	0.43	2.73
Fines	0.27	2.27	0.24	1.86	0.27	1.83	0.31	1.88	0.43	2.78
TOTAL	**12.00**	**100.00**	**12.66**	**100.00**	**14.63**	**100.00**	**16.36**	**100.00**	**15.58**	**100.00**

Table 7: Annual Merseyside residual domestic waste composition by ACORN category in kg/hh/wk (kg) and % (by sub-category)

	A1		A2		A3		A4		A5	
Category	**kg**	**%**	**kg**	**%**	**kg**	**%**	**kg**	**%**	**kg**	**%**
Paper	2.17	18.11	2.23	17.63	2.26	15.48	2.84	17.35	2.62	16.81
Card	0.79	6.55	0.82	6.51	1.04	7.11	1.11	6.78	1.11	7.12
Plastic	1.71	14.21	1.84	14.56	1.94	13.23	2.21	13.52	1.99	12.76
Textiles	0.37	3.07	0.63	5.00	0.65	4.43	0.78	4.79	0.83	5.31
Glass	0.75	6.25	1.01	7.98	1.15	7.83	1.23	7.49	1.22	7.82
Wood (not garden waste)	0.08	0.67	0.06	0.47	0.11	0.77	0.08	0.47	0.05	0.33
Disposable nappies	0.29	2.44	0.47	3.74	0.57	3.88	0.65	3.97	0.73	4.66
Metals	0.38	3.21	0.41	3.24	0.55	3.75	0.71	4.32	0.78	4.98
Electrical items	0.14	1.15	0.13	0.99	0.22	1.47	0.28	1.73	0.15	0.97
Hazardous items (non WEEE items)	0.07	0.59	0.10	0.76	0.15	1.00	0.11	0.70	0.16	1.03
Garden waste	0.67	5.58	0.60	4.76	0.61	4.20	0.38	2.33	0.42	2.67
Kitchen waste	3.46	28.84	3.14	24.79	4.02	27.50	4.49	27.44	4.10	26.29
Miscellaneous Items	0.85	7.05	0.98	7.72	1.10	7.51	1.18	7.24	1.01	6.47
Fines	0.27	2.27	0.24	1.86	0.27	1.83	0.31	1.88	0.43	2.78
TOTAL	**12.00**	**100.00**	**12.66**	**100.00**	**14.63**	**100.00**	**16.36**	**100.00**	**15.58**	**100.00**

The key broad trend that emerges from this data is that more affluent households appear to generate lower amounts of residual domestic waste than less affluent households, particularly textiles, clear glass and disposable nappies; however, the reverse is true of garden waste. These trends are reiterated in Figures 3 and 4 below.

Figure 3: Annual Merseyside residual domestic waste composition by ACORN category (kg/hh/wk)

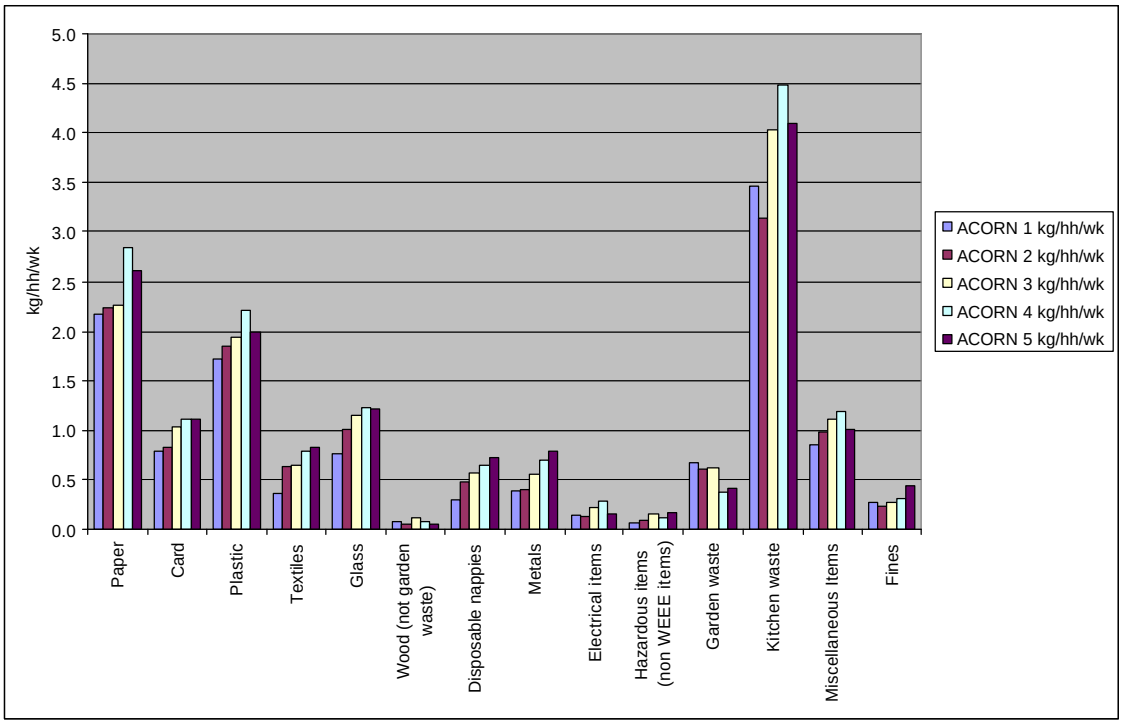
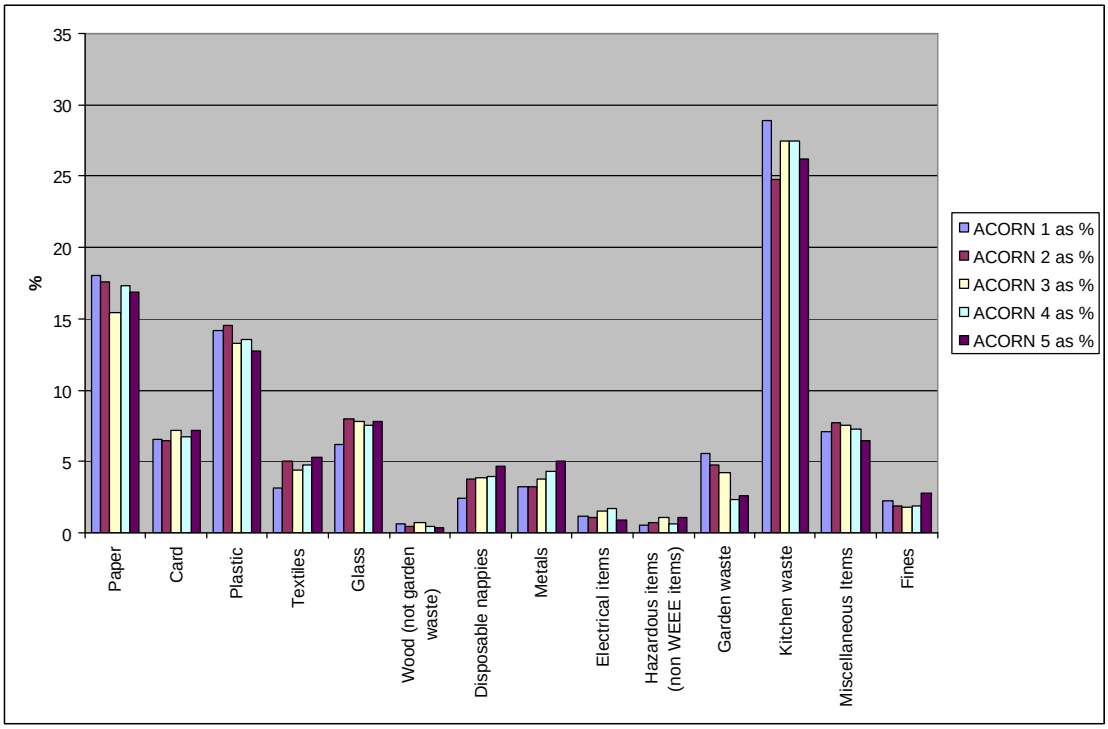


Figure 4: Annual Merseyside residual domestic waste composition by ACORN category (%)



3.3 Estimate of proportion of residual domestic waste of Merseyside that is recyclable, compostable or non-recyclable

MWDA requested an estimate of the proportion of residual domestic waste of Merseyside that is recyclable, compostable or non-recyclable.

Please note that we have used our own definitions of “recyclable”, “compostable” and ”non-recyclable” in relation to the categories adopted for the project. Given that there is no accepted industry-wide definition of these terms, we have based our definitions on SWAP’s experience of materials that are commonly targeted by local authorities for source separation across the UK. Should MWDA require an analysis of “recyclable”, “compostable” and “non-recyclable” waste based on alternative definitions (perhaps reflecting local collection infrastructure and reprocessing capacity), SWAP would be happy to undertake this as part of any follow-up work to this project.

Our estimate, in both kg/hh/wk and percentage, is presented in Tables 8 (by sub-category) and 9 (by category) and Figures 5 and 6 below.

Table 8: Weight (kg/hh/wk) and proportion (%) of Merseyside residual domestic waste that is recyclable, compostable or non-recyclable (by sub-category)

Sub-category	Recyclable		Compostable		Non-recyclable	
	kg/hh/wk	%	kg/hh/wk	%	kg/hh/wk	%
News and PAMs	1.22	8.31				
Other recyclable paper	0.26	1.79				
Non recyclable paper					0.97	6.60
Corrugated card	0.34	2.28				
Flat card	0.63	4.27				
Liquid containers					0.06	0.41
Clear PET bottles	0.17	1.16				
Coloured PET bottles	0.05	0.33				
Natural HDPE bottles	0.12	0.80				
Coloured HDPE bottles	0.07	0.49				
PVC bottles	0.01	0.09				
Plastic film					0.74	5.04
Other plastic					0.79	5.37
Textiles	0.60	4.10				
Shoes	0.09	0.58				
Clear glass bottles/jars	0.55	3.73				
Green glass bottles/jars	0.36	2.46				
Brown glass bottles/jars	0.13	0.89				
Other glass					0.07	0.50
Wood (not garden waste)	0.08	0.53				
Disposable nappies					0.59	4.00
Ferrous cans	0.33	2.23				
Other ferrous metals	0.11	0.77				
Aluminium cans	0.09	0.59				
Aluminium foil	0.08	0.53				
Other non-ferrous	0.01	0.09				
Electrical items	0.19	1.28				
Paint/paint related products					0.04	0.30
Batteries	0.01	0.09				
Other hazardous					0.07	0.50
Garden waste			0.51	3.48		
Fruit and vegetable waste			2.17	14.80		
Meat, cooked food and other kitchen waste			1.81	12.30		
Miscellaneous inert					0.50	3.42
Miscellaneous other					0.53	3.62
Fines					0.33	2.23
TOTAL	**5.49**	**37.41**	**4.49**	**30.58**	**4.70**	**32.01**

Table 9: Weight (kg/hh/wk) and proportion (%) of Merseyside residual domestic waste that is recyclable, compostable or non-recyclable (by category)

Category	Recyclable		Compostable		Non-recyclable	
	kg/hh/wk	%	kg/hh/wk	%	kg/hh/wk	%
Paper	1.48	10.10	0.00	0.00	0.97	6.60
Card	0.96	6.55	0.00	0.00	0.06	0.41
Plastic	0.42	2.88	0.00	0.00	1.53	10.41
Textiles	0.69	4.68	0.00	0.00	0.00	0.00
Glass	1.04	7.08	0.00	0.00	0.07	0.50
Wood	0.08	0.53	0.00	0.00	0.00	0.00
Disposable nappies	0.00	0.00	0.00	0.00	0.59	4.00
Metals	0.62	4.21	0.00	0.00	0.00	0.00
Electrical items	0.19	1.28	0.00	0.00	0.00	0.00
Hazardous items	0.01	0.09	0.00	0.00	0.12	0.80
Garden waste	0.00	0.00	0.51	3.48	0.00	0.00
Kitchen waste	0.00	0.00	3.98	27.10	0.00	0.00
Miscellaneous Items	0.00	0.00	0.00	0.00	1.03	7.05
Fines	0.00	0.00	0.00	0.00	0.33	2.23
TOTAL	**5.49**	**37.41**	**4.49**	**30.58**	**4.70**	**32.01**

Figure 5: Weight per household of Merseyside residual domestic waste that is recyclable, compostable or non-recyclable (kg/hh/wk)

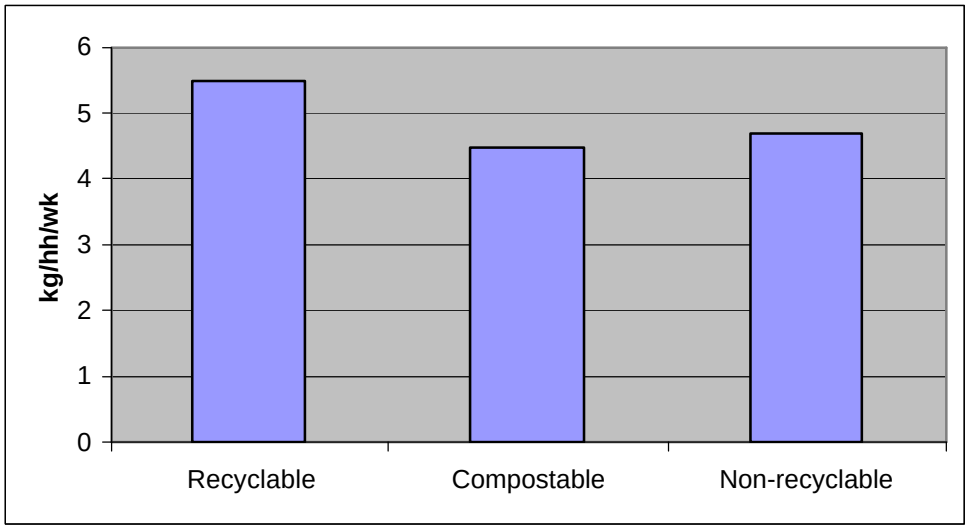
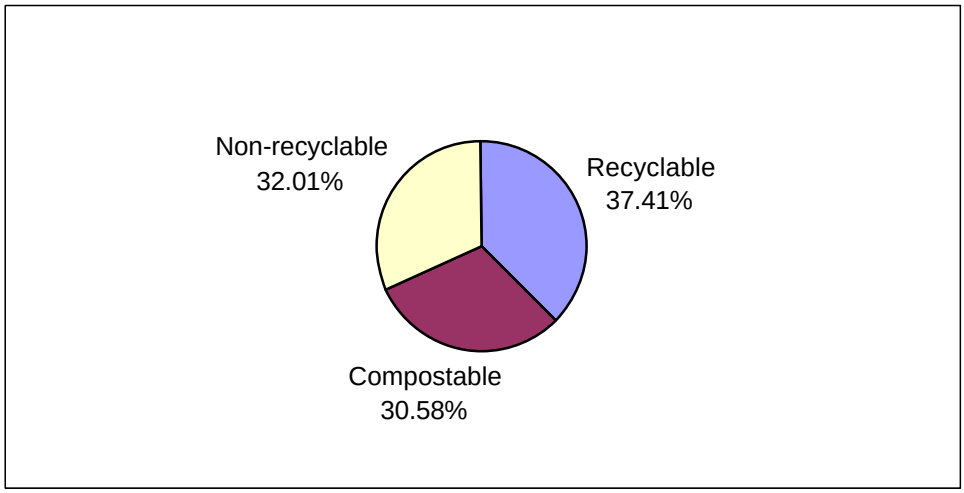


Figure 6: Proportion of Merseyside residual domestic waste that is recyclable, compostable or non-recyclable (%)



The tables and figures above indicate that:

- 67.99% of residual domestic waste in Merseyside is either recyclable or compostable
- of the recyclable fraction, the key waste streams are paper, card, plastic, textiles, glass and metals
- of the compostable fraction, the key constituent is kitchen waste; indeed, this is the largest component of the residual domestic waste stream.

3.4 National comparison

MWDA requested a comparison of the annual residual domestic waste composition of Merseyside with a recognised national composition.

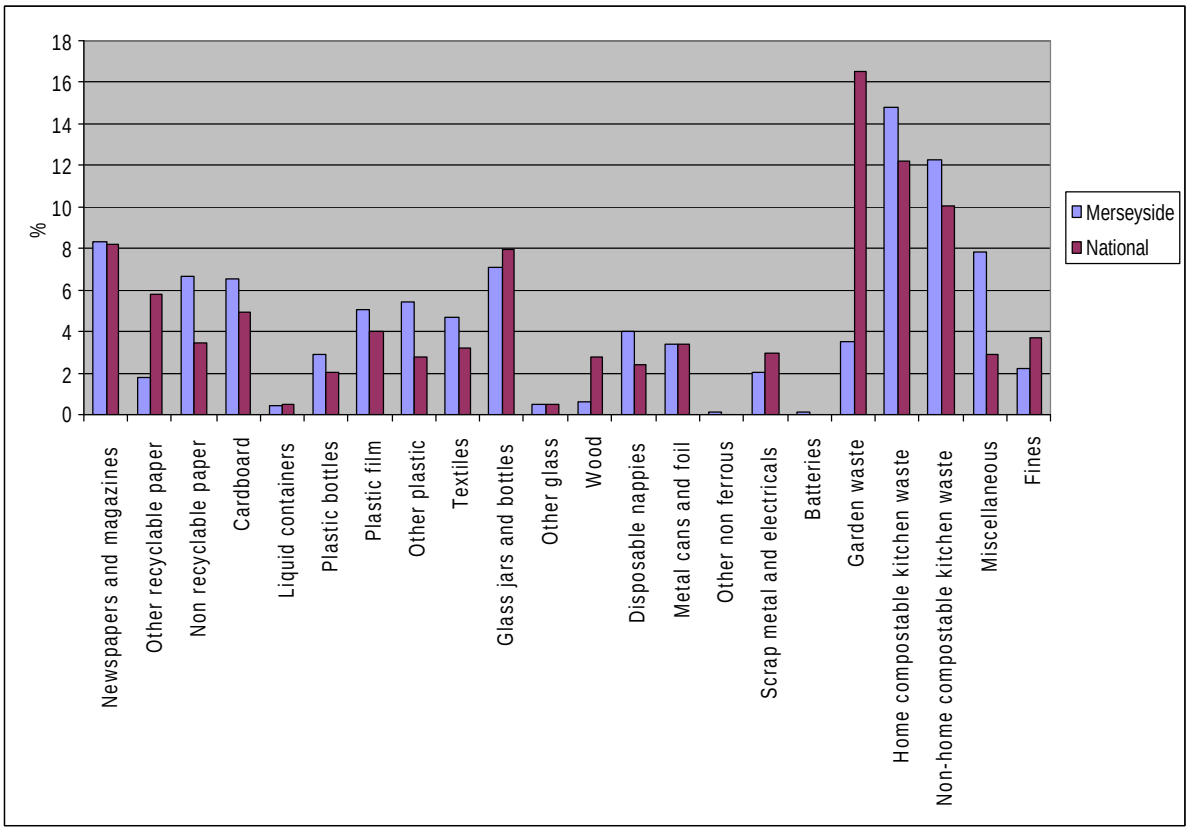
The national composition we have used is the one reproduced on p.3 of Defra's 2004 "Waste Composition Analysis Guidance for Local Authorities" (this document can be viewed at: http://lasupport.defra.gov.uk/Default.aspx?Menu=Menu&Module=ViewArticle&ArticleID=153), which in turn was conducted by the Environment Agency in 1997. Please note that the Environment Agency figures include kerbside recycling and non-CA site bring recycling. In addition, it has been necessary to aggregate some of both our own and the Environment Agency's categories to produce a comparable categorisation – details of how this has been achieved can be forwarded to MWDA on request.

The comparisons are presented in Table 10 and Figure 7 below.

Table 10: Comparison of Merseyside residual domestic waste composition with a recognised national composition (%)

Category	Merseyside	National
Newspapers and magazines	8.31	8.14
Other recyclable paper	1.79	5.85
Non recyclable paper	6.60	3.44
Cardboard	6.55	4.93
Liquid containers	0.41	0.46
Plastic bottles	2.88	2.06
Plastic film	5.04	4.01
Other plastic	5.37	2.75
Textiles	4.68	3.21
Glass jars and bottles	7.08	7.91
Other glass	0.50	0.46
Wood	0.53	2.75
Disposable nappies	4.00	2.41
Metal cans and foil	3.35	3.33
Other non ferrous	0.09	0
Scrap metal and electricals	2.06	2.98
Batteries	0.09	0
Garden waste	3.48	16.51
Home compostable kitchen waste	14.80	12.16
Non-home compostable kitchen waste	12.30	10.09
Miscellaneous	7.85	2.87
Fines	2.23	3.67
Total (%)	**100.00**	**100.00**
Total (kg/hh/wk)	**14.69**	**16.77**

Figure 7: Comparison of Merseyside residual domestic waste composition with a recognised national composition (%)



Due to the differing methodologies adopted to generate these compositions, it is difficult to make reliable conclusions. However, the key variations between the two compositions are as follows:

- Merseyside has a considerably lower proportion of garden waste than the national average, and also has a lower proportion of wood
- by contrast, Merseyside has a relatively higher proportion of disposable nappies and plastics than the national average.

3.5 Presence of separately collected materials in residual domestic waste

MWDA also requested an estimate of the annual amount of separately collected materials present in residual domestic waste across the whole of Merseyside.

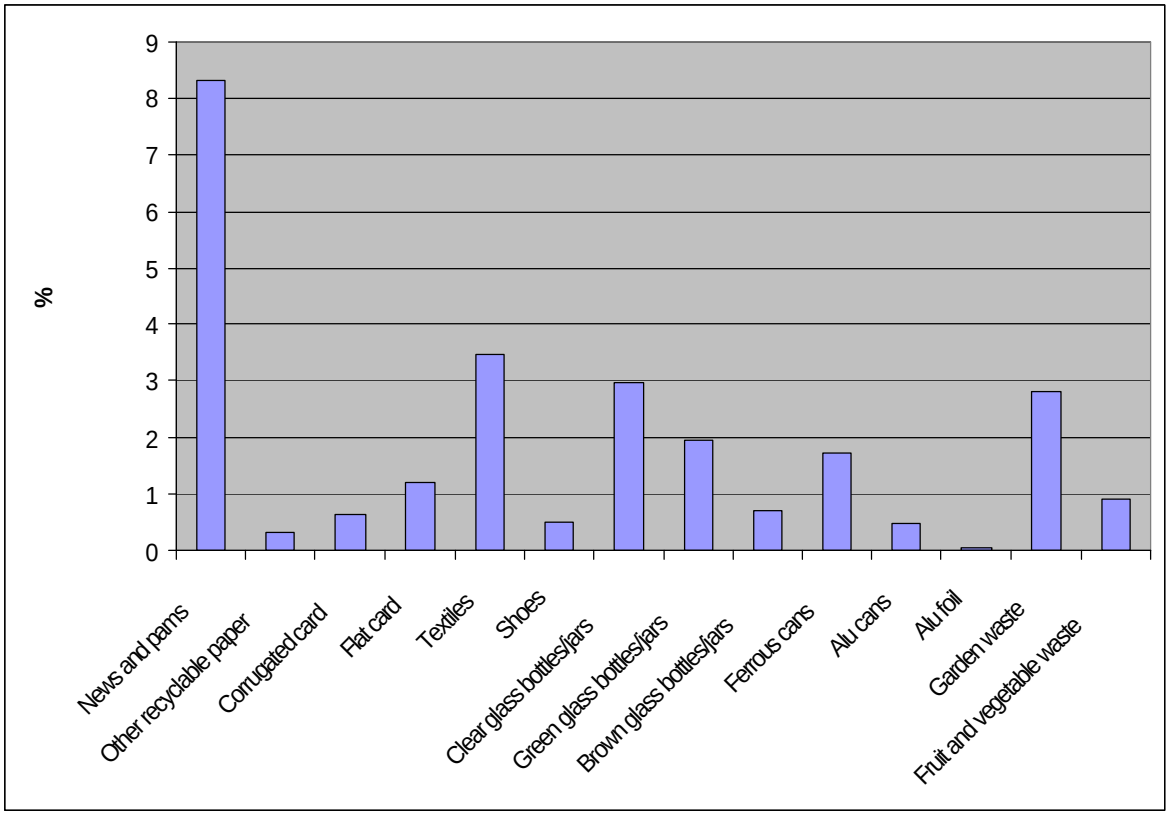
In making this calculation, we have weighted the data from all of the samples in proportion to the population of Merseyside falling within each ACORN category. Please note that we have only used data from samples where separate collections currently exist.

Our estimate is presented in Table 11 and Figure 8 below.

Table 11: Presence of separately collected materials in Merseyside residual domestic waste (annual average)

Sub category	Total separately collected materials present in residual domestic waste (kg/hh/wk)	Total separately collected materials present (% of residual domestic waste)
News and PAMs	1.22	8.32
Other recyclable paper	0.05	0.31
Corrugated card	0.10	0.65
Flat card	0.17	1.19
Textiles	0.51	3.49
Shoes	0.07	0.50
Clear glass bottles/jars	0.44	2.99
Green glass bottles/jars	0.29	1.96
Brown glass bottles/jars	0.10	0.70
Ferrous cans	0.25	1.73
Aluminium cans	0.07	0.48
Aluminium foil	0.01	0.07
Garden waste	0.41	2.80
Fruit and vegetable waste	0.13	0.90
Total	3.83	26.08

Figure 8: Total separately collected materials present in Merseyside residual domestic waste (annual average % of residual domestic waste)



As Table 11 and Figure 8 show, over a quarter of residual domestic waste in Merseyside is made up of material that is separately collected. The key waste stream that Merseyside residents are putting into their residual waste rather than their recycling container is newspapers and PAMs.

4. Analysis of residual HWRC waste data

MWDA requested the following analysis of the residual HWRC waste data:

- an estimate of the residual HWRC waste composition of Merseyside
- an estimate of the proportion of residual HWRC waste of Merseyside that is recyclable, compostable or non-recyclable.

The analysis of residual HWRC waste data is accordingly presented in sections 4.1 and 4.2 below.

Please note that the data and calculations for residual HWRC waste are based on percentages only. As discussed in Section 6.1.2 below, unlike the residual domestic waste analysis, the methodology adopted to gather the residual HWRC waste data was focused around generating a reasonable indication of the overall percentage composition of residual HWRC waste in Merseyside, rather than specific weight data.

4.1 Estimate of residual HWRC waste composition of Merseyside

4.1.1 Seasonal estimates

Initially, MWDA requested inclusion of the estimated residual HWRC waste compositions of Merseyside for each of the four phases of the analysis, and these are presented in percentage in Tables 12 (by sub-category) and 13 (by category) below. Our estimate of overall annual residual HWRC waste composition follows in Table 14 and Figures 9 and 10.

Table 12: Estimated seasonal compositions of Merseyside residual HWRC waste (%, by sub-category)

Sub-cat. No.	Sub-category	Phase 1	Phase 2	Phase 3	Phase 4
1.1	Garden waste	1.78	1.06	8.19	8.65
2.1	Wood	2.92	1.35	4.90	3.72
2.2	Reconstituted wood	11.01	5.83	6.38	2.37
3.1	Scrap metal	2.42	2.93	5.04	3.99
4.1	Paper	1.29	2.38	1.92	1.66
4.2	Card packaging	5.43	1.62	3.28	2.12
5.1	Plastic film	0.18	0.37	0.39	0.16
5.2	Dense plastic packaging	0.27	0.16	0.23	0.36
5.3	Dense plastic non packaging	0.11	0.87	2.57	2.44
5.4	Other plastic	2.09	2.57	0.01	0.27
6.1	Packaging glass	0.00	0.00	0.12	0.22
6.2	Non-packaging glass	0.51	1.42	1.79	2.30
7.1	Textiles	2.73	3.10	1.85	2.79
8.1	Books	0.00	1.57	0.38	1.04
8.2	Bric-a brac	1.92	1.04	3.06	2.23
9.1	Hard furniture	10.46	2.69	2.04	4.11
9.2	Soft furnishings	3.80	1.92	4.18	2.77
9.3	Other furnishings	0.29	1.74	0.17	0.22
10.1	Ceramics	1.21	2.65	0.55	0.60
11.1	Inert material	14.07	9.50	8.68	13.76
12.1	Carpet and lino	14.09	13.75	10.46	9.09
13.1	Bicycles	0.00	0.25	0.09	0.00
14.1	Toys and leisure	0.82	3.46	1.52	1.10
15.1	Large appliances	0.04	0.03	0.32	0.00
15.2	Small appliances	1.01	1.27	1.42	1.51
15.3	IT and telecommunications	0.72	0.60	1.48	1.91
15.4	Consumer equipment	0.42	2.72	0.46	2.55
15.5	Lighting equipment	0.12	0.14	0.45	0.24
15.6	Electrical tools	0.16	0.18	0.29	0.18
15.7	Electrical toys and leisure	0.38	0.04	0.14	0.25
16.1	Fluorescent tubes	0.01	0.04	0.03	0.01
16.2	Cooking oil	0.00	0.02	0.02	0.01
16.3	Engine oil	0.04	0.02	0.17	0.08
16.4	Household batteries	0.00	0.01	0.00	0.00
16.5	Car batteries	0.00	0.00	0.03	0.00
16.6	Other hazardous	0.42	0.88	2.87	1.33
17.1	Liquid waste	0.17	0.00	0.18	0.00
18.1	Black bin waste	16.79	13.42	15.01	13.85
19.1	Miscellaneous	2.28	18.40	9.32	12.13
	TOTAL	100.00	100.00	100.00	100.00

Table 13: Estimated seasonal compositions of Merseyside residual HWRC waste (%, by category)

Category	Phase 1	Phase 2	Phase 3	Phase 4
Garden waste	1.78	1.06	8.19	8.65
Wood and wood related	13.93	7.18	11.28	6.09
Scrap metal	2.42	2.93	5.04	3.99
Paper and card	6.73	4.00	5.20	3.77
Plastics	2.65	3.97	3.21	3.24
Glass	0.51	1.42	1.91	2.52
Textiles	2.73	3.10	1.85	2.79
Books and Bric-a-brac	1.92	2.62	3.44	3.27
Furniture	14.56	6.35	6.40	7.09
Ceramics	1.21	2.65	0.55	0.60
Inert material	14.07	9.50	8.68	13.76
Flooring	14.09	13.75	10.46	9.09
Bicycles	0.00	0.25	0.09	0.00
Toys, leisure and sports equipment	0.82	3.46	1.52	1.10
Electrical	2.86	4.98	4.56	6.64
Household hazardous waste (HHW)	0.47	0.96	3.12	1.42
Other liquid waste	0.17	0.00	0.18	0.00
Black bin waste	16.79	13.42	15.01	13.85
Miscellaneous	2.28	18.40	9.32	12.13
TOTAL	**100.00**	**100.00**	**100.00**	**100.00**

4.1.2 Annual estimate

Table 14: Estimated composition of Merseyside residual HWRC waste 2005–06 (%)

Cat.	Sub-cat.	% - Sub cat.	% - Cat.
Garden waste	Garden waste	4.92	4.92
Wood and wood related	Wood	3.22	9.62
	Reconstituted wood	6.40	
Scrap metal	Scrap metal	3.60	3.60
Paper and card	Paper	1.81	4.92
	Card packaging	3.11	
Plastics	Plastic film	0.28	3.27
	Dense plastic packaging	0.26	
	Dense plastic non packaging	1.50	
	Other plastic	1.24	
Glass	Packaging glass	0.09	1.59
	Non-packaging glass	1.51	
Textiles	Textiles	2.62	2.62
Books and Bric-a-brac	Books	0.75	2.81
	Bric-a brac	2.06	
Furniture	Hard furniture	4.83	8.60
	Soft furnishings	3.17	
	Other furnishings	0.61	
Ceramics	Ceramics	1.25	1.25
Inert material	Inert material	11.50	11.50
Flooring	Carpet and lino	11.85	11.85
Bicycles	Bicycles	0.09	0.09
Toys, leisure and sports equipment	Toys and leisure	1.72	1.72
Electrical	Large appliances	0.10	4.76
	Small appliances	1.30	
	IT and telecommunications	1.18	
	Consumer equipment	1.54	
	Lighting equipment	0.24	
	Electrical tools	0.20	
	Electrical toys and leisure	0.20	
Household hazardous waste (HHW)	Fluorescent tubes	0.02	1.49
	Cooking oil	0.01	
	Engine oil	0.08	
	Household batteries	0.00	
	Car batteries	0.01	
	Other hazardous	1.37	
Other liquid waste	Liquid waste	0.09	0.09
Black bin waste	Black bin waste	14.77	14.77
Miscellaneous	Miscellaneous	10.53	10.53
TOTAL		100.00	100.00

Figure 9: Estimated composition of Merseyside residual HWRC waste 2005–06 (%)

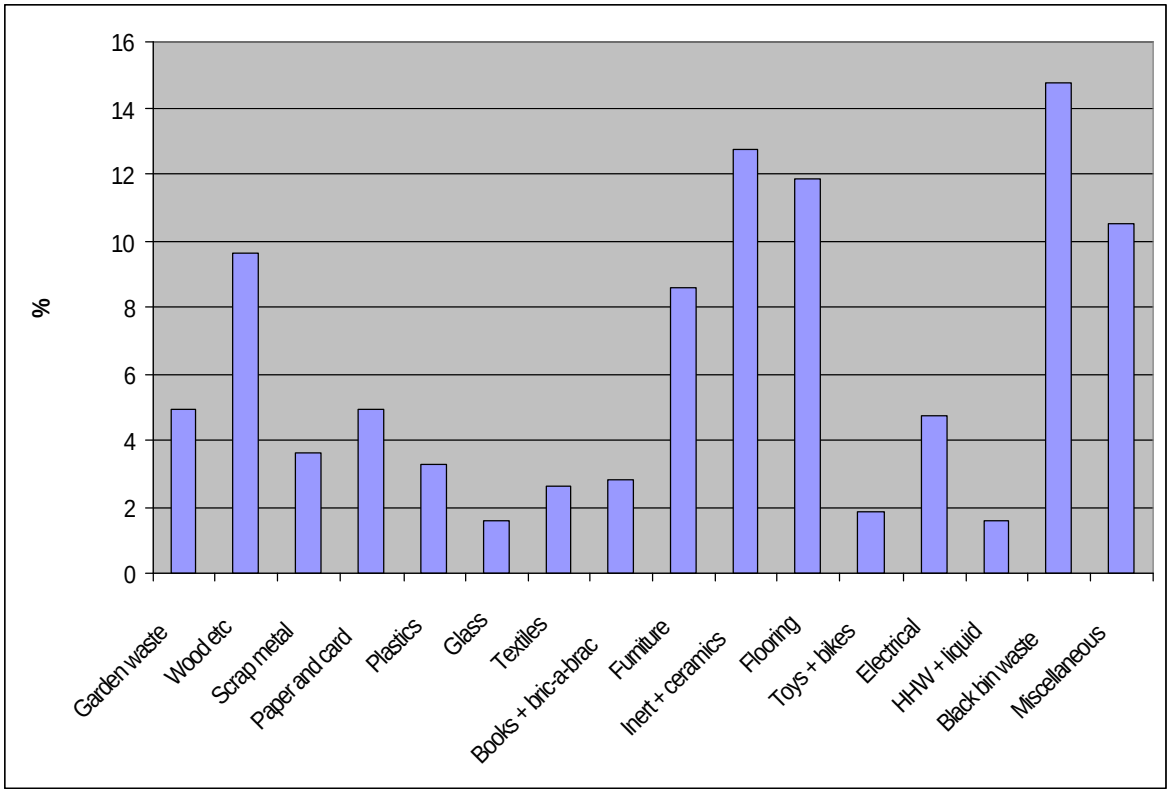
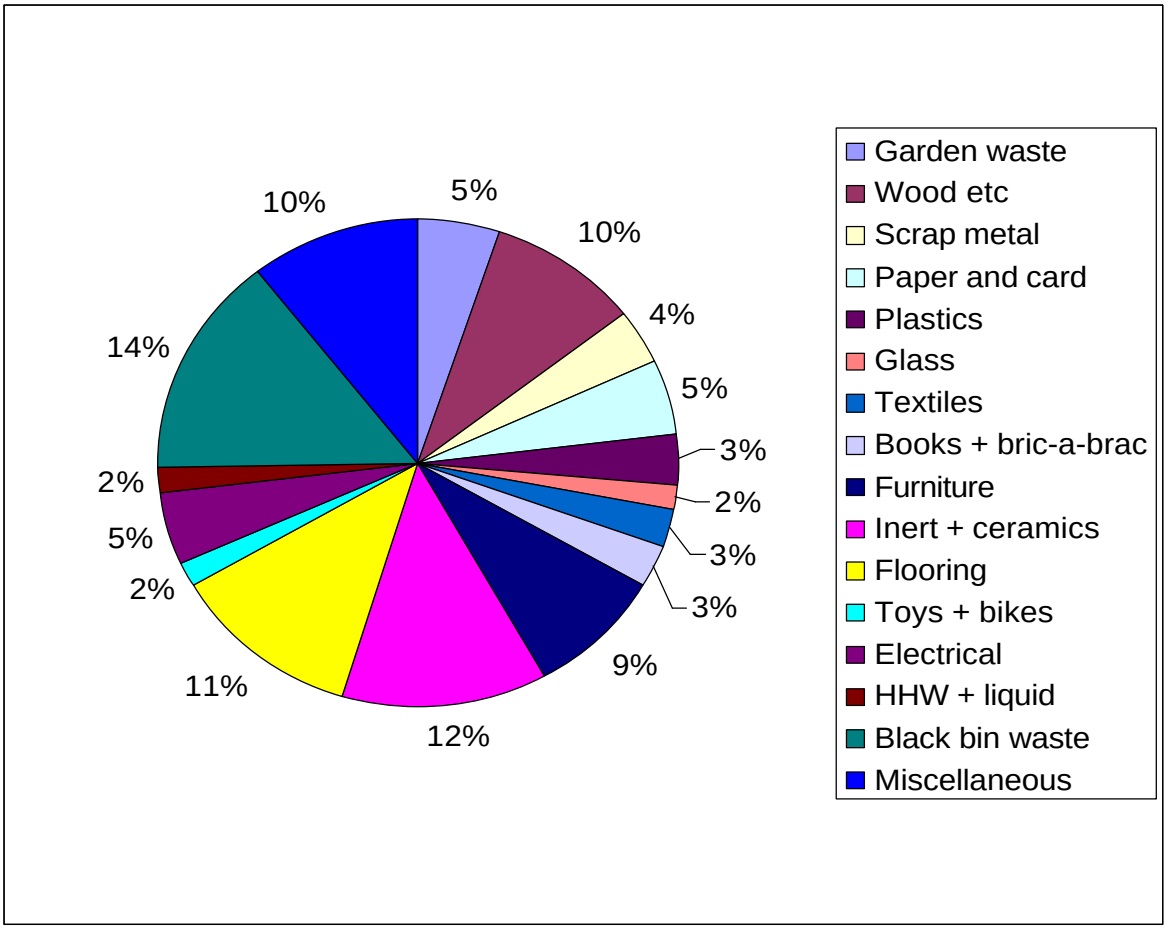


Figure 10: Estimated composition of Merseyside residual HWRC waste 2005–06 (%)



The key seasonal difference evident in the residual HWRC waste is increased quantities of garden waste present in Phases 3 and 4 (spring and summer).

The predominant materials being disposed of in residual HWRC waste are black bin waste, inert and ceramic materials, flooring and miscellaneous items.

4.2 Estimate of proportion of residual HWRC waste of Merseyside that is recyclable, compostable or non-recyclable

MWDA requested an estimate of the proportion of residual HWRC waste of Merseyside that is recyclable, compostable or non-recyclable.

Again, please note that we have used our own definitions of “recyclable”, “compostable” and ”non-recyclable” in relation to the categories adopted for the project. Given that there is no accepted industry-wide definition of these terms, we have based our definitions on SWAP’s experience of materials that are commonly targeted by local authorities for source separation across the UK. Should MWDA require an analysis of “recyclable”, “compostable” and “non-recyclable” waste based on alternative definitions (perhaps reflecting local collection infrastructure and reprocessing capacity), SWAP would be happy to undertake this as part of any follow-up work to this project.

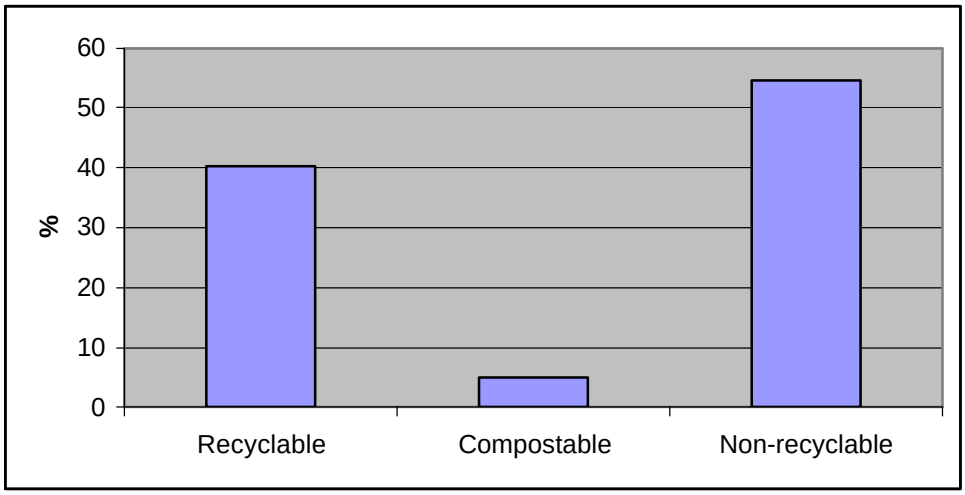
In addition, we have provided an estimate of the proportion of residual HWRC waste that is potentially reusable (subject to further assessment). All items deemed potentially reusable were recorded in one of eight sub-categories, and our estimate is based on the aggregated figures from these.

Our estimate, in percentage, is presented in Table 15 and Figure 11 below.

Table 15: Proportion of Merseyside residual HWRC waste that is recyclable, compostable or non-recyclable (%)

Sub-category	Recyclable	Compostable	Non-recyclable	(Potentially reusable)
Garden waste		4.92		
Wood	3.22			
MDF and other reconstituted wood			6.40	
Scrap metal	3.60			
Paper	1.81			
Card packaging	3.11			
Plastic film			0.28	
Dense plastic packaging			0.26	
Dense plastic non packaging			1.50	
Other plastic			1.24	
Packaging glass	0.09			
Non-packaging glass			1.51	
Textiles	2.62			
Books	0.75			(0.75)
Bric-a brac			2.06	(2.06)
Hard furniture	4.83			(4.83)
Soft furnishings	3.17			
Other furnishings			0.61	
Ceramic toilets and wash basins	1.25			
Soil, rubble, sand, gravel and plasterboard	11.50			
Carpet and lino			11.85	
Bicycles	0.09			(0.09)
Toys, leisure and sports equipment			1.72	(1.72)
Large household appliances	0.10			(0.10)
Small household appliances	1.30			(1.30)
IT and telecommunications equipment	1.18			(1.18)
Consumer equipment	1.54			
Lighting equipment			0.24	
Electrical and electronic tools	0.20			
Toys, leisure and sports equipment (electrical)			0.20	
Fluorescent tubes			0.02	
Cooking oil			0.01	
Engine oil	0.08			
Household batteries	0.00			
Car batteries	0.01			
Other potentailly hazardous material			1.37	
Other liquid waste			0.09	
Black bin waste			14.77	
Miscellaneous			10.53	
TOTAL	**40.43**	**4.92**	**54.65**	**(12.03)**

Figure 11: Proportion of Merseyside residual HWRC waste that is recyclable, compostable or non-recyclable (%)



These figures indicate that nearly half of the material present in residual HWRC waste could be diverted from disposal by recycling or composting (note that this is a lower proportion than the equivalent figure for residual domestic waste). In addition, at least 12% of residual HWRC waste is potentially reusable (and note that this figure has been generated from an HWRC that already has a franchisee operation for diverting reusable items).

5. Analysis of annual aggregated domestic and HWRC waste arisings

MWDA requested estimates of the annual aggregated composition (ie - both residual waste and separate collections) of materials currently collected in Merseyside from:

- domestic properties
- HWRCs
- domestic properties and HWRCs combined.

It was possible to make these estimates with reference to the following data, which MWDA provided to SWAP:

- aggregated annual tonnage of residual domestic waste collected in Merseyside
- aggregated annual tonnage of all materials separately collected from domestic properties in Merseyside
- aggregated annual tonnage of residual HWRC waste collected in Merseyside
- aggregated annual tonnage of all materials separately collected from HWRCs in Merseyside
- total number of households in Merseyside.

As in Section 3.4, it has been necessary to aggregate some of the categories to produce a consistent categorisation – again, details of how this has been achieved can be forwarded to MWDA on request.

5.1 Domestic waste

Our estimate of the annual aggregated composition (ie - both residual waste and separate collections) of materials currently collected in Merseyside from domestic properties is presented in Table 16 and Figures 12 and 13 below.

The table and figures indicate that the predominant materials currently collected from domestic properties in Merseyside are paper and card, kitchen waste and plastic.

Table 16: Estimate of the annual aggregated composition of material currently collected in Merseyside from domestic properties

Category	kg/hh/wk	%
Paper and card	4.51	26.10
Plastic	1.95	11.30
Textiles	0.77	4.47
Glass	1.60	9.28
Wood	0.09	0.52
Disposable nappies	0.59	3.40
Metals and white goods	0.70	4.07
Other electrical items	0.19	1.09
Hazardous items	0.13	0.76
Garden waste	1.40	8.10
Kitchen waste	3.98	23.02
Potentially reusable items	0.00	0.01
Other material	1.36	7.88
TOTAL	**17.29**	**100.00**

Figure 12: Estimate of the annual aggregated composition of material currently collected in Merseyside from domestic properties (kg/hh/wk)

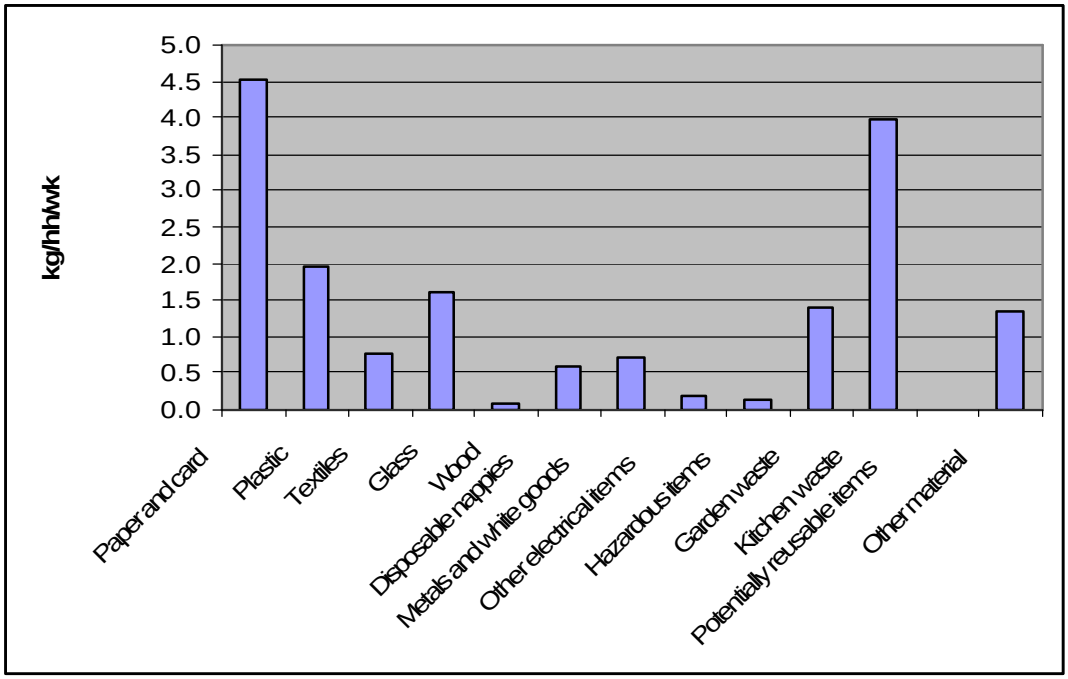
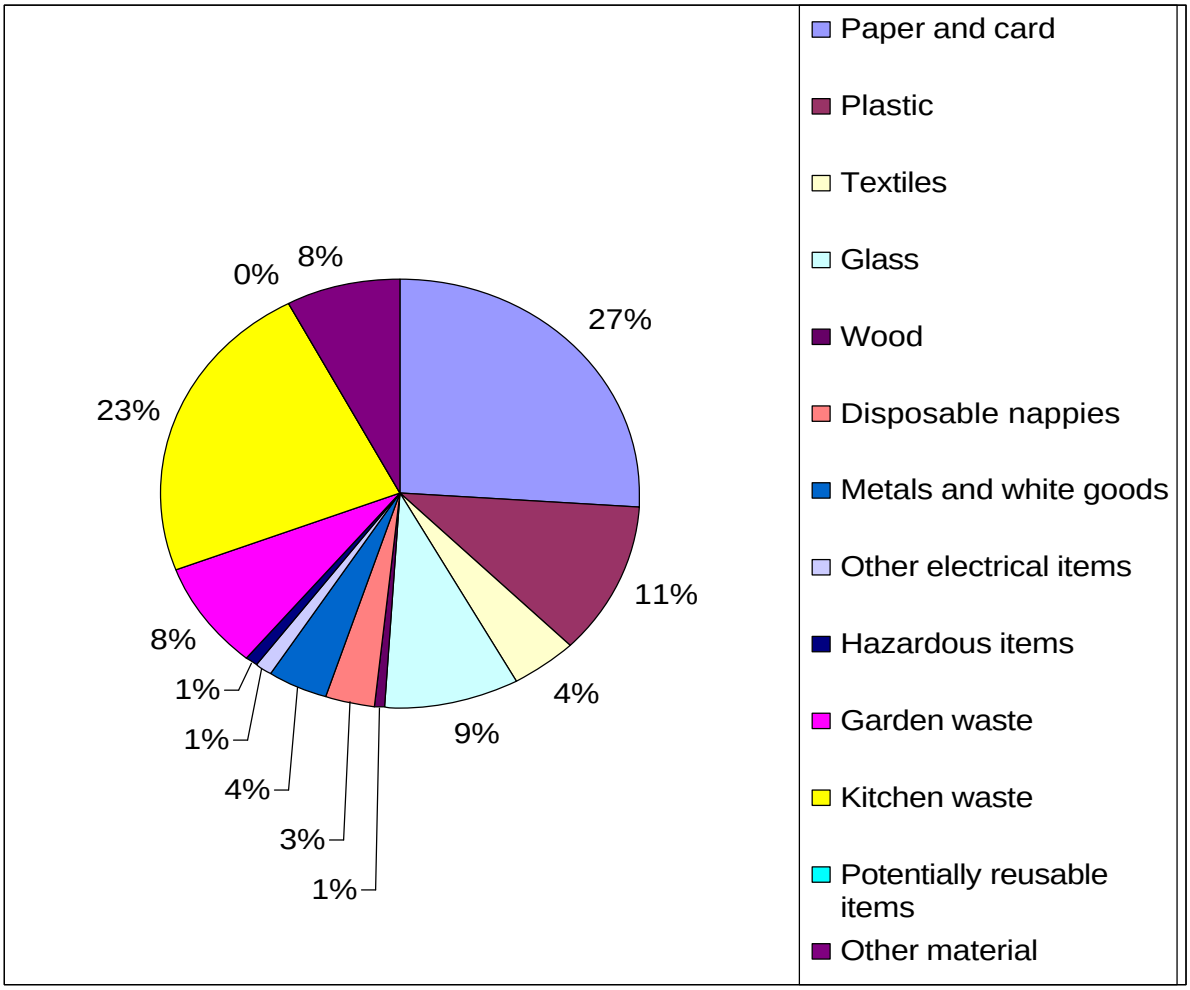


Figure 13: Estimate of the annual aggregated composition of material currently collected in Merseyside from domestic properties (%)



5.2 HWRC waste

Our estimate of the annual aggregated composition (ie - both residual waste and separate collections) of materials currently collected in Merseyside from HWRCs is presented in Table 17 and Figures 14 and 15 below.

The table and figures indicate that the predominant materials currently collected from HWRCs in Merseyside are other materials, wood and garden waste.

Table 17: Estimate of the annual aggregated composition of material currently collected in Merseyside from HWRCs

Category	kg/hh/wk	%
Paper and card	0.28	4.38
Plastic	0.12	1.81
Textiles	0.10	1.59
Glass	0.09	1.31
Wood	0.98	15.08
Disposable nappies	0.00	0.00
Metals and white goods	0.40	6.14
Other electrical items	0.17	2.64
Hazardous items	0.08	1.16
Garden waste	0.91	14.06
Kitchen waste	0.00	0.00
Potentially reusable items	0.52	7.95
Other material	2.85	43.87
TOTAL	**6.50**	**100.00**

Figure 14: Estimate of the annual aggregated composition of material currently collected in Merseyside from HWRCs (kg/hh/wk)

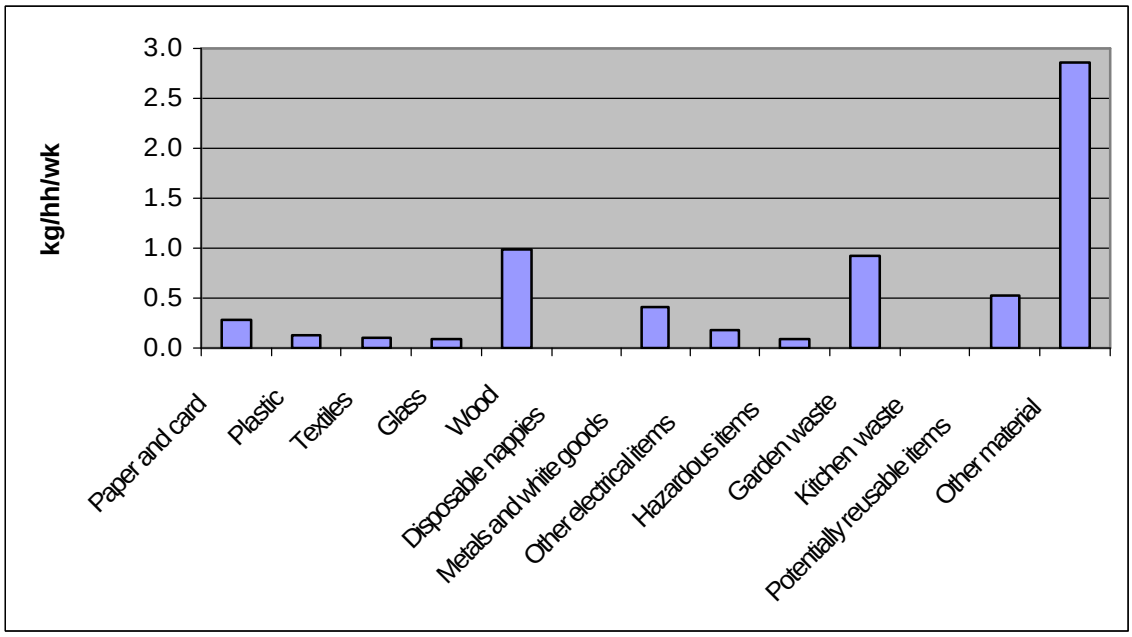
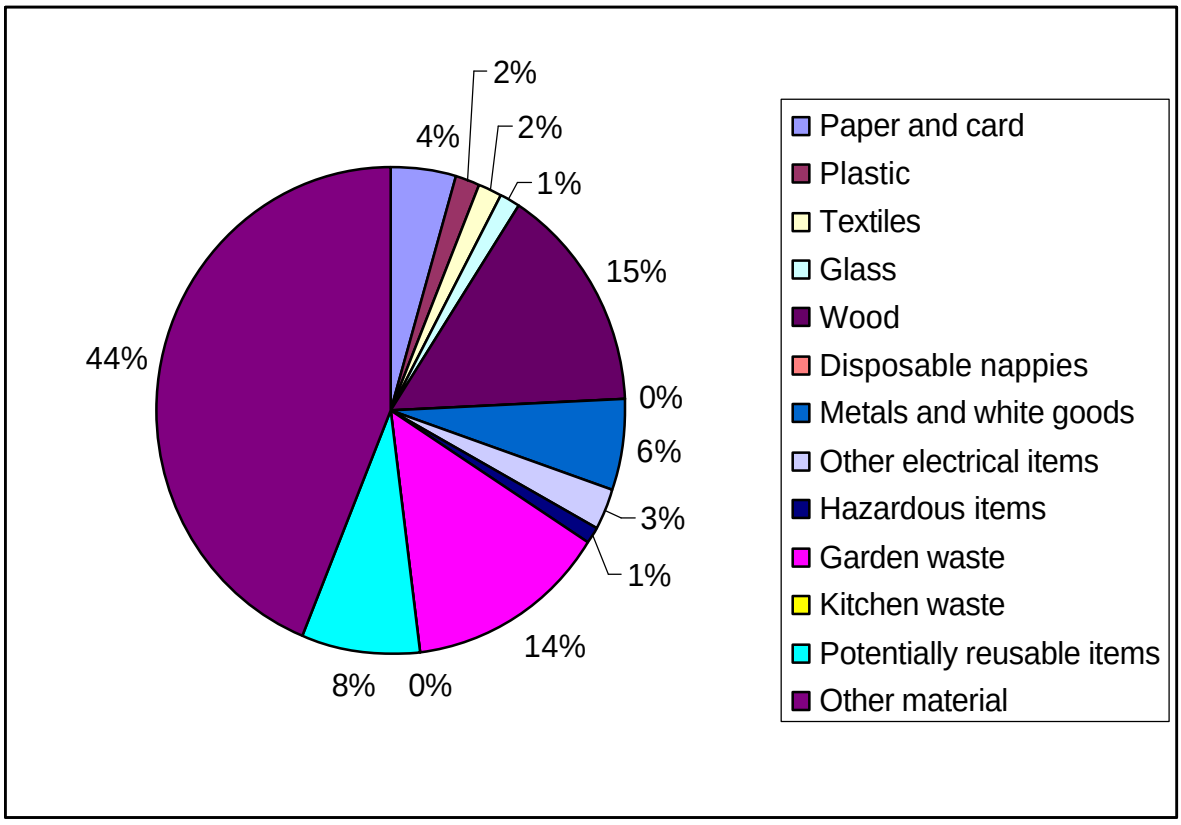


Figure 15: Estimate of the annual aggregated composition of material currently collected in Merseyside from HWRCs (%)



5.3 Combined domestic and HWRC waste

Our estimate of the annual aggregated composition (ie - both residual waste and separate collections) of materials currently collected in Merseyside from both domestic properties and HWRCs is presented in Table 18 and Figures 16 and 17 below. Please note that the estimate excludes street cleansing, flytipped, trade and clinical waste.

The table and figures indicate that the predominant materials currently collected from domestic properties and HWRCs in Merseyside are paper and card, other material and kitchen waste.

Table 18: Estimate of the annual aggregated composition of material currently collected in Merseyside from domestic properties and HWRCs

Category	kg/hh/wk	%
Paper and card	4.80	20.17
Plastic	2.07	8.71
Textiles	0.88	3.68
Glass	1.69	7.10
Wood (not garden waste)	1.07	4.50
Disposable nappies	0.59	2.47
Metals and white goods	1.10	4.64
Other electrical items	0.36	1.51
Hazardous items (non electrical)	0.21	0.87
Garden waste	2.31	9.73
Kitchen waste	3.98	16.73
Potentially reusable items (non electrical)	0.52	2.18
Other material	4.21	17.71
TOTAL	**23.79**	**100.00**

Figure 16: Estimate of the annual aggregated composition of material currently collected in Merseyside from domestic properties and HWRCs (kg/hh/wk)

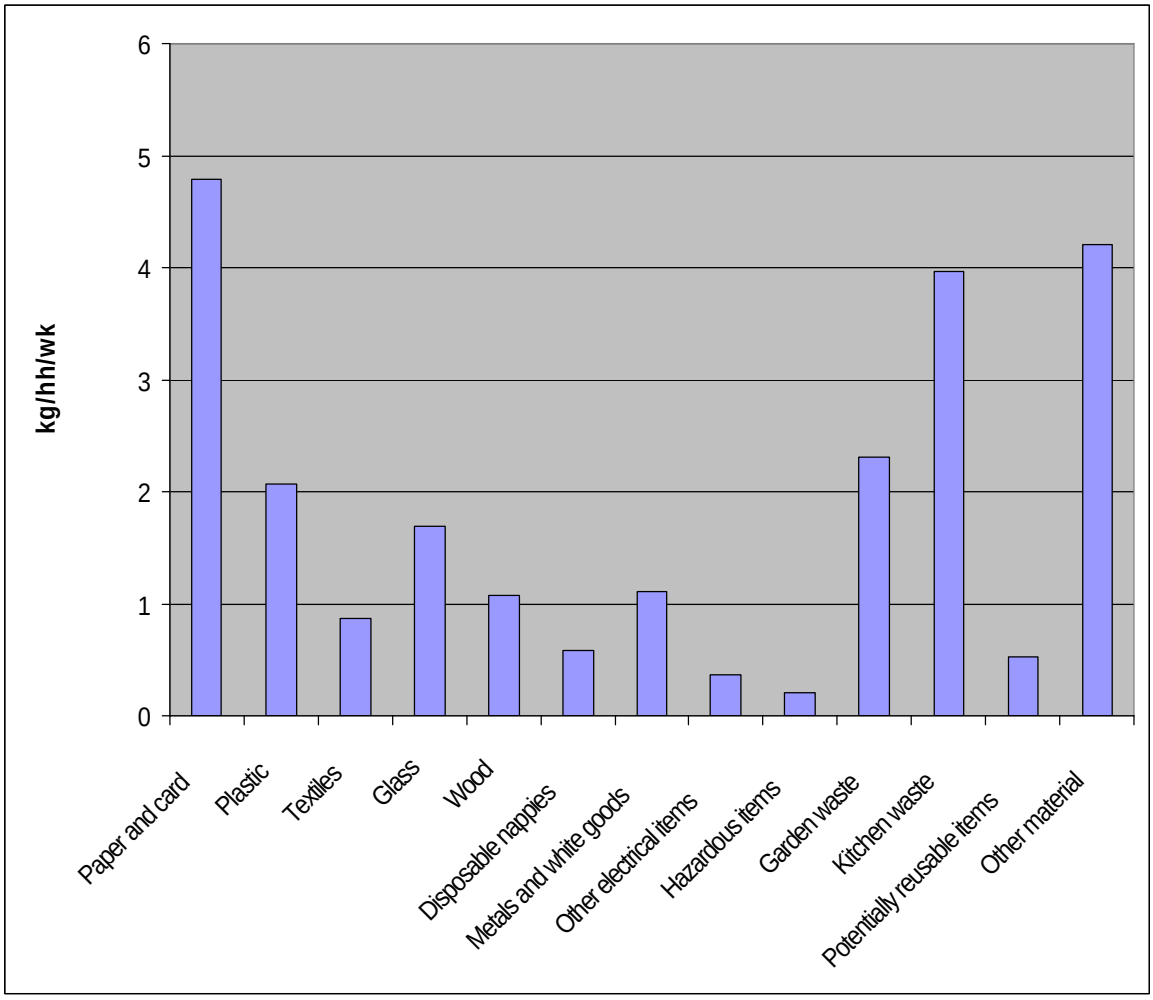
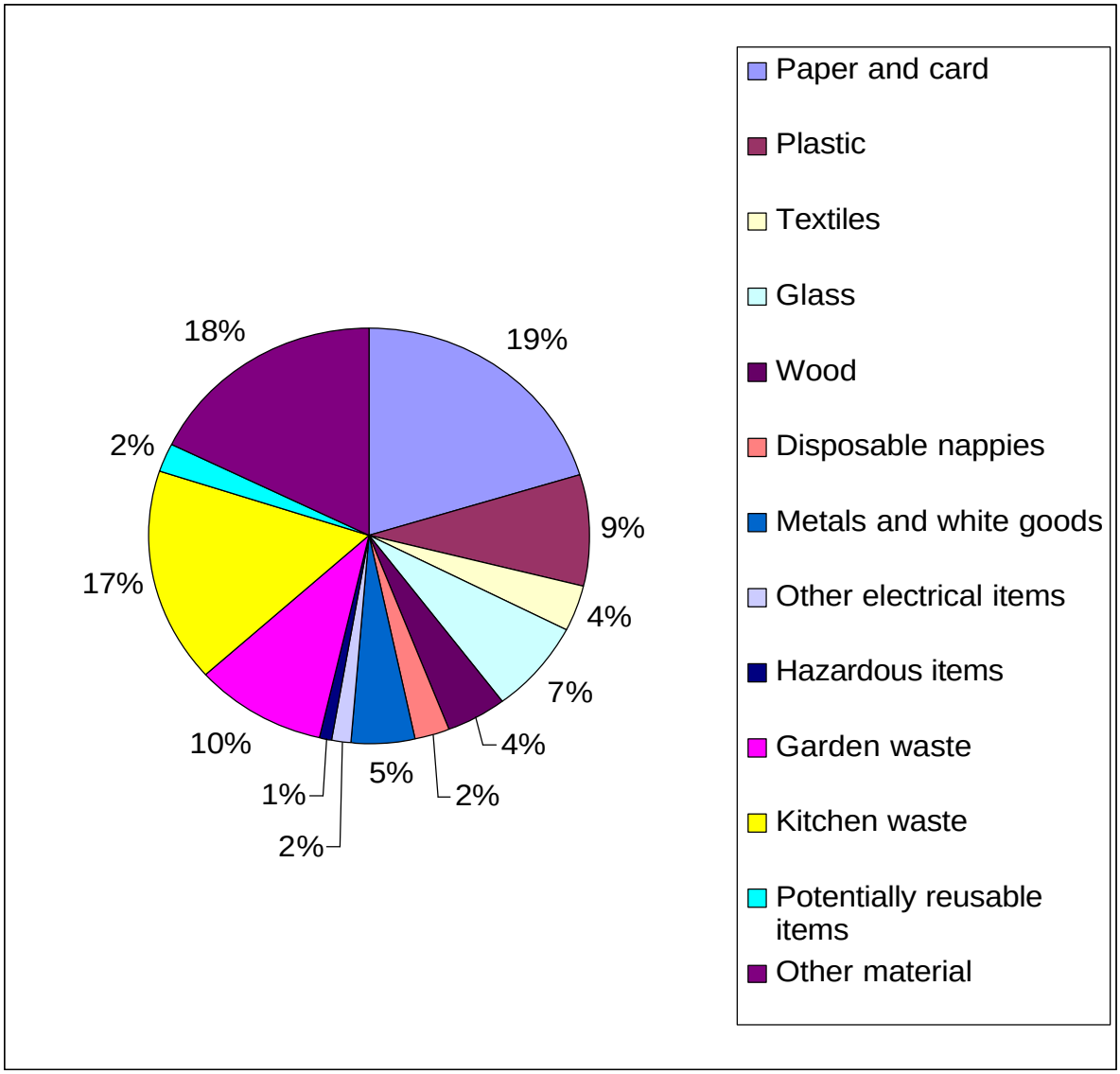


Figure 17: Estimate of the annual aggregated composition of material currently collected in Merseyside from domestic properties and HWRCs (%)



Referring to the Defra guidance on biodegradability mentioned in Section 3.1.2 above, we estimate that 55.68% of combined domestic and HWRC waste is biodegradable.

5.4 National comparison of combined domestic and HWRC waste data

From this data, an additional useful calculation can be made. The national composition referred to in Section 3.4 above also provides data for "CA site waste", which "refers to total civic amenity residuals plus recycling (excluding building rubble)". Using this additional data, it is possible to make a more consistent comparison for annual aggregated domestic and HWRC waste than was possible in Section 3.4 for residual domestic waste only.

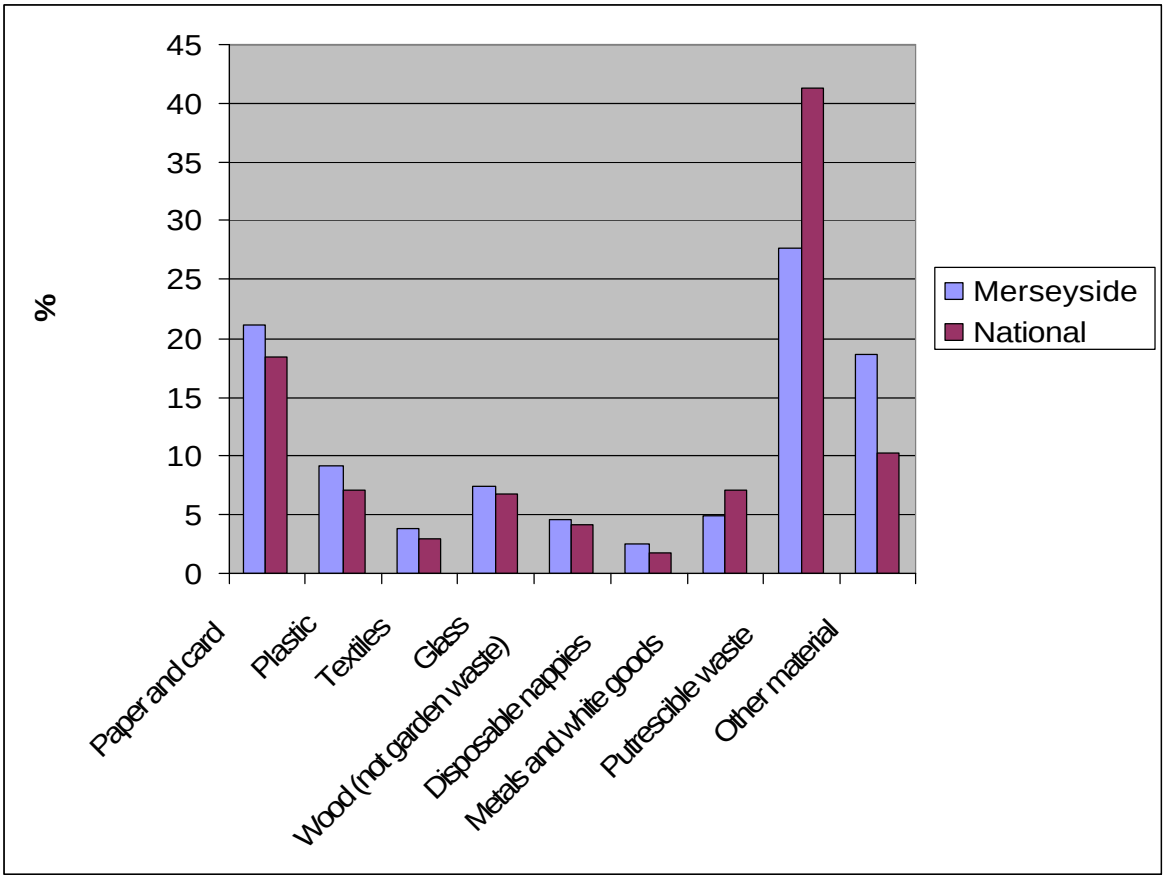
Our comparison of annual aggregated domestic and HWRC waste composition between Merseyside and a recognised national composition is accordingly presented in Table 19 below. Again, it has been necessary to aggregate some of the categories. Please note that the figures exclude rubble collected at HWRCs.

Table 19: Comparison of annual aggregated domestic and HWRC waste composition between Merseyside and a recognised national composition (kg/hh/wk and %)

	Merseyside		National	
Category	**kg/hh/wk**	**%**	**kg/hh/wk**	**%**
Paper and card	4.80	21.09	4.02	18.48
Plastic	2.07	9.11	1.54	7.07
Textiles	0.88	3.85	0.63	2.92
Glass	1.69	7.43	1.48	6.81
Wood (not garden waste)	1.07	4.70	0.90	4.16
Disposable nappies	0.59	2.58	0.40	1.86
Metals and white goods	1.10	4.85	1.54	7.07
Putrescible waste	6.29	27.67	8.98	41.29
Other material	4.26	18.73	2.25	10.34
Total	**22.75**	**100.00**	**21.75**	**100.00**

The figures in the table indicate that Merseyside residents generate slightly more domestic and HWRC waste than the national average (although bear in mind that the national figures date from 1997; indeed Defra's national 2003–04 figure for "Total household waste collected kg/hhld/week" is 23.1, see: http://www.defra.gov.uk/environment/statistics/wastats/mwb0304/download/annexa.xls). Merseyside residents generate a noticeably higher quantity of paper and card, plastic and other material than the national average, and a noticeably lower quantity of putrescible waste and metals and white goods. The information in Table 19 is summarised in Figure 18:

Figure 18: Comparison of annual aggregated domestic and HWRC waste composition between Merseyside and a recognised national composition (%)



6. Concluding comments

As requested by MWDA, this concluding section provides comments on the following issues:

- the reliability of/confidence in the data collected
- recommendations for MWDA and the districts
- some final comments, including pointers to additional analysis that MWDA may wish to consider.

6.1 Reliability of/confidence in the data collected

6.1.1 Residual domestic waste

SWAP's methodology for domestic waste analysis is based on an approach originally designed by the University of Leeds that aimed to establish statistical confidence in applying waste analysis results to a wider population. Therefore, our methodology is based on the principles of achieving statistical reliability.

For domestic waste analyses our approach is to sample between 500 and 1,000 households. Increasing the sample size above 1,000 households does not improve the statistical confidence greatly, regardless of the size of the original population (whether this is a large WDA area of over a million people or a small district council of around 50,000). Reducing the sample size below 500 households is likely to negatively influence how representative the survey results are of the wider population within given tolerances. In reality, given logistical considerations, SWAP typically samples either 500 or 1,000 households, depending on the size of the analysis.

Of at least equal importance to the sample size is the overall sampling strategy – if this is flawed it will lead to a biased result, no matter how many households are included. As such, it is vital that a sample of waste representative of the socio-economic profile of the area is selected for analysis. This is why we base our sampling strategy on ACORN, and ensure that each sample of waste is collected from streets with a consistent ACORN profile.

In addition, we specify that the waste of every tenth household within each sample area is selected for analysis. Where householders do not present waste for collection, this is regarded as one of the 50 households in the sample and collection crews are advised to move on to the next tenth household. This approach ensures that a random selection of households is made and reduces the likelihood of bias.

Thus, given that between 792 and 972 households have been randomly selected from the same sample areas during the four phases of this analysis (see Table 1, p.4), it is reasonable to conclude that the residual domestic waste data generated is broadly representative of the wider population.

6.1.2 Residual HWRC waste

Our approach to residual HWRC waste analysis studied a total of over 45 tonnes of waste, generated by over 1,300 site users on 20 days between November and June at a site used by householders of varying socio-economic status. Not least given our comments regarding sample size in the previous section, it can be concluded that the data generated will provide a very reasonable indication of the composition of residual waste at HWRCs in Merseyside.

MWDA may wish to bear in mind that to some extent the methodology adopted to gather the residual HWRC waste data was influenced by logistical considerations. For example, the work was undertaken at one HWRC (Sefton Meadows) which, in agreement between MWDA and SWAP, was deemed representative of all HWRCs in Merseyside. It should be borne in mind that SWAP staff identified a number of issues relating to the management of this particular site that may have affected the composition of the residual waste skips, including:

- anecdotal evidence that better signage, more visible staff and better site logistics could have resulted in more material being separated into dedicated skips
- the site's trade waste policy not always (indeed rarely) being enforced
- garden waste contaminated with plastic bags etc often being moved from the garden waste skip to the residual waste skip.

However, SWAP is not in a position to comment on the extent to which issues such as this are representative of all HWRCs in Merseyside.

6.2 Recommendations for districts and MWDA

6.2.1 Districts

Given their responsibility to collect residual waste from domestic properties, the key results of the residual domestic waste analysis indicate a primary and secondary priority for the five Merseyside districts.

The primary priority for districts should be to maximise the diversion of recyclable material into existing separate collections. At present, our figures suggest that over a quarter of residual domestic waste is made up of material for which a separate collection already exists. The key materials here are textiles, glass, cans, garden waste and, in particular, newspaper and PAMs.

The secondary focus for districts should be to consider extending their existing collections into recyclable/compostable materials that are not currently collected. Our figures suggest that the priority material here should be kitchen (food) waste, which constitutes over a quarter of residual domestic waste (at present, only one of the districts offers a collection service for this material, and then only for fruit and vegetable waste).

6.2.2 MWDA

Our recommendations for MWDA as the Waste Disposal Authority focus on three main areas, in particular to assist the districts in collecting more material separately:

- communication campaigns
- reprocessing capacity for domestic and HWRC waste streams
- HWRC management.

Communication campaigns

As discussed above, the waste analysis has indicated that a considerable proportion of residual domestic waste is potentially recyclable, including through existing services. There is evidently a key role that communications and awareness campaigns can play here in ensuring that residents use (and use correctly) recycling services provided on their behalf, to maximise diversion from disposal. As indicated above, the key materials in question here are newspapers and PAMs, textiles, glass, cans, garden waste and, potentially, kitchen waste.

In addition, MWDA should bear in mind that communications campaigns are not just designed to encourage residents to use recycling facilities, but have potential to foster a culture of waste minimisation in general. This is vital given the ambitious targets for reducing the growth of waste presented on p.25 of the Joint Municipal Waste Management Strategy for Merseyside. The findings from the waste analysis indicate that annual aggregated domestic and HWRC waste arisings for Merseyside are slightly higher than the national average. Thus although the problem may appear to be, for example, that residents are not putting their newspapers into their recycling container, in fact Merseyside residents are producing more newspaper waste than the national average in the first place.

This point can be emphasised with reference to some of the findings of the analysis by ACORN category. For example, more affluent households appear to be producing lower quantities of disposable nappies. It is possible that this may reflect the fact that more affluent households have more awareness of (as well as better access to) alternatives such as reusable nappies – thus, waste awareness campaigns could accordingly have a beneficial impact of reducing overall waste arisings.

Reprocessing capacity

The analysis has found that kitchen (food) waste is the largest component of the residual domestic waste stream in Merseyside. Although note is taken of MWDA's announcement in December 2005 of a new 20,000tpa "Vertical Composting Unit" facility at Gillmoss, the analysis results suggest that serious consideration should be given to adding to the local reprocessing capacity of food waste, which would support districts' efforts to collect this material.

MWDA may wish to bear in mind that our calculations for Section 5 of this report indicate that food waste constitutes around two-thirds of annual aggregated domestic and HWRC putrescible waste arisings. Garden waste constitutes only a third of putrescible waste, and overall arisings of garden waste in Merseyside are considerably lower than the national average (given the pattern identified in Section 3.2 above, this may be related to the relatively low proportion of ACORN 1 and 2 households in Merseyside in comparison to the national average). The fact that garden waste can be treated (composted) relatively easily

adds to the argument in favour of prioritising the development of reprocessing capacity for food waste.

In addition, the residual HWRC analysis results provide useful information in influencing future disposal options for this waste stream. In summary:

- 25.07% of residual HWRC waste is estimated to be biodegradable (referring to the Defra guidance on biodegradability mentioned in Section 3.1.2 above)
- 4.76% is electrical
- 1.49% is hazardous
- 14.77% is black bin waste (it is conventional within residual HWRC analysis to assume that the compostion of black bin waste matches that of residual domestic waste; in addition, it may be of interest to report that anecdotal evidence on site suggested that the quantity of black bin waste was not related to problems with the regular residual domestic waste collection, but because residents had missed the bin men, gone on holiday etc)
- at least 12% is potentially reusable (this could be potentially higher as, for example, some of the "other hazardous" category was paint, potentially reusable through a Community Re>Paint scheme; in addition, some of the "wood" and "metal" was furniture broken to fit into vehicles, which may potentially have been reusable if collected through a doorstep bulky waste collection).

HWRC management

The focus of the residual HWRC waste analysis was to identify the composition of residual HWRC waste. However, given that around 45% of residual HWRC waste was potentially recyclable/compostable, it is worth highlighting that improved use of existing separate collection facilities and the provision of new facilities could have a significant impact on site performance (and of course in turn impact on residual HWRC waste composition).

6.3 Final comments

SWAP hopes that the data generated by this project is of value to MWDA in its future waste management planning. In this final section we provide pointers to additional work that MWDA may wish to consider that was beyond the scope of this project, and where SWAP (now part of "Resource Futures Ltd") could assist.

Initially, as previously discussed with MWDA, SWAP is happy to undertake additional analysis of the data collected by this project, as well as present the findings to MWDA and the districts.

MWDA may subsequently wish to consider extending the 2005–06 waste analysis programme into future years. Indeed, Resource Futures partners SWAP and Network Recycling have been undertaking an ongoing programme of waste analyses for neighbouring Lancashire County Council since 2001. The value of such a programme is to monitor changing patterns of waste arisings and composition over a period of years. The Lancashire waste analysis work is influenced by the County's PFI process that will ultimately result in the letting of a 25-year integrated waste management contract. Earlier in 2006 Network Recycling and SWAP undertook an exercise on behalf of the existing preferred bidder to model waste arisings over the whole period of this contract and to compare the findings with an earlier model produced by the County Council. Both the County Council's and the bidder's

models were based on the waste analysis figures produced since 2001. Thus, ongoing waste analysis work can feed into similar large scale procurement exercises.

MWDA may also wish to consider analysing the composition of other municipal waste streams, including:

- Analysis of separately collected domestic and HWRC waste for recycling, which can enable authorities to assess the performance of existing separate collections. SWAP is also able to undertake monitoring work to help improve the performance of existing recycling services.
- Analysis of a range of other residual municipal wastes such as street cleansing waste, bulky waste, flytipped waste, trade waste and community skips. The value of this would be to build a better understanding of overall household and municipal waste composition and arisings, and being able to compare these figures with those reported by local authorities and presented in publications such as Defra's Municipal Waste Management Survey. SWAP undertook a major analysis on behalf of the Greater Manchester Waste Disposal Authority in 2005 analysing all the above waste streams, and in addition was able to make an assessment of the potential reusability of items analysed.

With regards to HWRCs, our partner in Resource Futures, Network Recycling, recently produced the "National Assessment of Civic Amenity Sites" report which provides advice on a wide range of issues to improve the performance of HWRCs (see: http://www.networkrecycling.co.uk/downloadable-reports.htm). For the management of specialist waste streams, SWAP has recently produced the "Haz Guide" which provides good practice advice on managing hazardous waste at HWRCs (see: http://www.nhhwf.org.uk/). SWAP has also recently undertaken a strategic review of household hazardous waste services for West Sussex County Council and provided advice on segregation and storage of WEEE at the county's HWRCs.

In addition, WRAP provides free communications resources from the Recycle Now partners website (http://www.recyclenowpartners.org.uk) which have been designed for local authorities to run their own campaigns. These include guidance on planning and running campaigns, downloadable artwork, advertising templates and research reports. Much of this information was developed by SWAP in conjunction with WRAP and SWAP also has considerable experience in running local authority communications campaigns.

Appendices

Appendix 1: ACORN data

Appendix 2: MWDA letters prepared for householders and HWRC users

Appendix 3: SWAP Sample Information Sheet

Appendix 4: Categories adopted for the project

Appendix 5: SWAP summary statement on health and safety

Appendix 6: SWAP temporary staff initial training agenda

Appendix 1: ACORN data

ACORN Profile - Households					
Report For:	SWAP				
Sample Area:	Liverpool, Wirral, Sefton, Knowsley & St. Helens				
Base:	Great Britain				
Year:	2005				
		Data for area	Data as % for area	Data as % for base	Index av = 100
Total Households:		585,466			
CATEGORIES:					
1	Wealthy Achievers	82,063	14.0	22.9	61
2	Urban Prosperity	29,962	5.1	12.7	40
3	Comfortably Off	175,038	29.9	27.6	108
4	Moderate Means	99,377	17.0	14.0	121
5	Hard-Pressed	195,443	33.4	22.5	149
	Unclassified	3,583			
GROUPS:					
1.A	Wealthy Executives	24,003	4.1	7.4	55
1.B	Affluent Greys	15,379	2.6	7.8	34
1.C	Flourishing Families	42,681	7.3	7.8	94
2.D	Prosperous Professionals	7,110	1.2	2.2	54
2.E	Educated Urbanites	10,711	1.8	6.1	30
2.F	Aspiring Singles	12,141	2.1	4.3	48
3.G	Starting Out	5,903	1.0	2.8	36
3.H	Secure Families	111,962	19.1	15.0	128
3.I	Settled Suburbia	33,114	5.7	6.5	87
3.J	Prudent Pensioners	24,059	4.1	3.4	122
4.K	Asian Communities	0	0.0	1.1	0
4.L	Post-Industrial Families	20,565	3.5	4.2	83
4.M	Blue-Collar Roots	78,812	13.5	8.7	155
5.N	Struggling Families	120,604	20.6	12.9	159
5.O	Burdened Singles	57,659	9.8	5.0	198
5.P	High-Rise Hardship	14,752	2.5	2.3	109
5.Q	Inner City Adversity	2,428	0.4	2.3	18
	Unclassified	3,583			

TYPES:					
1.A.1	Wealthy mature professionals, large houses	6,853	1.2	1.3	89
1.A.2	Wealthy working families with mortgages	3,485	0.6	1.0	59
1.A.3	Villages with wealthy commuters	7,407	1.3	2.8	46
1.A.4	Well-off managers, larger houses	6,258	1.1	2.3	46
1.B.5	Older affluent professionals	6,076	1.0	1.7	63
1.B.6	Farming communities	92	0.0	1.9	1
1.B.7	Old people, detached homes	7,339	1.3	2.1	60
1.B.8	Mature couples, smaller detached homes	1,872	0.3	2.2	15
1.C.9	Older families, prosperous suburbs	25,358	4.3	1.9	**228**
1.C.10	Well-off working families with mortgages	8,848	1.5	2.1	73
1.C.11	Well-off managers, detached houses	8,469	1.4	3.7	39
1.C.12	Large families and houses in rural areas	6	0.0	0.0	3
2.D.13	Well-off professionals, larger houses and converted flats	914	0.2	0.7	22
2.D.14	Older professionals in suburban houses and apartments	6,196	1.1	1.5	69
2.E.15	Affluent urban professionals, flats	39	0.0	1.2	1
2.E.16	Prosperous young professionals, flats	512	0.1	1.3	7
2.E.17	Young educated workers, flats	5,424	0.9	0.9	99
2.E.18	Multi-ethnic young, converted flats	720	0.1	1.3	9
2.E.19	Suburban privately renting professionals	4,016	0.7	1.3	51
2.F.20	Student flats and cosmopolitan sharers	2,185	0.4	0.7	56
2.F.21	Singles and sharers, multi-ethnic areas	1,840	0.3	1.7	19
2.F.22	Low income singles, small rented flats	6,413	1.1	1.7	65
2.F.23	Student terraces	1,703	0.3	0.3	**106**
3.G.24	Young couples, flats and terraces	1,078	0.2	1.2	16
3.G.25	White-collar singles/sharers, terraces	4,825	0.8	1.6	52
3.H.26	Younger white-collar couples with mortgages	5,570	1.0	2.0	47
3.H.27	Middle income, home owning areas	7,149	1.2	3.4	35
3.H.28	Working families with mortgages	10,751	1.8	2.0	92
3.H.29	Mature families in suburban semis	54,730	9.3	3.0	**311**
3.H.30	Established home owning workers	33,762	5.8	3.6	**161**
3.H.31	Home owning Asian family areas	0	0.0	0.9	0
3.I.32	Retired home owners	2,862	0.5	1.1	44
3.I.33	Middle income, older couples	22,746	3.9	3.0	**128**
3.I.34	Lower incomes, older people, semis	7,506	1.3	2.3	55
3.J.35	Elderly singles, purpose built flats	9,406	1.6	0.9	**173**
3.J.36	Older people, flats	14,653	2.5	2.4	**103**
4.K.37	Crowded Asian terraces	0	0.0	0.3	0
4.K.38	Low income Asian families	0	0.0	0.8	0
4.L.39	Skilled older families, terraces	14,395	2.5	2.6	96
4.L.40	Young working families	6,170	1.1	1.7	64
4.M.41	Skilled workers, semis and terraces	21,823	3.7	3.9	95
4.M.42	Home owning families, terraces	31,773	5.4	2.7	**199**
4.M.43	Older people, rented terraces	25,216	4.3	2.0	**211**

5.N.44	Low income larger families, semis	13,827	2.4	2.9	81
5.N.45	Low income, older people, smaller semis	17,970	3.1	3.3	93
5.N.46	Low income, routine jobs, terraces and flats	27	0.0	1.3	0
5.N.47	Low income families, terraced estates	68,968	11.8	2.4	**494**
5.N.48	Families and single parents, semis and terraces	14,633	2.5	1.9	**131**
5.N.49	Large families and single parents, many children	5,179	0.9	1.1	83
5.O.50	Single elderly people, council flats	14,000	2.4	2.2	**110**
5.O.51	Single parents and pensioners, council terraces	43,461	7.4	1.9	**394**
5.O.52	Families and single parents, council flats	198	0.0	0.9	4
5.P.53	Old people, many high-rise flats	11,864	2.0	1.1	**178**
5.P.54	Singles and single parents, high-rise estates	2,888	0.5	1.2	42
5.Q.55	Multi-ethnic purpose built estates	1,410	0.2	1.3	19
5.Q.56	Multi-ethnic crowded flats	1,018	0.2	1.0	18
	Unclassified	3,583			

Appendix 2: MWDA letters prepared for householders and HWRC users

Merseyside Waste Disposal Authority

6th Floor, North House
17 North John Street
Liverpool
L2 5QY
Tel: 0151 255 1444
Fax: 0151 227 1848

Email: enquiries@merseysidewda.gov.uk

Dear Resident

Merseyside Household Waste Analysis Project

Merseyside Waste Disposal Authority (MWDA), in partnership with your local council, is conducting a project to research the types of materials that residents throw away in their household waste. This will involve sampling and analysis of waste from your wheelie bin or bin bag as part of your normal waste collections between Monday 12th June and Friday 23rd June 2006. The collection will in no way interfere with your normal refuse collection.

The Waste Disposal Authority is conducting this research to better understand the materials our waste consists of so that it will be able to plan for better waste recycling services in the future.

All waste sampled for analysis at this site will be handled confidentially by the fully trained staff from SWAP (Save Waste and Prosper Ltd) who are conducting the work for us. SWAP is expert in this area of research and has worked with many other councils across the country. Your waste will be disposed of safely and securely as normal today following the work.

If you have any concerns or queries about this project please contact Glynn Stevenson on Tel: 0151 255 2526 or Shaun Alexander Tel : 0151 255 2532 at Merseyside Waste Disposal Authority, direct who will be pleased to help you.

Many thanks for your co-operation in this important work.

Yours sincerely

Carl Beer, **Director of Merseyside Waste Disposal Authority**

Merseyside Waste Disposal Authority
6th Floor, North House
17 North John Street
Liverpool
L2 5QY
Tel: 0151 255 1444
Fax: 0151 227 1848
Email: enquiries@merseysidewda.gov.uk

Dear Resident

Merseyside Household Waste Analysis Project

The Merseyside Waste Disposal Authority (MWDA) is conducting a project to research the types of materials that residents throw away in their household waste.

This will involve sampling and analysis of waste from Sefton Meadows Household Waste Recycling Centre between Tuesday February 21st and Saturday February 25th 2006.

The Waste Disposal Authority is conducting this research to better understand the materials our waste consists of so that it will be able to plan for better waste recycling services in the future.

All waste sampled for analysis at this site will be handled confidentially by the fully trained staff from SWAP (Save Waste and Prosper Ltd) who are conducting the work for us.

SWAP are experts in this area of research and have worked with many other councils across the country. Your waste will be disposed of safely and securely as normal by Mersey Waste Ltd at Sefton Meadows Household Waste Recycling Centre for us.

If you have any concerns or queries about this project please contact Glynn Stevenson at the Merseyside Waste Disposal Authority, direct on Tel: 0151 255 2526, who will be pleased to help you.

Many thanks for your co-operation in this important work.

Yours sincerely

Carl Beer, **Director of Waste Disposal**

Appendix 3: SWAP Sample Information Sheet

MERSEYSIDE HOUSEHOLD WASTE ANALYSIS PHASE 2 – SAMPLE INFORMATION SHEET

1. To be completed in advance

Day and date:
Location:
District:
Method of collecting waste (sack or wheeled bin):

Is the area served by a separate dry recyclables collection and/or separate green waste collection?
If so, please fill in the details below:

	Dry recyclables	Green waste
Materials collected		
Frequency of collection		
Type of collection container		

2. To be completed by collection crews

List of properties collected from:

	ADDRESS	No waste*		ADDRESS	No waste*
1			26		
2			27		
3			28		
4			29		
5			30		
6			31		
7			32		
8			33		
9			34		
10			35		
11			36		
12			37		
13			38		
14			39		
15			40		
16			41		
17			42		
18			43		
19			44		
20			45		
21			46		
22			47		
23			48		
24			49		
25			50		

* If the selected household has not presented waste for collection, please mark here

Please ensure that this form is handed to the SWAP representative upon delivery of the sample to the South Sefton Recycling Park depot.

Appendix 4: Categories adopted for the project

Residual domestic waste categories

Category no.	Category	Sub-category no.	Sub-category
1	Paper	1.1	Newspapers and PAMs
		1.2	Other recyclable paper
		1.3	Non recyclable paper
2	Card	2.1	Corrugated cardboard
		2.2	Flat card
		2.3	Liquid containers
3	Plastic	3.1	Clear PET bottles
		3.2	Coloured PET bottles
		3.3	Natural HDPE bottles
		3.4	Coloured HDPE bottles
		3.5	PVC bottles
		3.6	Plastic film
		3.7	Other plastic
4	Textiles and shoes	4.1	Textiles
		4.2	Shoes
5	Glass	5.1	Clear bottles/jars
		5.2	Green bottles/jars
		5.3	Brown bottles/jars
		5.4	Other glass
6	Wood	6.1	Wood
7	Disposable nappies	7.1	Disposable nappies
8	Metals	8.1	Ferrous cans
		8.2	Other ferrous
		8.3	Aluminium cans
		8.4	Aluminium foil
		8.5	Other non-ferrous
9	Electrical items	9.1	Electrical items (list individual appliances)
10	Hazardous items	10.1	Paint and paint-related products
		10.2	Batteries
		10.3	Other hazardous items (list significant items)
11	Garden waste	11.1	Garden waste
12	Kitchen waste	12.1	Fruit and vegetable waste
		12.2	Meat, cooked food and other kitchen waste
13	Miscellaneous items	13.1	Inert
		13.2	Other
14	Fines (<20mm)	14.1	Fines

Residual HWRC waste categories

Category no.	Category	Sub-category no.	Sub-category
1	Garden waste	1.1	Garden waste
2	Wood and wood related	2.1	Wood
		2.2	MDF, chipboard, flooring and other reconstituted wood
3	Scrap metal	3.1	Scrap metal
4	Paper and card	4.1	Paper
		4.2	Card packaging
5	Plastics	5.1	Plastic film
		5.2	Dense plastic packaging
		5.3	Dense plastic non packaging
		5.4	Other plastic
6	Glass	6.1	Packaging glass
		6.2	Non-packaging glass
7	Textiles	7.1	Textiles
8	Books and Bric-a-brac	8.1	Books
		8.2	Bric-a-brac
9	Furniture	9.1	Hard furniture
		9.2	Soft furnishings
		9.3	Other furnishings
10	Ceramics	10.1	Ceramic toilets and wash basins
11	Inert material	11.1	Soil, rubble, sand, gravel and plasterboard
12	Flooring	12.1	Carpet and lino
13	Bicycles	13.1	Bicycles
14	Toys, leisure and sports equipment	14.1	Toys, leisure and sports equipment
15	Electrical	15.1	Large household appliances
		15.2	Small household appliances
		15.3	IT and telecommunications equipment
		15.4	Consumer equipment
		15.5	Lighting equipment
		15.6	Electrical and electronic tools
		15.7	Toys, leisure and sports equipment (electrical)
16	Household hazardous waste (HHW)	16.1	Fluorescent tubes
		16.2	Cooking oil
		16.3	Engine oil
		16.4	Household batteries
		16.5	Car batteries
		16.6	Other potentially hazardous
17	Other liquid waste	17.1	Other liquid waste
18	Black bin waste	18.1	Black bin waste
19	Miscellaneous	19.1	Miscellaneous

Appendix 5: SWAP summary statement on health and safety

Overall and final responsibility for health and safety at SWAP is held by the Board of Directors. Day to day responsibility for ensuring our policies are put into practice is delegated to a Health and Safety Working Group, which meets quarterly and is made up of at least four members of staff. All decisions relating to health and safety are recommended in writing in the minutes to these meetings. These minutes are presented to the Board, which meets every two months.

SWAP has a Health and Safety Policy Statement, designed according to latest HSE guidance, which is updated annually and covers the following areas:

- responsibilities
- health and safety risks arising from our work activities
- consultation with employees
- safe plant and equipment
- safe handling and use of substances
- information, instruction and supervision
- competency for tasks and training
- accidents, first aid and work-related ill health
- monitoring
- emergency procedures – fire and evacuation.

The majority of SWAP's activities take place at its offices at 74 Kirkgate, Leeds. The bulk of the Health and Safety Policy Statement refers to our activities in the office. A checklist has been designed to allow members of the Health and Safety Working Group to undertake spot-checks of procedures in the office environment and identify any hazards that may be present – this is appended to the Policy Statement. These checks are undertaken at least once every six months by a member of the Working Group, and the findings are considered at the next Working Group meeting where remedial action is recommended.

In addition, SWAP also undertakes activities away from the main offices. Health and safety protocols for the following activities have been prepared and are also appended to the Policy Statement:

- waste analysis work
- conferences, seminars and exhibitions
- interviewing members of the general public and participation monitoring.

In addition, SWAP is preparing a protocol for lone working, given that this is increasingly common in its work.

Of these activities, waste analysis poses the most risks. Our detailed protocol outlines control measures to minimise risks associated with:

- the sorting depot
- airborne particles
- contact with hazardous waste
- manual handling
- slips, trips and falls
- vehicle movements in the sorting shed
- contamination of hands
- sharps
- emptying the collection vehicle
- collection of waste samples.

A review of waste analysis working practices is carried out at least every six months. Records of the review are kept in the health and safety file on site and are fed back to the Working Group. The protocol and working practices are adjusted accordingly with the findings of each review.

Up to date copies of all our health and safety documents are kept in a dedicated file which is clearly displayed in the SWAP library. New members of staff receive a full induction on the company's health and safety practices upon appointment.

Copies of all SWAP health and safety documents can be forwarded to clients on request.

October 2005

Appendix 6: SWAP temporary staff initial training agenda

Waste analysis introductory session

Date

9.30: Welcome and introductions

9.45: Personnel issues

- Housekeeping: toilets, refreshments, storage of valuables, fire procedure and other on-site requirements
- Extra employee details: Emergency contact, bank details, P45/46, Health questionnaire
- Hours of employment/work schedule
- Terms & Conditions of Employment, Disciplinary & Grievance Procedures

10.15:

- Background to the waste analysis
- Delivery of samples
- Waste sorting procedure
- Waste categories
- Confidentiality requirements

10.45: Break

11.00: Health & safety

- Protocol
- Personal protective equipment

12.00: Lunch

12.45: Start first sort

5.00: Close