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Leicester City Waste Composition Analysis

Leicester City Council

November 2012

FINAL REPORT

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1) Project details and acknowledgements

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2) Introduction

Background

Leicester City Council wishes to study the composition of domestic kerbside collected residual waste and recycling streams to provide current baseline data and to help inform future communication campaigns. As well as giving indications as to the current levels of waste being generated, observations will be made showing the levels of materials that are currently recyclable at the kerbside and those which could potentially be recyclable via future schemes.

This report presents results from the analysis of kerbside collected residual waste collected during a three week period in October and November 2012. The survey focused on the levels and composition of residual waste containers that are currently available for residents to place for collection at the kerbside. The sampling regime involved the direct collection and compositional analysis of residual waste from a target of 600 properties across the City. These covered the most dominant socio-demographics currently typical for Leicester. Results could therefore be weighted to give the best overall picture of the waste being collected across the City as a whole. Details on the sampling process are explained more fully in the methodology section. Leicester City Council currently has a combined recycling and composting rate of 41.9% (NI 192 percentage of household waste sent for reuse recycling and composting). It has a residual waste generation rate of 497.7kg/hh/yr (NI 191 Residual household waste per household)¹.

¹ Defra Municipal Waste Statistics 2011/12

<http://www.defra.gov.uk/statistics/environment/waste/wrfq23-wrmsannual/>

Objectives

Specific aims of the work were to:

- Select a sampling framework to gain the best understanding of waste within Leicester and to inform on accuracies within this method
- Compare variance between the different Acorn samples surveyed.
- Understand, using socio-demographic profiling which sectors of the community are producing which types of waste and which are using the recycling provision most effectively
- Weight all results according to socio-demographics to gain the most representative City wide averages
- Detect capture rates for individual materials which are already collected separately for recycling
- Evaluate the amount of specific materials collected in the residual bin that could potentially be collected separately for recycling
- Evaluate the use of the receptacles used for collecting waste and recycling
- Detect the amount of packaging and biodegradable material present
- Assess the amount of contamination in receptacles meant for recycling material

This report will highlight key results recorded across Leicester showing data for individual socio-demographics where applicable.

Acknowledgements

M·E·L Research would like to thank the collection authority and their staff who participated and helped in the setup and fieldwork stages of the project, and those who provided additional data and other information to inform the project. This report highlights key results, presents the results in tables and charts and discusses the findings. The views and opinions expressed in this report are those of M·E·L Research Ltd. and are not necessarily shared by officers from Leicester City Council.

Accuracy Statement

Results from the standard M·E·L sampling protocol for compositional analysis can be taken as accurate for each material category to within error bands of +/-10% at the 95% confidence level (2 standard deviations), assuming a normal statistical distribution. At the data entry stage 1 in 10 parts of data that is inputted are checked with the data sheets and if errors are found all the data is then rechecked.

3) Executive Summary

Key findings

Kerbside residual waste

- Weighted across all Acorn samples, 75% of households sampled throughout Leicester presented residual waste bins for collection.
- In terms of waste generation, households were setting out an average of 9.03kg/hh/wk.
- Food waste was seen to be the major component of residual waste forming 35.1% of the total, equating to 3.17kg/hh/wk – 45% of this is potentially home compostable
- Additionally 12.6% of residual waste was found to be garden waste. Around 11% of this was soil and turf, with the remainder consisting of compostable garden trimmings
- Paper items made up 6% of the residual waste; 63% of this (0.36kg/hh/wk) was alternatively recyclable at the kerbside.
- Card and cardboard made up around 4.5% of collected residual waste; 81% of this (0.33kg/hh/wk) was alternatively recyclable at the kerbside.
- Plastics formed 7.2% of the residual waste (0.65kg/hh/wk); 41% of plastic waste was due to recyclable plastic films representing 0.27kg/hh/wk of recyclable material. Half of the remaining plastics consisted of recyclable bottles, tubs, pots & trays. This equated to an additional 0.46kg/hh/wk of recyclable material.
- Just 2.6% of residual waste was metallic; 70% of this (0.17kg/hh/wk) was recyclable in orange sacks.
- Around 3.3% of residual waste was seen to be glass; 86% of this (0.26kg/hh/wk) was recyclable in orange sacks.
- Over 6% of residual waste was due to textiles; 46% of these items (0.25kg/hh/wk) were seen to consist of reusable clothing and shoes
- Just 1.3% of residual waste was deemed to be either Hazardous or WEEE. An additional 10.4% consisted of disposable nappies
- Overall 17.4% of collected residual waste could have been placed into the orange sack recycling – the equivalent of 1.57kg/hh/wk.
- Around 23% of potentially recyclable materials consisted of paper waste with 21% being card and cardboard, 17% plastic film and 16.5% being recyclable glass.
- Residual waste collected from Leicester households was deemed to be around 57% biodegradable.
- Collected waste had a packaging content of 13%.

Mixed recycling – Orange Sacks

- Results showed that 60% of households presented orange sacks for collection
- In terms of waste generation, kerbside households were setting out an average of 2.10kg/hh/wk in their orange sacks.
- Overall 6.1% of orange sack recycling waste collected from all properties was classified as contamination – the equivalent of 0.13kg/hh/wk.
- Around 66% of paper, 61% of recyclable glass, 51% of card and cardboard, 58% of plastic bottles and containers, 28% of plastic film and 49% of the recyclable metals available for mixed recycling were correctly captured.
- Kerbside properties captured around 56% of all the available recyclable materials in their orange sacks
- Kerbside properties diverted around 17.7% of their waste through their orange sacks.

4) Compositional Analysis of Residual Waste

4.1 Waste Sampling & Demographics

Over a three week period, 12 individual samples of waste and recycling were surveyed. Around 50 households were selected per sample; each of which represented a significant Acorn demographic type. These samples were used to determine average figures for each of the five main Acorn categories; the proportions of which are shown in Table 4.1.1 and Figure 4.1.1. Results are shown by Acorn; as all five Acorn categories were sampled it was possible to weight the results according to the socio-demographic profile for Leicester as per Table 4.1.1. In addition to the selected sample types shown in Table 4.1, a brief description of the types of all households typical for each Acorn category is shown in the appendix section.

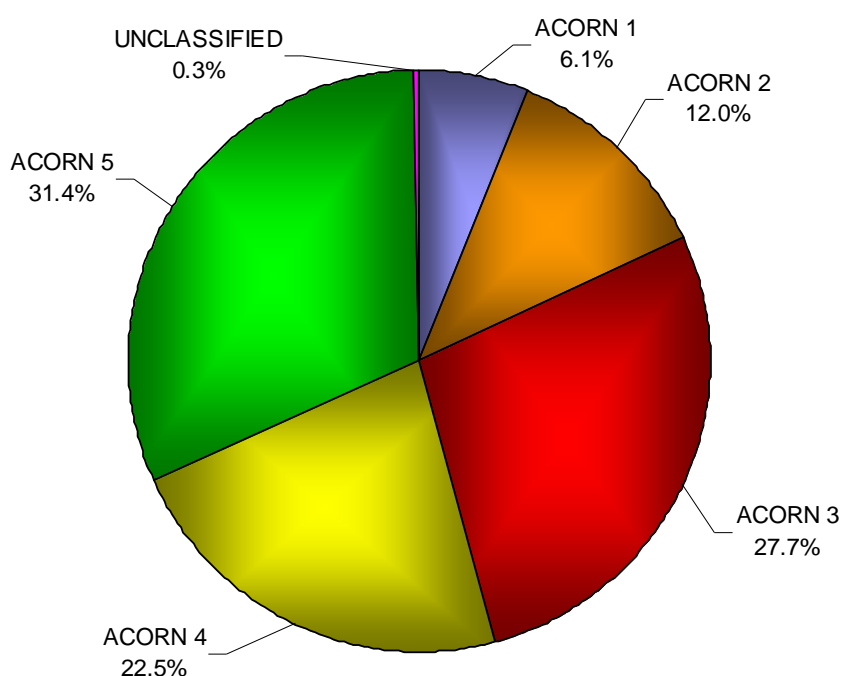
Table 4.1 Selected samples for Leicester

Acorn	Acorn Type Definition
1C9	Older Families, Prosperous Suburbs
2E19	Suburban Privately Renting Professionals
2F20	Student Flats and Cosmopolitan Sharers
2F21	Singles and Sharers, Multi-Ethnic Areas
3G25	White-Collar Singles/Sharers, Terraces
3H31	Home Owning Asian Family Areas
4K38	Low Income Asian Families*
4K38	
4M42	Home Owning Families, Terraces
5N45	Low Income, Older People, Smaller Semis
5N48	Families and Single Parents, Semis and Terraces
5O51	Single Parents and Pensioners, Council Terraces

* Two samples of Acorn type 38 were surveyed. One of these samples was deemed to be in a predominantly Muslim area whilst the other had a higher concentration of Hindu faith Asians.

Table 4.1.1: Acorn profile for Leicester

ACORN	% OF HOUSEHOLDS
1	6.10%
2	11.98%
3	27.68%
4	22.52%
5	31.42%
UNCLASSIFIED	0.30%
TOTAL	100%

Figure 4.1.1: Acorn profile for Leicester

4.2 Set out rates & waste generation

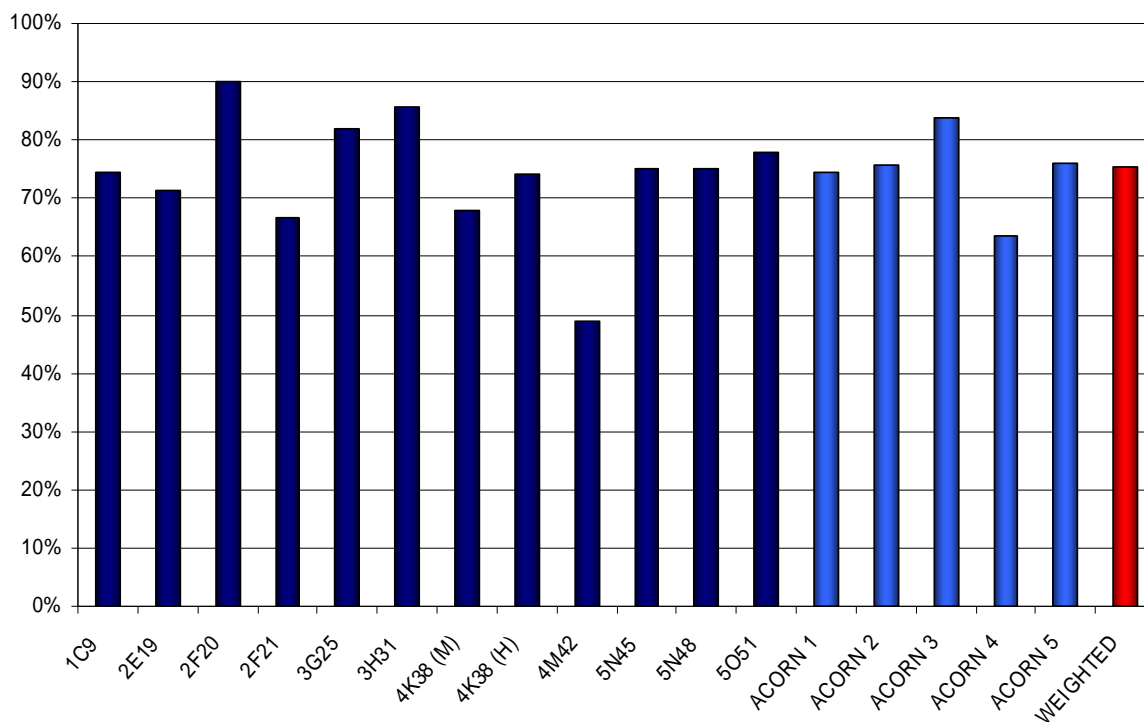
Table 4.2.1 and Figure 4.2.1 highlight the average set out rates for residual waste observed at the time waste was collected for compositional analysis. Table 4.2.2 and Figure 4.2.2 show the average amount of residual waste generated in kg/hh/wk. On the whole Leicester households have their waste collected between Monday and Thursday. The amount of waste in kilograms per household per week is collected from each sample of 50 households from each Acorn category with the set out relating to the proportion of these households actively placing out their waste.

Observed set out rates for residual waste ranged between 64% for Acorn 4 to 84% in Acorn 3. On average 75% of households in Leicester are projected to be setting out their residual waste for collection.

Table 4.2.1: Kerbside residual waste set out rates for each Acorn sample

Acorn Sample	Acorn Type	Acorn Category	Weighted
1C9	74.51%	74.51%	75.26%
2E19	71.43%	75.65%	
2F20	90.00%		
2F21	66.67%		
3G25	82.00%	83.86%	
3H31	85.71%		
4K38 (M)	68.00%	63.66%	
4K38 (I)	74.00%		
4M42	48.98%		
5N45	75.00%	76.00%	
5N48	75.00%		
5O51	78.00%		

Figure 4.2.1: Kerbside residual waste set out rates by Acorn (%)

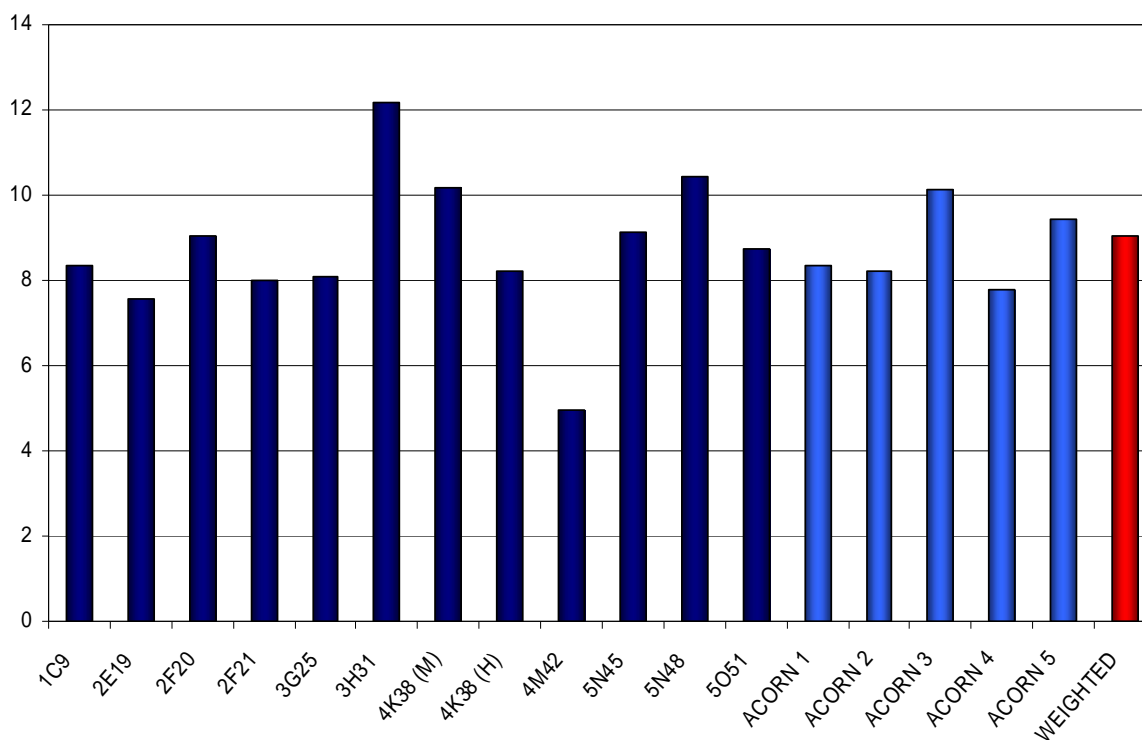


From observed results, the level of residual waste being disposed of at the kerbside ranged between 7.77kg/hh/wk in Acorn 4 to 10.12kg/hh/wk in Acorn 3. On average 9.03kg/hh/wk of residual waste is being disposed of by households throughout Leicester.

Table 4.2.2: Kerbside residual waste generation rates for each Acorn sample (kg/hh/wk)

Acorn Sample	Acorn Type	Acorn Category	Weighted
1C9	8.37	8.37	9.03
2E19	7.55	8.20	
2F20	9.04		
2F21	8.02		
3G25	8.08	10.12	
3H31	12.16		
4K38 (M)	10.16	7.77	
4K38 (I)	8.20		
4M42	4.94		
5N45	9.13	9.43	
5N48	10.42		
5O51	8.74		

Figure 4.2.2: Average residual waste generation rates by Acorn (kg/hh/wk)



4.3 Compositional analysis of household residual waste

This section looks at the average amount and composition of the residual waste presented by various socio-demographic households sampled throughout the City. Hand sorting of the residual waste gave concentration by weight figures for the fifteen main categories of waste as well as the more detailed sub-categories.

Looking at the concentration percentages gives an indication as to the proportions of each waste category. This can be translated into a figure relating to the average waste generation expected for each waste category; this is given in kilograms per household per week (kg/hh/wk).

By knowing the composition of waste from the various Acorn samples it is possible to gain an insight into the make-up and volumes of the residual waste that can be expected from the City as a whole. Detailed residual composition tables can be found in a separate data appendix.

Tables 4.3.1 & 4.3.2 and Figures 4.3.1 & 4.3.2 show residual waste data in terms of percentage composition with Tables 4.3.3 & 4.3.4 and Figures 4.3.3 & 4.3.4 showing generation rates for major materials in terms of kg/hh/wk. All residual waste will contain a proportion that is classified as potentially recyclable. That is to say that it should have been placed into one of the recycling receptacles supplied by the Council.

Table 4.3.1: Average residual waste composition per Acorn sample (%)

RESIDUAL WASTE	1C9	2E19	2F20	2F21	3G25	3H31	4K38 (M)	4K38 (H)	4M42	5N45	5N48	5O51
PAPER	4.79%	5.02%	5.31%	6.96%	4.40%	5.79%	6.51%	7.32%	6.76%	8.12%	5.77%	6.08%
CARD & CARDBOARD	3.34%	4.10%	4.72%	4.05%	5.92%	4.16%	4.08%	4.39%	4.92%	6.46%	2.87%	3.99%
PLASTIC FILM	1.83%	3.43%	4.11%	3.76%	3.16%	2.59%	4.08%	3.40%	3.23%	2.95%	2.36%	2.80%
DENSE PLASTIC	4.25%	4.67%	4.35%	3.77%	3.77%	2.44%	5.53%	2.83%	3.77%	6.88%	5.13%	4.18%
TEXTILES	4.49%	3.41%	3.18%	3.55%	7.52%	4.02%	10.18%	1.07%	4.24%	3.32%	12.03%	9.07%
MISC COMBUSTIBLES	6.04%	12.45%	16.13%	10.81%	11.13%	8.74%	6.94%	16.49%	7.35%	9.02%	33.47%	15.09%
MISC NON-COMBUSTIBLES	6.15%	0.38%	3.04%	5.05%	5.07%	4.35%	0.43%	3.86%	10.93%	11.65%	1.68%	5.46%
GLASS	1.14%	7.62%	8.19%	2.01%	7.17%	0.91%	0.75%	1.83%	2.58%	3.56%	4.04%	3.86%
FERROUS METAL	1.18%	1.42%	0.56%	1.43%	1.05%	0.85%	2.28%	0.69%	2.47%	5.72%	1.97%	2.31%
NON-FERROUS METAL	0.52%	0.84%	1.07%	0.66%	1.37%	0.43%	0.51%	0.43%	1.28%	0.58%	0.65%	0.76%
GARDEN WASTE	39.44%	8.57%	0.00%	11.34%	3.09%	26.63%	0.00%	13.30%	1.39%	14.09%	7.11%	10.13%
PUTRESCIBLES	25.86%	47.04%	47.62%	44.81%	42.27%	36.99%	57.88%	41.84%	47.18%	24.21%	20.27%	34.96%
FINES	0.68%	0.84%	1.06%	0.91%	1.07%	1.12%	0.71%	0.93%	2.58%	1.61%	0.69%	0.84%
HHW	0.11%	0.07%	0.09%	0.19%	0.25%	0.05%	0.12%	1.43%	1.24%	0.30%	0.59%	0.37%
WEEE	0.18%	0.13%	0.58%	0.71%	2.76%	0.93%	0.02%	0.20%	0.08%	1.52%	1.36%	0.10%
TOTAL	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
TOTAL RECYCLABLE	11.84%	21.56%	24.74%	17.98%	22.52%	13.05%	18.40%	18.04%	20.26%	14.72%	16.46%	19.34%

Table 4.3.2: Average residual waste composition averaged and weighted by Acorn (%)

RESIDUAL WASTE	ACORN 1	ACORN 2	ACORN 3	ACORN 4	ACORN 5	WEIGHTED
PAPER	4.79%	5.76%	5.23%	6.85%	6.62%	6.04%
CARD & CARDBOARD	3.34%	4.31%	4.87%	4.37%	4.37%	4.46%
PLASTIC FILM	1.83%	3.79%	2.82%	3.66%	2.69%	2.99%
DENSE PLASTIC	4.25%	4.26%	2.97%	4.21%	5.40%	4.22%
TEXTILES	4.49%	3.37%	5.42%	5.72%	8.30%	6.15%
MISC COMBUSTIBLES	6.04%	13.26%	9.69%	10.39%	19.91%	13.37%
MISC NON-COMBUSTIBLES	6.15%	2.88%	4.64%	3.86%	6.07%	4.85%
GLASS	1.14%	6.00%	3.41%	1.52%	3.83%	3.33%
FERROUS METAL	1.18%	1.11%	0.93%	1.76%	3.29%	1.90%
NON-FERROUS METAL	0.52%	0.87%	0.80%	0.64%	0.66%	0.72%
GARDEN WASTE	39.44%	6.32%	17.24%	4.98%	10.29%	12.64%
PUTRESCIBLES	25.86%	46.53%	39.10%	49.96%	26.08%	36.99%
FINES	0.68%	0.94%	1.10%	1.18%	1.03%	1.05%
HHW	0.11%	0.12%	0.13%	0.82%	0.43%	0.36%
WEEE	0.18%	0.48%	1.66%	0.10%	1.02%	0.93%
TOTAL	100%	100%	100%	100%	100%	100%
TOTAL RECYCLABLE	11.84%	21.56%	16.83%	18.66%	16.79%	17.41%

Figure 4.3.1: Average residual waste composition per Acorn sample (%)

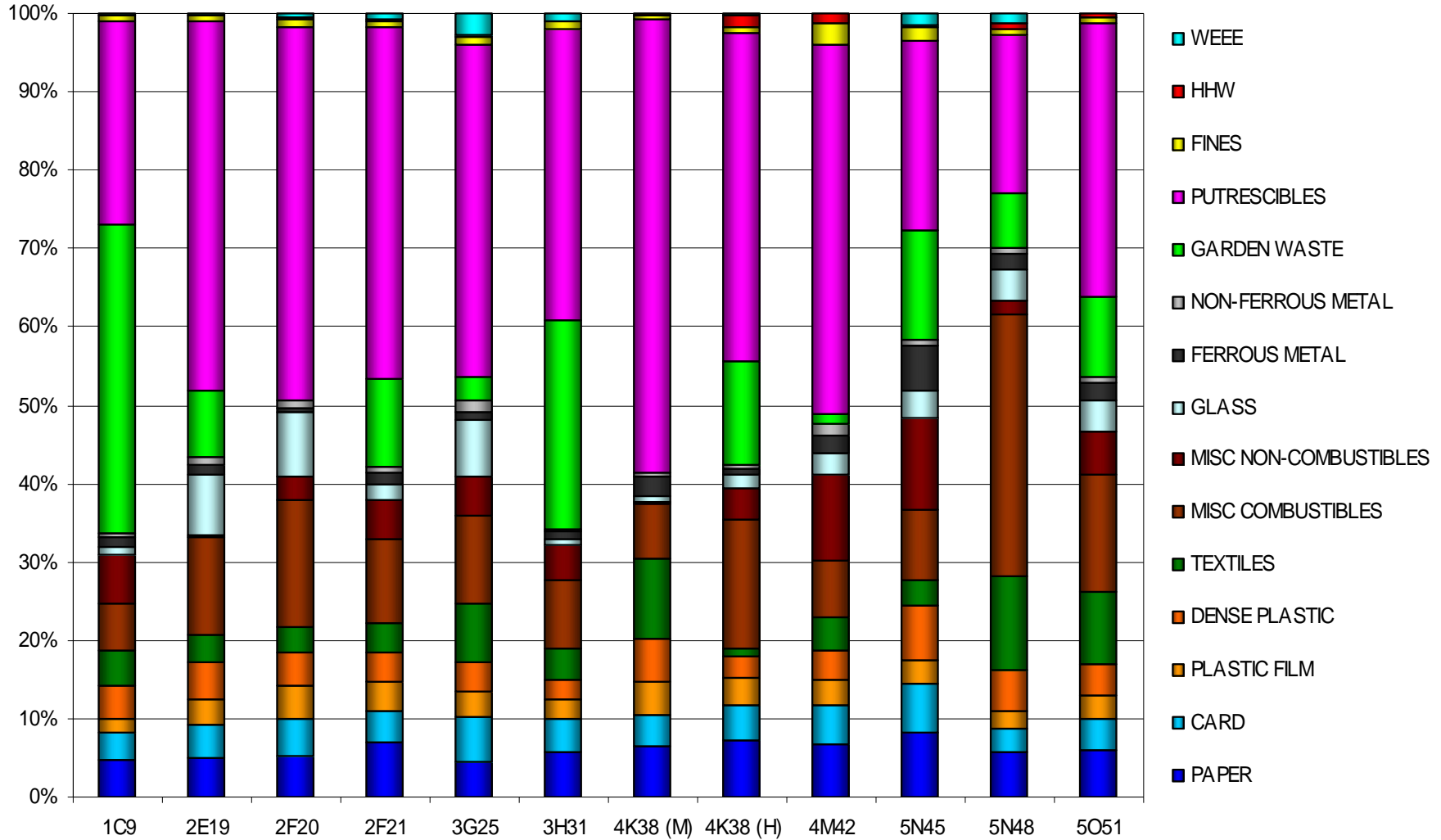


Figure 4.3.2: Average residual waste composition averaged and weighted by Acorn (%)

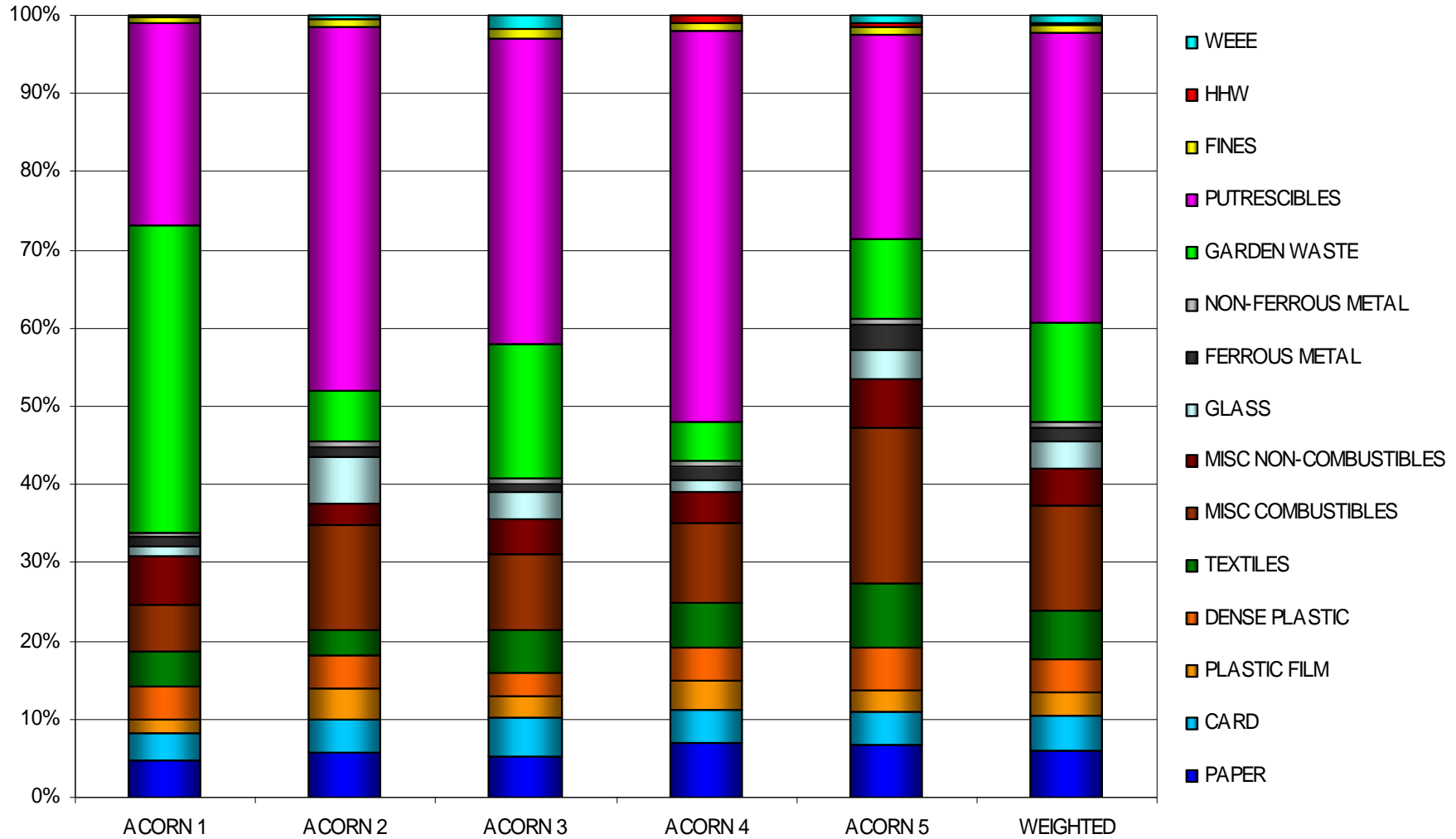


Table 4.3.3: Average residual waste generation per Acorn sample (kg/hh/wk)

RESIDUAL WASTE	1C9	2E19	2F20	2F21	3G25	3H31	4K38 (M)	4K38 (H)	4M42	5N45	5N48	5O51
PAPER	0.40	0.38	0.48	0.56	0.36	0.70	0.66	0.60	0.33	0.74	0.60	0.53
CARD & CARDBOARD	0.28	0.31	0.43	0.32	0.48	0.51	0.42	0.36	0.24	0.59	0.30	0.35
PLASTIC FILM	0.15	0.26	0.37	0.30	0.26	0.31	0.42	0.28	0.16	0.27	0.25	0.25
DENSE PLASTIC	0.36	0.35	0.39	0.30	0.30	0.30	0.56	0.23	0.19	0.63	0.53	0.37
TEXTILES	0.38	0.26	0.29	0.28	0.61	0.49	1.03	0.09	0.21	0.30	1.25	0.79
MISC COMBUSTIBLES	0.51	0.94	1.46	0.87	0.90	1.06	0.71	1.35	0.36	0.82	3.49	1.32
MISC NON-COMBUSTIBLES	0.51	0.03	0.28	0.40	0.41	0.53	0.04	0.32	0.54	1.06	0.18	0.48
GLASS	0.10	0.58	0.74	0.16	0.58	0.11	0.08	0.15	0.13	0.33	0.42	0.34
FERROUS METAL	0.10	0.11	0.05	0.11	0.08	0.10	0.23	0.06	0.12	0.52	0.21	0.20
NON-FERROUS METAL	0.04	0.06	0.10	0.05	0.11	0.05	0.05	0.04	0.06	0.05	0.07	0.07
GARDEN WASTE	3.30	0.65	0.00	0.91	0.25	3.24	0.00	1.09	0.07	1.29	0.74	0.88
PUTRESCIBLES	2.16	3.55	4.30	3.59	3.42	4.50	5.88	3.43	2.33	2.21	2.11	3.06
FINES	0.06	0.06	0.10	0.07	0.09	0.14	0.07	0.08	0.13	0.15	0.07	0.07
HHW	0.01	0.01	0.01	0.02	0.02	0.01	0.01	0.12	0.06	0.03	0.06	0.03
WEEE	0.02	0.01	0.05	0.06	0.22	0.11	0.00	0.02	0.00	0.14	0.14	0.01
TOTAL	8.37	7.55	9.04	8.02	8.08	12.16	10.16	8.20	4.94	9.13	10.42	8.74
TOTAL RECYCLABLE	0.99	1.63	2.24	1.44	1.82	1.59	1.87	1.48	1.00	1.34	1.72	1.69

Table 4.3.4: Average residual waste generation averaged and weighted by Acorn (kg/hh/wk)

RESIDUAL WASTE	ACORN 1	ACORN 2	ACORN 3	ACORN 4	ACORN 5	WEIGHTED
PAPER	0.40	0.47	0.53	0.53	0.62	0.55
CARD & CARDBOARD	0.28	0.35	0.49	0.34	0.41	0.40
PLASTIC FILM	0.15	0.31	0.29	0.28	0.25	0.27
DENSE PLASTIC	0.36	0.35	0.30	0.33	0.51	0.38
TEXTILES	0.38	0.28	0.55	0.44	0.78	0.56
MISC COMBUSTIBLES	0.51	1.09	0.98	0.81	1.88	1.21
MISC NON-COMBUSTIBLES	0.51	0.24	0.47	0.30	0.57	0.44
GLASS	0.10	0.49	0.35	0.12	0.36	0.30
FERROUS METAL	0.10	0.09	0.09	0.14	0.31	0.17
NON-FERROUS METAL	0.04	0.07	0.08	0.05	0.06	0.06
GARDEN WASTE	3.30	0.52	1.74	0.39	0.97	1.14
PUTRESCIBLES	2.16	3.82	3.96	3.88	2.46	3.34
FINES	0.06	0.08	0.11	0.09	0.10	0.10
HHW	0.01	0.01	0.01	0.06	0.04	0.03
WEEE	0.02	0.04	0.17	0.01	0.10	0.08
TOTAL	8.37	8.20	10.12	7.77	9.43	9.03
TOTAL RECYCLABLE	0.99	1.77	1.70	1.45	1.58	1.57

Figure 4.3.3: Average residual waste generation per Acorn sample (kg/hh/wk)

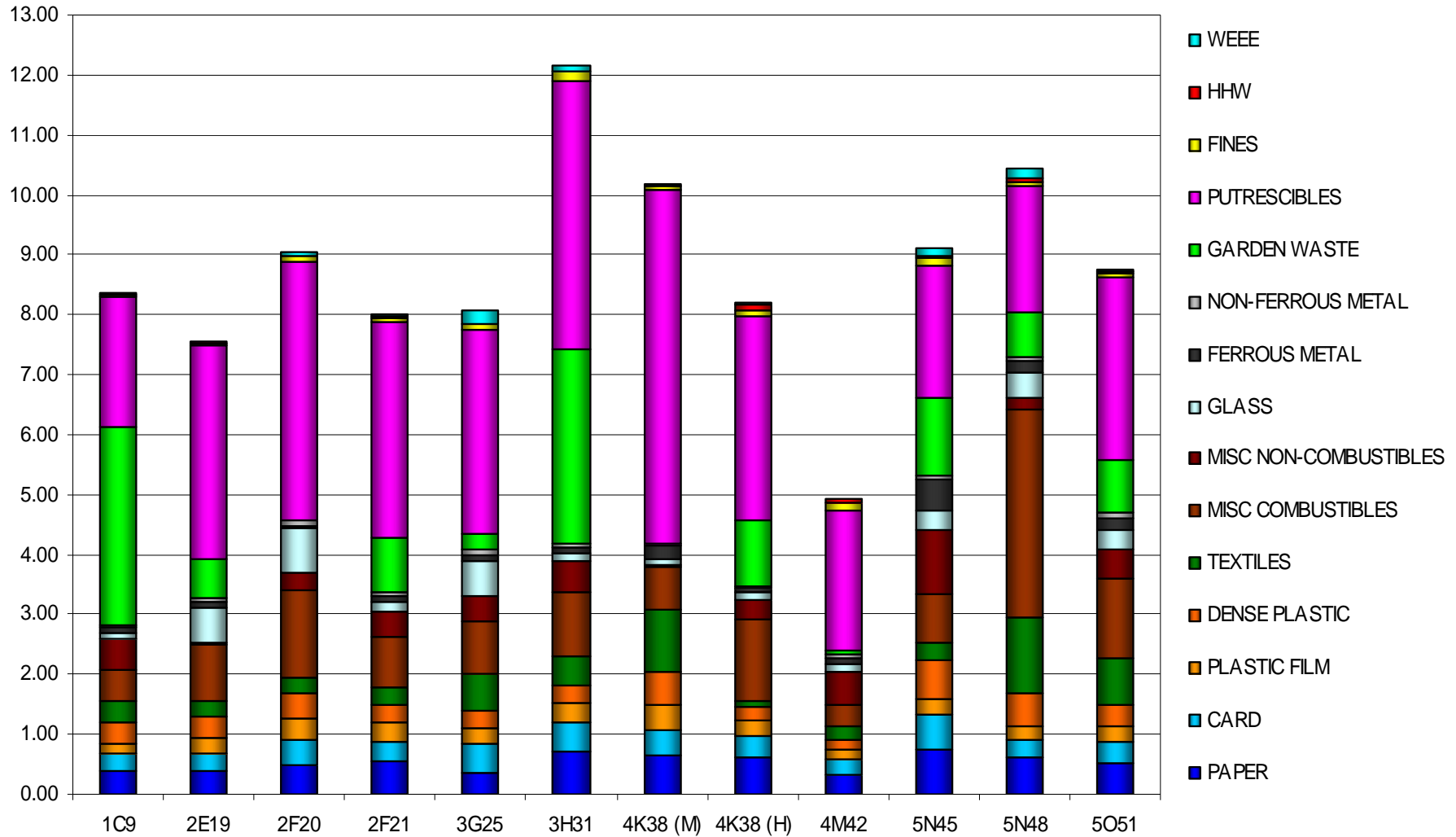
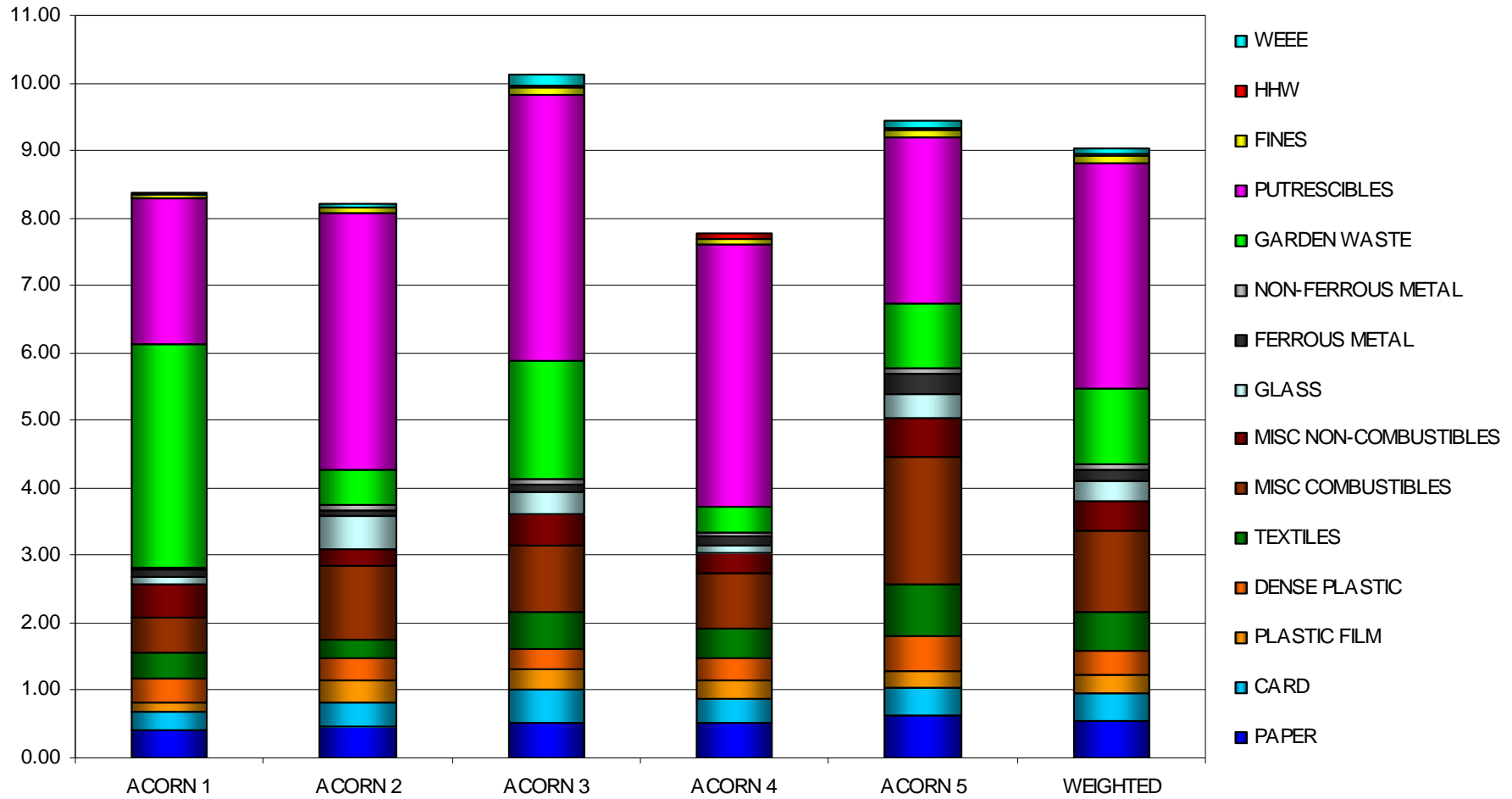


Figure 4.3.4: Average residual waste generation averaged and weighted by Acorn (kg/hh/wk)



4.3.1 Organic Waste

Organic waste, which includes garden and food waste (putrescibles), formed the greatest weight concentration of the primary waste categories for all Acorns. Ranges seen were from 36.4% at Acorn 5 households up to 65.3% in Acorn 1 households. Across the City as a whole around 49.6% of all residual waste (4.48kg/hh/wk) is classified as organic waste.

Food waste accounted for between 24.1% (Acorn 1) and 48.8% (Acorn 4) of residual waste. Across the City as a whole around 35.1% of all residual waste (3.17kg/hh/wk) is classified as food waste. Currently Leicester residents do recycle food waste separately at the kerbside as part of their regular collection service. This food is an important part of the residual waste which goes to the City MBT facility and AD plant. This MBT facility has a capacity of up to 150,000 tonnes per year of mixed residual waste. The residual waste is initially crushed before being screened and classified into various usable fractions. The AD plant is used to process the fine (<5mm) organic-rich fraction from the milled waste. The AD process is designed to handle up to around 50,000 tonnes per year. The plant is expected to produce enough biogas to provide 1.5 MW of electricity.

Residents from Acorn 4-38 (M) placed the most food into their residual bins at 5.80kg/hh/wk or 58% of the total. Overall approximately 45% of residual food waste (1.44kg/hh/wk) is potentially compostable in a general garden compost bin.

Residents throughout Leicester do not have a dedicated garden waste recycling collection service. In Acorn 4 levels of garden waste in residual bins were relatively low at 5%. This equated to 0.39kg/hh/wk in total. In contrast the residual waste from Acorn 1 was 39.4% garden waste; the equivalent of 3.30kg/hh/wk. Averaged for Leicester it is seen that 11% of this garden waste consisted of soil and turf as opposed to grass and plant clippings. Across the City, compostable forms of garden waste (i.e. garden clippings but not soil and turf) are responsible for an average of 11.3%, or 1.02kg/hh/wk of residual waste.

Tables 4.3.1.1 & 4.3.1.2 and Figures 4.3.1.1 & 4.3.1.2 show the amounts of the different forms of organic waste found within the samples from each sample.

Table 4.3.1.1: Levels of organic wastes within residual waste of each Acorn sample (kg/hh/wk)

RESIDUAL ORGANICS	1C9	2E19	2F20	2F21	3G25	3H31	4K38 (M)	4K38 (H)	4M42	5N45	5N48	5O51
FLORA ORGANICS	2.91	0.53	0.00	0.03	0.25	3.24	0.00	1.09	0.07	0.94	0.74	0.68
SOIL & TURF	0.38	0.12	0.00	0.88	0.00	0.00	0.00	0.00	0.00	0.35	0.00	0.20
COMPOSTABLE FOOD WASTE	1.20	1.25	2.16	1.25	1.79	1.80	1.62	1.48	1.14	1.42	0.95	1.06
NON-HOME COMPOSTABLE FOOD WASTE	0.82	1.97	2.02	2.30	1.08	2.65	4.19	1.80	1.15	0.64	1.07	1.86
HERBIVOROUS PET BEDDING	0.09	0.11	0.00	0.00	0.48	0.00	0.00	0.00	0.00	0.09	0.03	0.00
LIQUIDS, FATS & OILS	0.05	0.21	0.12	0.05	0.07	0.05	0.08	0.16	0.04	0.06	0.05	0.13
KG/HH/WK ORGANICS	5.46	4.20	4.30	4.50	3.67	7.74	5.88	4.52	2.40	3.50	2.85	3.94
% ORGANICS	65.30%	55.61%	47.62%	56.15%	45.37%	63.62%	57.88%	55.14%	48.57%	38.30%	27.38%	45.08%
KG/HH/WK FOOD WASTE	2.02	3.23	4.18	3.55	2.86	4.45	5.80	3.27	2.29	2.05	2.03	2.93
% FOOD WASTE	24.11%	42.76%	46.24%	44.24%	35.42%	36.55%	57.10%	39.94%	46.30%	22.51%	19.46%	33.49%

Table 4.3.1.2: Levels of organic wastes averaged for each Acorn and weighted for Leicester (kg/hh/wk)

RESIDUAL ORGANICS	ACORN 1	ACORN 2	ACORN 3	ACORN 4	ACORN 5	WEIGHTED
FLORA ORGANICS	2.91	0.19	1.74	0.39	0.79	1.02
SOIL & TURF	0.38	0.33	0.00	0.00	0.18	0.12
COMPOSTABLE FOOD WASTE	1.20	1.55	1.79	1.41	1.14	1.44
NON-HOME COMPOSTABLE FOOD WASTE	0.82	2.10	1.86	2.38	1.19	1.73
HERBIVOROUS PET BEDDING	0.09	0.04	0.24	0.00	0.04	0.09
LIQUIDS, FATS & OILS	0.05	0.13	0.06	0.09	0.08	0.08
KG/HH/WK ORGANICS	5.46	4.34	5.70	4.27	3.43	4.48
% ORGANICS	65.30%	52.85%	56.33%	54.94%	36.37%	49.62%
KG/HH/WK FOOD WASTE	2.02	3.65	3.65	3.79	2.34	3.17
% FOOD WASTE	24.11%	44.52%	36.10%	48.77%	24.78%	35.08%

Figure 4.3.1.1: Levels of organic wastes within residual waste of each Acorn sample (kg/hh/wk)

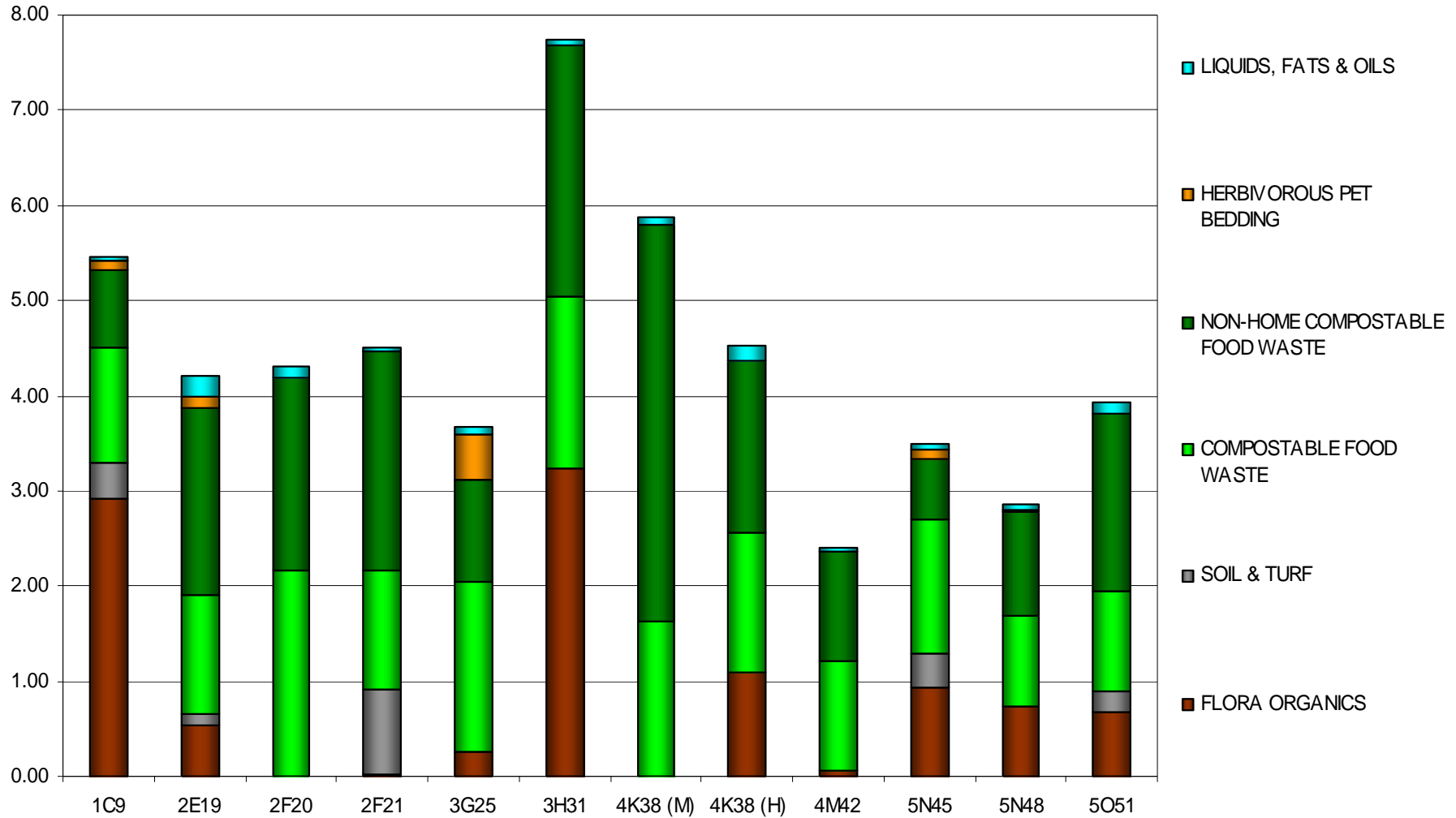
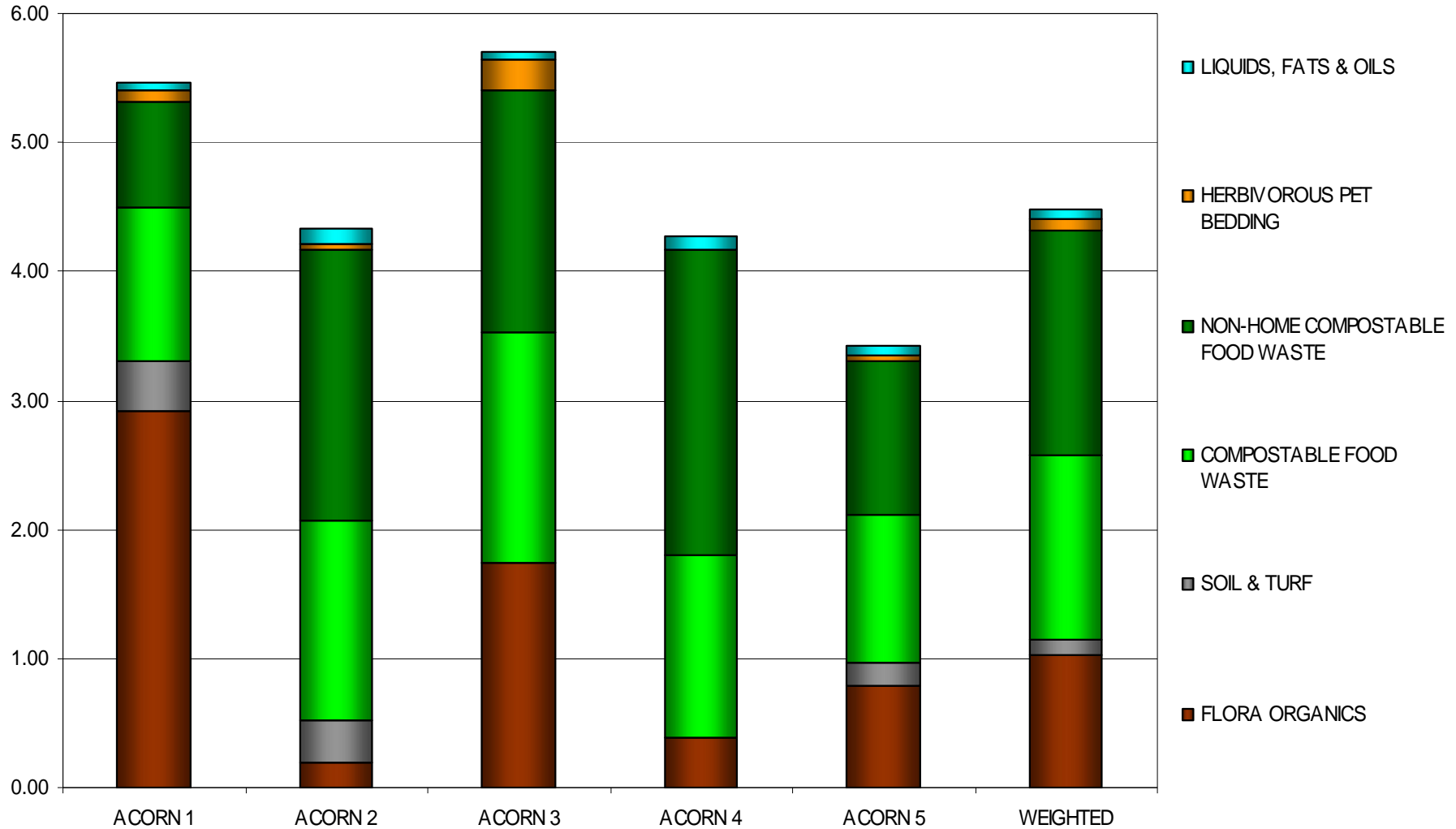


Figure 4.3.1.2: Levels of organic wastes averaged for each Acorn and weighted for Leicester (kg/hh/wk)



4.3.2 Paper

On average, Acorn 4 residents had the highest concentrations of this type of waste (6.9%), with Acorn 5 disposing of the most at 0.62kg/hh/wk. In comparison just 4.8% (0.40kg/hh/wk) of residual waste from Acorn 1 was due to paper based materials. Across the City it was seen that around 6% or 0.55kg/hh/wk of residual waste consisted of discarded paper.

A proportion of this paper is available for recycling at the kerbside. Leicester residents have an orange sack for recycling a wide range of paper such as newspapers, junk mail, envelopes and directories. It was found that between 51.9% (Acorn 1) and 70.7% (Acorn 2) of paper could have been placed into these orange sacks as opposed to the residual bin. Up to 82% of the paper in the residual bins from the Acorn 4-38 (H) sample could have been recycled inside orange sacks.

When accounting for all of the various types of paper within the residual waste, it is seen that 63.4% of residual paper was recyclable which accounted for 4% of all the residual waste or 0.36kg/hh/wk. The highest level of recyclable paper was recovered from the Acorn 4K-38 (M) where 0.49kg/hh/wk of this recoverable material was present.

Table 4.3.2.1 & 4.3.2.2 and Figures 4.3.2.1 & 4.3.2.2 show the amounts of the different forms of paper waste for each Acorn.

Table 4.3.2.1: Levels of paper within the residual waste of each Acorn sample (kg/hh/wk)

RESIDUAL PAPER	1C9	2E19	2F20	2F21	3G25	3H31	4K38 (M)	4K38 (H)	4M42	5N45	5N48	5O51
RECYCLABLE PAPER	0.21	0.29	0.32	0.39	0.26	0.41	0.36	0.49	0.25	0.35	0.48	0.39
NON-RECYCLABLE PAPER	0.19	0.09	0.16	0.17	0.10	0.29	0.31	0.11	0.08	0.39	0.12	0.14
KG/HH/WK TOTAL PAPER	0.40	0.38	0.48	0.56	0.36	0.70	0.66	0.60	0.33	0.74	0.60	0.53
% PAPER RECYCLABLE	51.88%	76.71%	67.63%	69.26%	72.23%	58.55%	53.76%	81.73%	75.72%	47.64%	79.28%	73.46%

Table 4.3.2.2: Levels of paper averaged for each Acorn and weighted for Leicester (kg/hh/wk)

RESIDUAL PAPER	ACORN 1	ACORN 2	ACORN 3	ACORN 4	ACORN 5	WEIGHTED
RECYCLABLE PAPER	0.21	0.33	0.33	0.37	0.41	0.36
NON-RECYCLABLE PAPER	0.19	0.14	0.20	0.17	0.22	0.19
KG/HH/WK TOTAL PAPER	0.40	0.47	0.53	0.53	0.62	0.55
% PAPER RECYCLABLE	51.88%	70.70%	63.14%	68.87%	65.11%	65.39%

Figure 4.3.2.1: Levels of paper within the residual waste of each Acorn sample (kg/hh/wk)

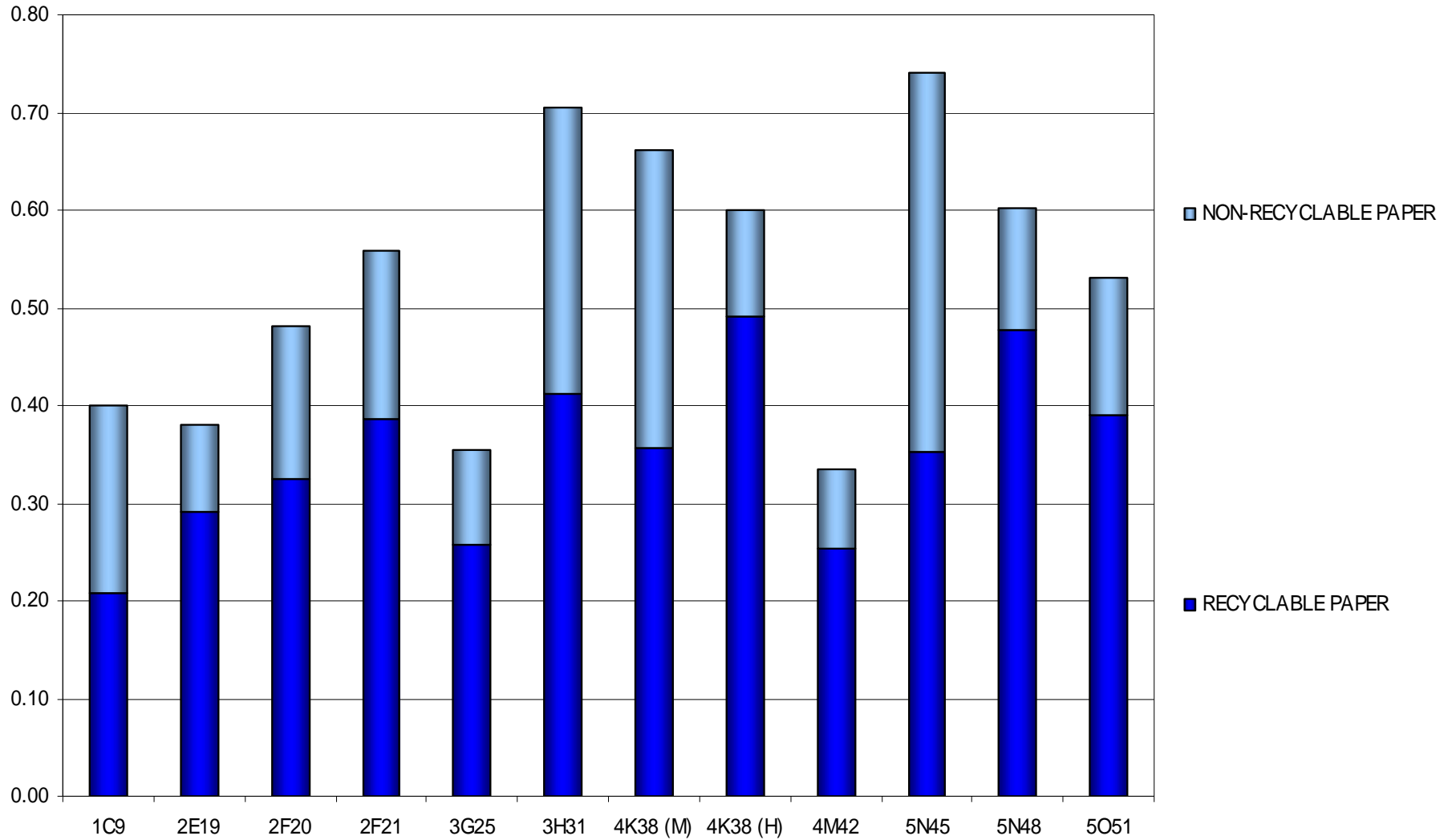
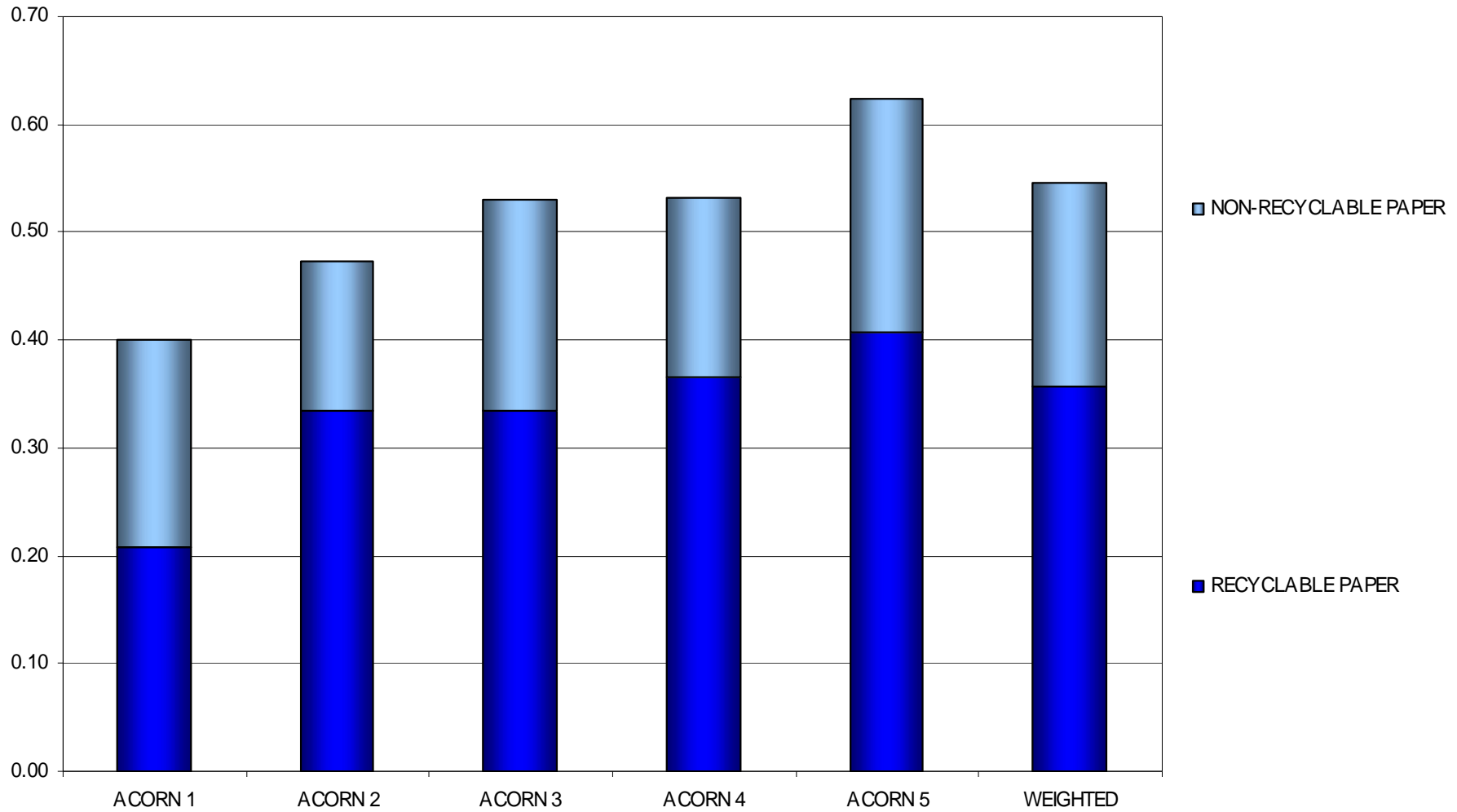


Table 4.3.2.2: Levels of paper averaged for each Acorn and weighted for Leicester (kg/hh/wk)



4.3.3 Card & Cardboard

On average, Acorn 3 residents had the highest concentrations of this type of waste (4.9%), also disposing of the most at 0.49kg/hh/wk. In comparison just 3.3% (0.28kg/hh/wk) of residual waste from Acorn 1 was due to card and cardboard based materials. Across the City it was seen that around 4.5% or 0.40kg/hh/wk of residual waste consisted of discarded card and cardboard.

A proportion of this card & cardboard is available for recycling at the kerbside. Leicester residents have an orange sack for recycling thin card, corrugated cardboard and drinks cartons. It was found that between 63.6% (Acorn 5) and 99.1% (Acorn 1) of card and cardboard could have been placed into these orange sacks as opposed to the residual bin.

When accounting for all of the various types of card and cardboard within the residual waste, it is seen that 81.2% was recyclable which accounted for 3.6% of all the residual waste or 0.33kg/hh/wk. The highest level of recyclable paper was recovered from the Acorn 3H-31 where 0.44kg/hh/wk of this recoverable material was present.

Table 4.3.3.1 & 4.3.3.2 and Figures 4.3.3.1 & 4.3.3.2 show the amounts of the different forms of card and cardboard waste for each Acorn.

When combining paper and card together it is estimated that 72% of that present in residual bins could have been recycled via kerbside recycling collections. This amounts to 7.6% of all the residual waste being collected – a total of 0.68kg/hh/wk.

Table 4.3.3.1: Levels of card & cardboard within the residual waste of each Acorn sample (kg/hh/wk)

RESIDUAL CARD	1C9	2E19	2F20	2F21	3G25	3H31	4K38 (M)	4K38 (H)	4M42	5N45	5N48	5O51
RECYCLABLE THIN CARD	0.13	0.17	0.19	0.14	0.12	0.17	0.18	0.14	0.10	0.16	0.13	0.20
RECYCLABLE CORRUGATED CARDBOARD	0.11	0.09	0.16	0.13	0.26	0.25	0.19	0.21	0.12	0.09	0.07	0.09
BEVERAGE CARTONS	0.04	0.01	0.04	0.02	0.02	0.01	0.02	0.00	0.02	0.01	0.03	0.01
NON-RECYCLABLE CARD	<0.01	0.03	0.04	0.03	0.08	0.07	0.02	0.01	<0.01	0.33	0.07	0.05
KG/HH/WK TOTAL CARD & CARDBOARD	0.28	0.31	0.43	0.32	0.48	0.51	0.42	0.36	0.24	0.59	0.30	0.35
KG/HH/WK RECYCLABLE CARD & CARDBOARD	0.28	0.28	0.38	0.29	0.40	0.44	0.40	0.35	0.24	0.26	0.23	0.30
% CARD KERBSIDE RECYCLABLE	99.13%	90.34%	90.25%	89.93%	82.59%	86.06%	95.21%	96.84%	98.32%	43.65%	77.07%	85.87%

Table 4.3.3.2: Levels of card & cardboard averaged for each Acorn and weighted for Leicester (kg/hh/wk)

RESIDUAL CARD	ACORN 1	ACORN 2	ACORN 3	ACORN 4	ACORN 5	WEIGHTED
RECYCLABLE THIN CARD	0.13	0.17	0.15	0.14	0.16	0.15
RECYCLABLE CORRUGATED CARDBOARD	0.11	0.13	0.25	0.17	0.08	0.16
BEVERAGE CARTONS	0.04	0.03	0.02	0.01	0.02	0.02
NON-RECYCLABLE CARD	0.00	0.03	0.08	0.01	0.15	0.08
KG/HH/WK TOTAL CARD & CARDBOARD	0.28	0.35	0.49	0.34	0.41	0.40
KG/HH/WK RECYCLABLE CARD & CARDBOARD	0.28	0.32	0.42	0.33	0.26	0.33
% CARD KERBSIDE RECYCLABLE	99.13%	90.18%	84.37%	96.53%	63.63%	81.23%

Figure 4.3.3.1: Levels of card & cardboard within the residual waste of each Acorn sample (kg/hh/wk)

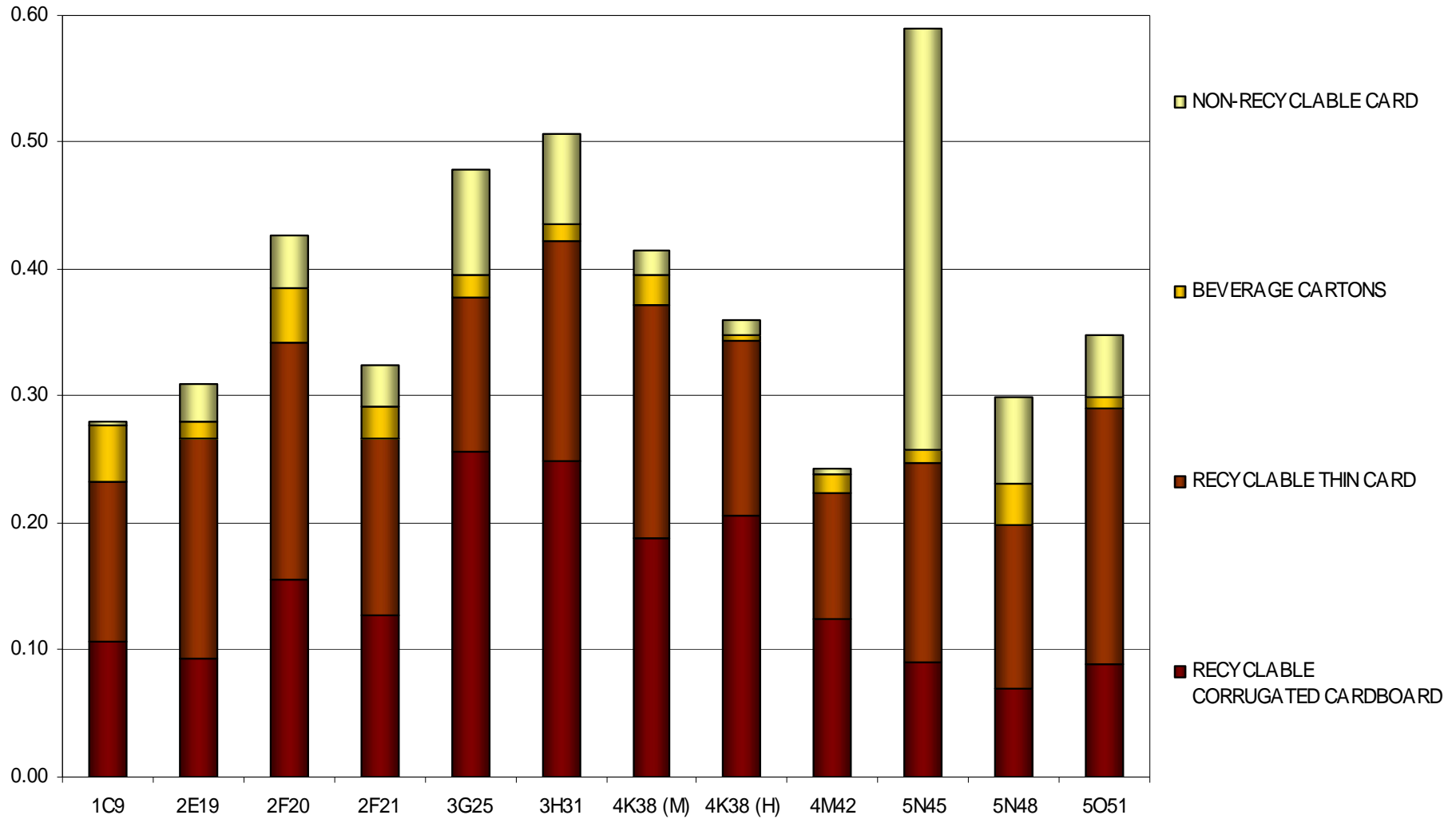
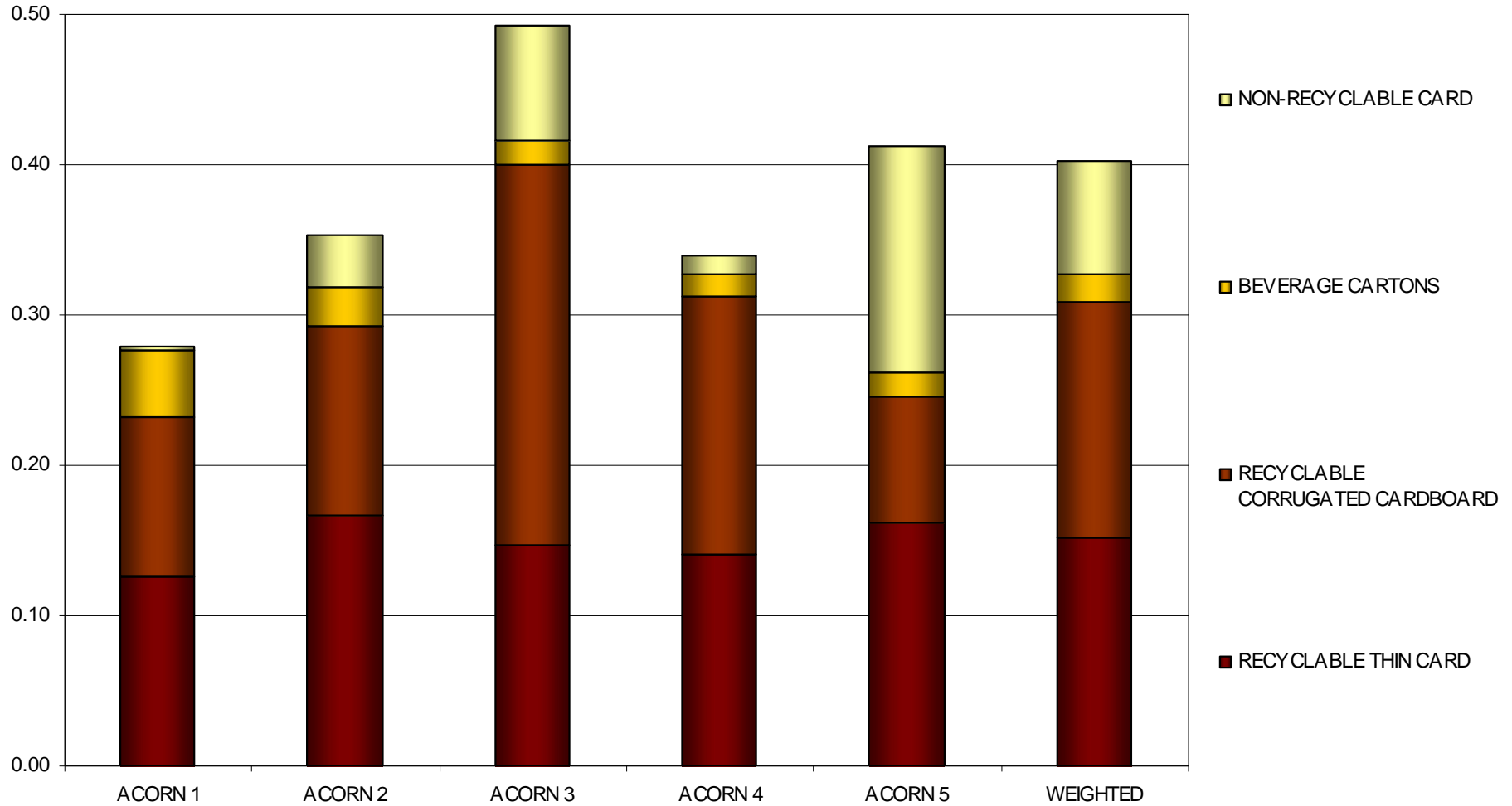


Figure 4.3.3.2: Levels of card & cardboard averaged for each Acorn and weighted for Leicester (kg/hh/wk)



4.3.4 Plastics

As a UK average approximately 12% of the waste disposed of by households is plastic. In this sampling campaign average ranges seen were 5.8% total plastic by weight from Acorn 3 households to 8.1% in the waste from Acorn 5 households. Leicester households are able to recycle an extensive range of plastics in their orange sacks. This includes all plastic bottles, containers and tubs as well as thin polystyrene trays and all plastic films. Across the City as a whole, 7.2% of residual waste was classified as plastic which equates to 0.65kg/hh/wk. On the whole plastic waste, although not heavy in itself, can produce large volumes of waste.

Figures 4.3.4.1 and 4.3.4.2 clearly show the levels of recyclable plastic bottles and containers within the plastic portion of the residual waste. On average, around 41% of this plastic waste present in the residual was due to plastic film with the remainder being dense plastic. Up to 51% of residual dense plastic consisted of plastic bottles, trays, tubs and containers. This shows that 5.1% of residual waste (0.46kg/hh/wk) collected throughout Leicester was made up of recyclable formats of plastic.

Around 0.33kg/hh/wk of recyclable plastics were seen in Acorn 1 residual bins rising to 0.56kg/hh/wk for Acorn 2. The most recyclable plastics were recovered from the Acorn 4K-38(M) residual waste where 0.79kg/hh/wk was present which equates to 7.8% of the total residual waste.

Tables 4.3.4.1 and 4.3.4.2 and Figures 4.3.4.1 and 4.3.4.2 show the amounts of the different forms of plastic waste found within the residual samples from each Acorn.

Table 4.3.4.1: Levels of plastics within the residual waste of each Acorn sample (kg/hh/wk)

RESIDUAL PLASTICS	1C9	2E19	2F20	2F21	3G25	3H31	4K38 (M)	4K38 (H)	4M42	5N45	5N48	5O51
PLASTIC FILM	0.15	0.26	0.37	0.30	0.26	0.31	0.42	0.28	0.16	0.27	0.25	0.25
PLASTIC BOTTLES	0.07	0.11	0.14	0.09	0.09	0.10	0.19	0.05	0.06	0.07	0.07	0.12
PLASTIC FOOD CONTAINERS	0.10	0.13	0.16	0.10	0.09	0.07	0.18	0.08	0.07	0.08	0.08	0.13
NON-RECYCLABLE PLASTICS	0.18	0.11	0.09	0.11	0.13	0.13	0.19*	0.10	0.05	0.47**	0.38	0.12
KG/HH/WK TOTAL PLASTIC	0.51	0.61	0.76	0.60	0.56	0.61	0.98	0.51	0.35	0.90	0.78	0.61
% PLASTIC RECYCLABLE	64.04%	82.41%	88.85%	81.44%	77.43%	78.63%	80.57%	81.15%	85.76%	47.34%	50.80%	80.09%

* Mostly formed from plastic guttering

** Mostly formed from discarded VHS tapes

Table 4.3.4.2: Levels of plastics averaged for each Acorn and weighted for Leicester (kg/hh/wk)

RESIDUAL PLASTICS	ACORN 1	ACORN 2	ACORN 3	ACORN 4	ACORN 5	WEIGHTED
PLASTIC FILM	0.15	0.31	0.29	0.28	0.25	0.27
PLASTIC BOTTLES	0.07	0.12	0.10	0.10	0.09	0.10
PLASTIC FOOD CONTAINERS	0.10	0.13	0.08	0.11	0.09	0.10
NON-RECYCLABLE PLASTICS	0.18	0.10	0.13	0.11	0.33	0.19
KG/HH/WK TOTAL PLASTIC	0.51	0.66	0.59	0.61	0.76	0.65
% PLASTIC RECYCLABLE	64.04%	84.60%	78.06%	81.71%	57.25%	71.28%

Figure 4.3.4.1: Levels of plastics within the residual waste of each Acorn sample (kg/hh/wk)

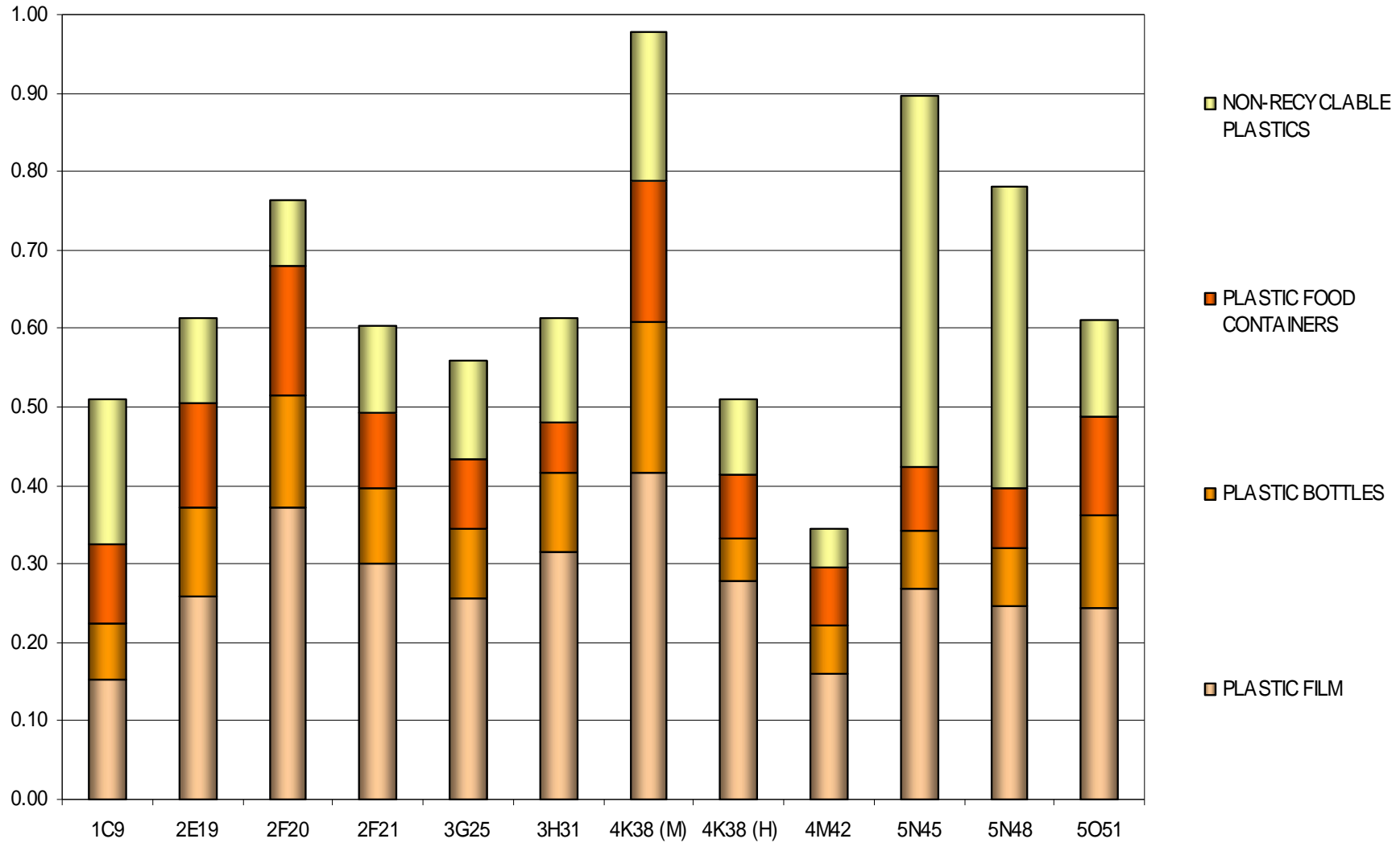
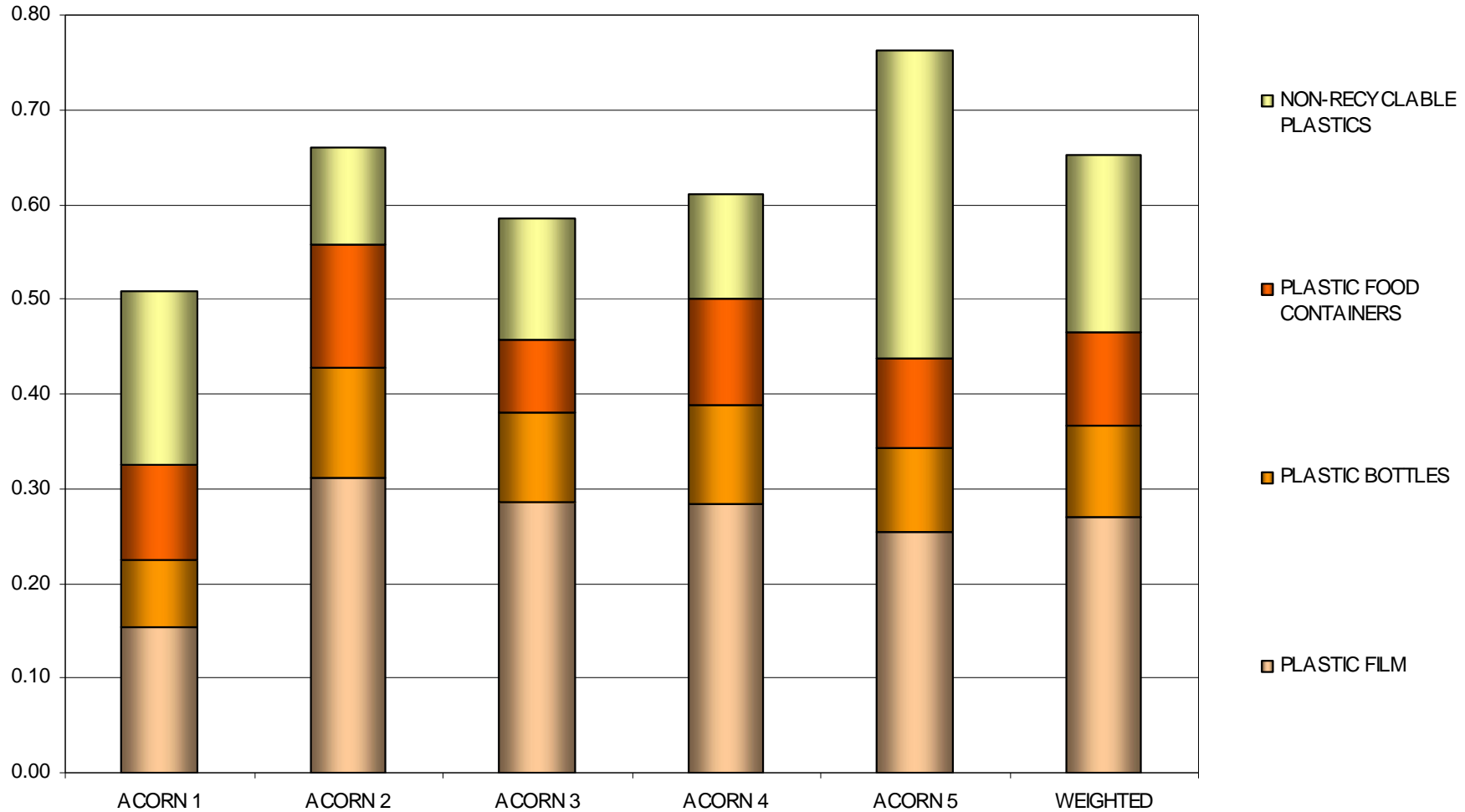


Figure 4.3.4.2: Levels of plastics averaged for each Acorn and weighted for Leicester (kg/hh/wk)



4.3.5 Metals

In this sampling campaign average concentrations of residual metals were seen to be 1.7% total metal by weight from Acorn 1 households to 4% in the waste from Acorn 5 households, averaging 2.6% overall. Leicester residents have access to a recycling collection of food and drink cans as well as empty aerosols and clean foil via their orange sack service. The average weight of metals in the residual waste from Acorn 1 was 0.14kg/hh/wk rising to 0.37kg/hh/wk in Acorn 5.

A proportion of this metal waste is available for recycling at the kerbside relative to the orange sack collection. It was found that just 50% of Acorn 5 metals were recyclable rising to 93% for the metals in Acorn 3 residual waste. Across the City an average of 70% or 0.17kg/hh/wk of residual metal is classified as recyclable, this equates to 1.8% of all collected residual waste.

On the whole 73% of metals were ferrous accounting for 0.17kg/hh/wk with non-ferrous metals contributing 0.06kg/hh/wk.

Tables 4.3.5.1 & 4.3.5.2 and Figure 4.3.5.1 & 4.3.5.2 show the amounts of the different forms of metallic waste found within the samples from each Acorn. Food cans tend to require a degree of washing before being placed into recycling containers and as such are often less well diverted than cleaner drinks cans.

Table 4.3.5.1: Levels of metals within the residual waste of each Acorn sample (kg/hh/wk)

RESIDUAL METALS	1C9	2E19	2F20	2F21	3G25	3H31	4K38 (M)	4K38 (H)	4M42	5N45	5N48	5O51
DRINK CANS	0.01	0.06	0.07	0.04	0.08	0.07	0.06	0.03	0.05	0.01	0.04	0.05
FOOD TINS & CANS	0.06	0.07	0.03	0.07	0.04	0.06	0.19	0.03	0.05	0.10	0.16	0.09
AEROSOLS & OTHER PACKAGING	0.01	0.00	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02
ALUMINIUM FOIL AND FOOD TRAYS	0.03	0.02	0.03	0.02	0.04	0.02	0.02	0.01	0.01	0.02	0.03	0.02
OTHER NON-RECYCLABLE METALS	0.03	0.02	0.00	0.02	0.02	0.00	0.01	0.01	0.07	0.43	0.04	0.09
RECYCLABLE METALS	0.11	0.15	0.15	0.15	0.17	0.16	0.27	0.08	0.12	0.14	0.24	0.18
TOTAL METALS	0.14	0.17	0.15	0.17	0.20	0.16	0.28	0.09	0.19	0.58	0.27	0.27
% FERROUS	69.57%	62.85%	34.19%	68.52%	43.44%	66.52%	81.80%	61.76%	65.93%	90.76%	75.33%	75.23%
% RECYCLABLE	80.00%	88.29%	98.80%	89.60%	87.94%	100.00%	96.38%	89.41%	64.72%	24.86%	87.01%	68.16%

Table 4.3.5.2: Levels of metals averaged for each Acorn and weighted for Leicester (kg/hh/wk)

RESIDUAL METALS	ACORN 1	ACORN 2	ACORN 3	ACORN 4	ACORN 5	WEIGHTED
DRINK CANS	0.01	0.06	0.07	0.05	0.03	0.05
FOOD TINS & CANS	0.06	0.06	0.05	0.09	0.12	0.08
AEROSOLS & OTHER PACKAGING	0.01	0.01	0.01	0.01	0.01	0.01
ALUMINIUM FOIL AND FOOD TRAYS	0.03	0.02	0.03	0.01	0.02	0.02
OTHER NON-RECYCLABLE METALS	0.03	0.01	0.01	0.03	0.18	0.07
RECYCLABLE METALS	0.11	0.15	0.16	0.16	0.19	0.17
TOTAL METALS	0.14	0.16	0.18	0.19	0.37	0.24
% FERROUS	69.57%	56.09%	53.65%	73.27%	83.25%	72.64%
% RECYCLABLE	80.00%	91.93%	93.27%	84.77%	50.46%	69.89%

Figure 4.3.5.1: Levels of metals within the residual waste of each Acorn sample (kg/hh/wk)

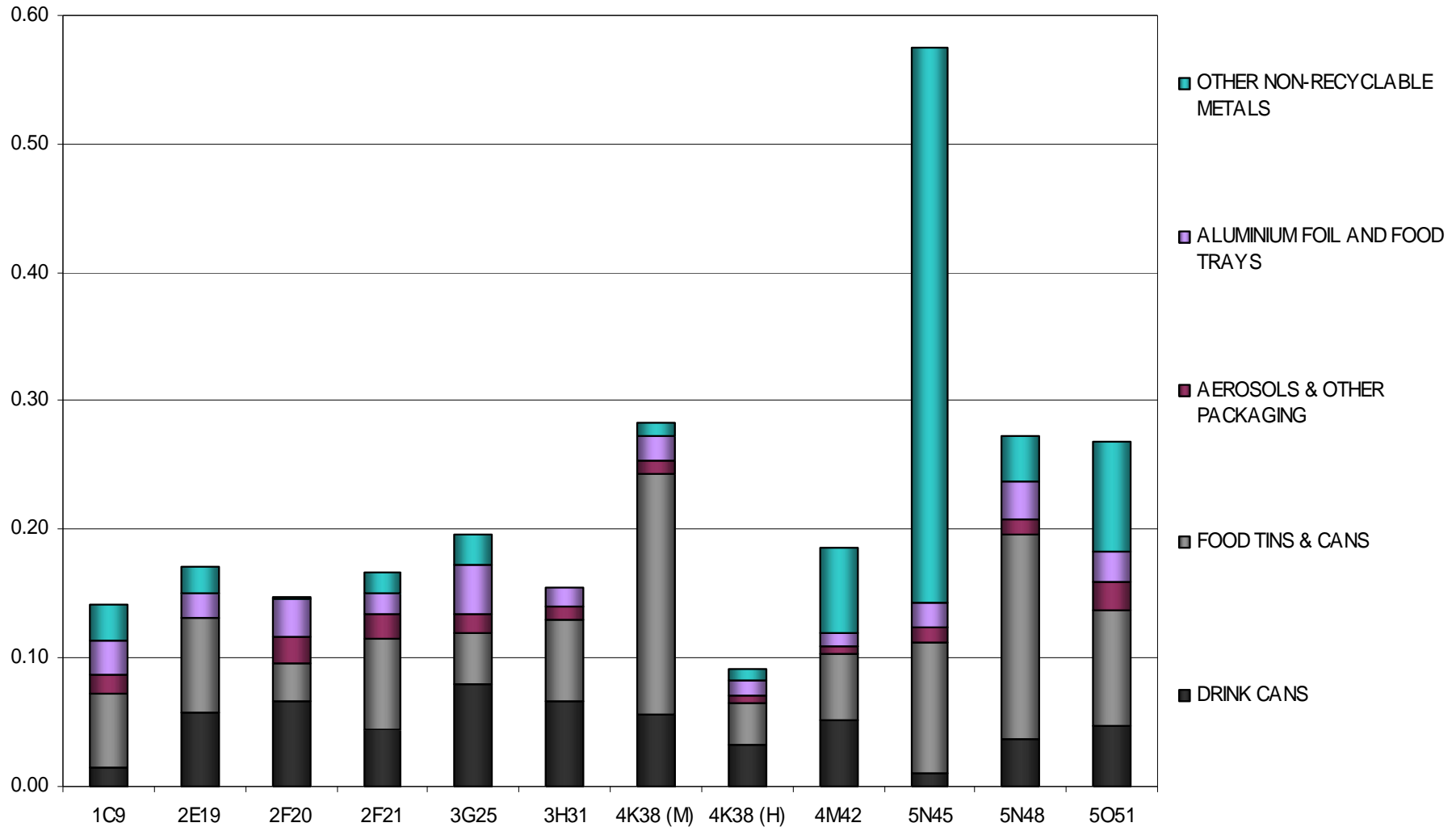
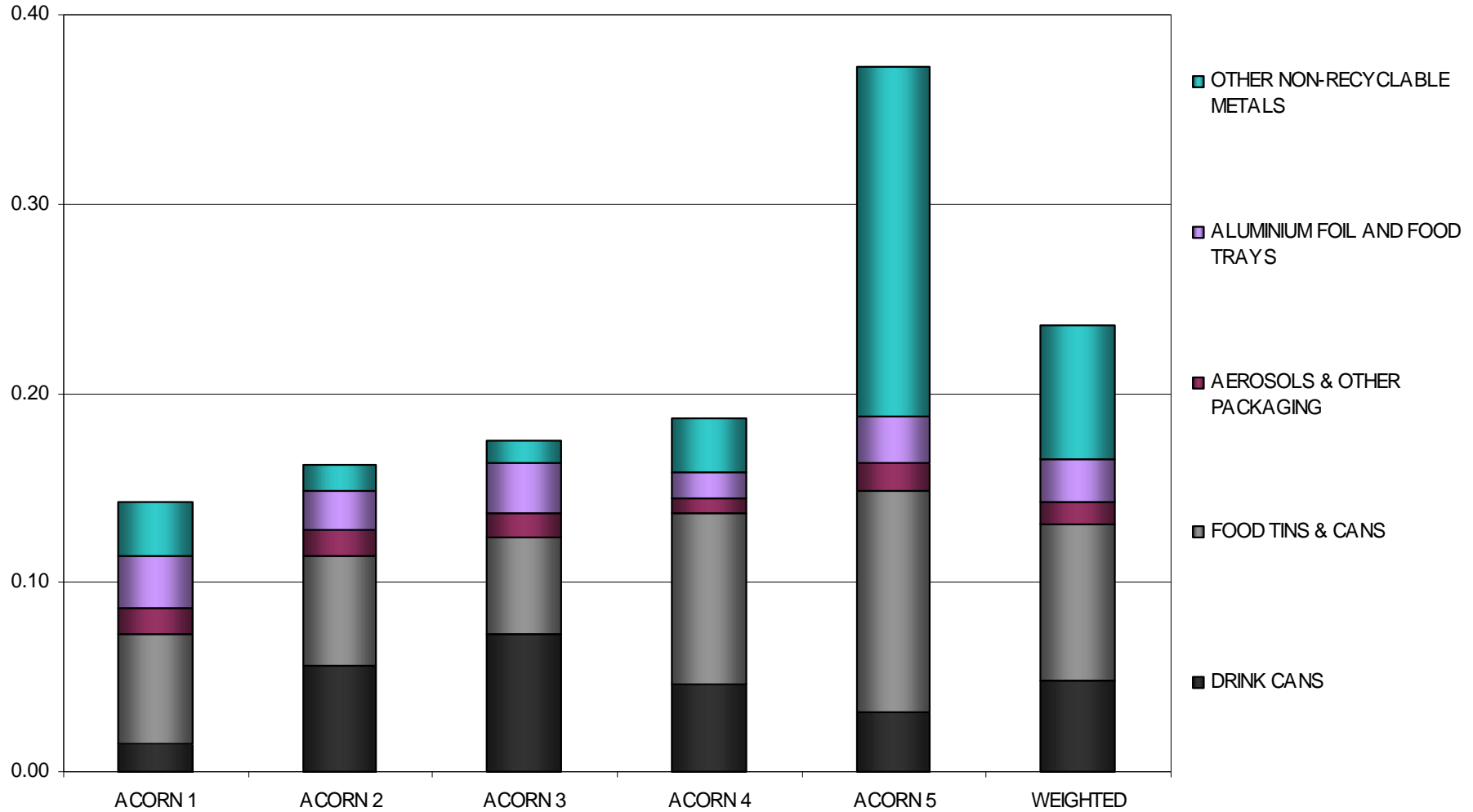


Figure 4.3.5.2: Levels of metals averaged for each Acorn and weighted for Leicester (kg/hh/wk)



4.3.6 Glass

In this sampling campaign the average concentration of residual glass was seen to be 1.1% total glass by weight from Acorn 1 households rising to 6% in the waste from Acorn 2. Leicester residents are able to recycle glass bottles and jars at the kerbside using their orange sack service. The weight of glass in the residual waste from Acorn 1 was 0.10kg/hh/wk rising to 0.49kg/hh/wk in Acorn 2. This represented a City wide average of 3.3% or 0.30kg/hh/wk.

A proportion of this glass consists of bottles and jars which could have been recycled at the kerbside. It was found that across Leicester an average of 86% or 0.26kg/hh/wk of residual glass is classified as recyclable, this equates to 2.9% of all collected residual waste.

In most samples the majority of recyclable glass was seen to be higher grade clear glass, across Leicester 68% of recyclable glass was clear, accounting for 0.18kg/hh/wk of residual waste. Around 61% of the clear glass was due to bottles as opposed to jars.

Table 4.3.6.1 & 4.3.6.2 and Figure 4.3.6.1 & 4.3.6.2 show the amounts of the different forms of glass waste found within the samples from each Acorn.

Table 4.3.6.1: Levels of glass within the residual waste of each Acorn sample (kg/hh/wk)

RESIDUAL GLASS	1C9	2E19	2F20	2F21	3G25	3H31	4K38 (M)	4K38 (H)	4M42	5N45	5N48	5O51
GREEN GLASS	0.00	0.07	0.13	0.00	0.09	0.00	0.00	0.02	0.02	0.01	0.18	0.05
BROWN, BLUE, RED GLASS	0.01	0.07	0.09	0.00	0.06	0.00	0.00	0.03	0.00	0.08	0.03	0.05
CLEAR BOTTLES	0.00	0.14	0.25	0.08	0.27	0.06	0.00	0.06	0.06	0.02	0.12	0.17
CLEAR JARS	0.05	0.13	0.23	0.04	0.15	0.04	0.06	0.04	0.01	0.05	0.04	0.06
OTHER NON PACKAGING GLASS	0.03	0.17	0.04	0.04	0.02	0.01	0.02	0.01	0.04	0.16	0.05	0.01
KG/HH/WK TOTAL GLASS	0.10	0.58	0.74	0.16	0.58	0.11	0.08	0.15	0.13	0.33	0.42	0.34
KG/HH/WK RECYCLABLE GLASS	0.07	0.40	0.70	0.12	0.56	0.10	0.06	0.14	0.09	0.16	0.37	0.33
% RECYCLABLE	68.70%	69.90%	94.80%	76.12%	97.19%	92.21%	77.22%	95.89%	72.48%	50.66%	88.95%	97.55%
% OF RECYCLABLE GLASS - CLEAR	86.30%	66.35%	69.21%	100.00%	73.32%	100.00%	100.00%	68.70%	79.47%	44.56%	42.99%	68.29%

Table 4.3.6.2: Levels of glass averaged for each Acorn and weighted for Leicester (kg/hh/wk)

RESIDUAL GLASS	ACORN 1	ACORN 2	ACORN 3	ACORN 4	ACORN 5	WEIGHTED
GREEN GLASS	0.00	0.06	0.04	0.01	0.08	0.05
BROWN, BLUE, RED GLASS	0.01	0.05	0.03	0.01	0.06	0.03
CLEAR BOTTLES	0.00	0.16	0.17	0.04	0.10	0.11
CLEAR JARS	0.05	0.13	0.09	0.04	0.05	0.07
OTHER NON PACKAGING GLASS	0.03	0.08	0.01	0.02	0.07	0.04
KG/HH/WK TOTAL GLASS	0.10	0.49	0.35	0.12	0.36	0.30
KG/HH/WK RECYCLABLE GLASS	0.07	0.41	0.33	0.10	0.29	0.26
% RECYCLABLE	68.70%	83.06%	96.39%	83.43%	80.13%	85.95%
% OF RECYCLABLE GLASS - CLEAR	86.30%	71.35%	77.43%	78.29%	52.87%	67.84%

Figure 4.3.6.1: Levels of glass within the residual waste of each Acorn sample (kg/hh/wk)

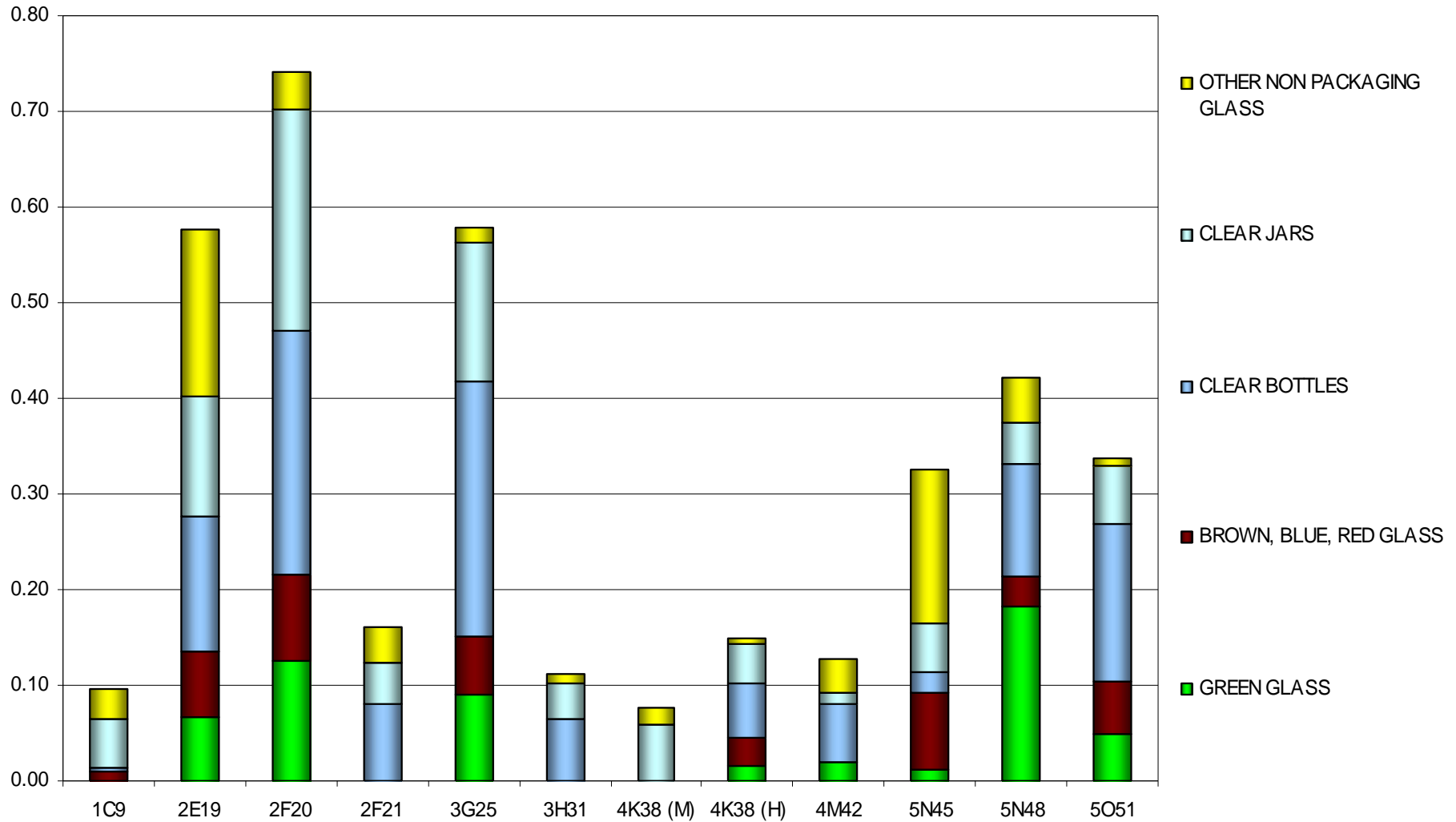
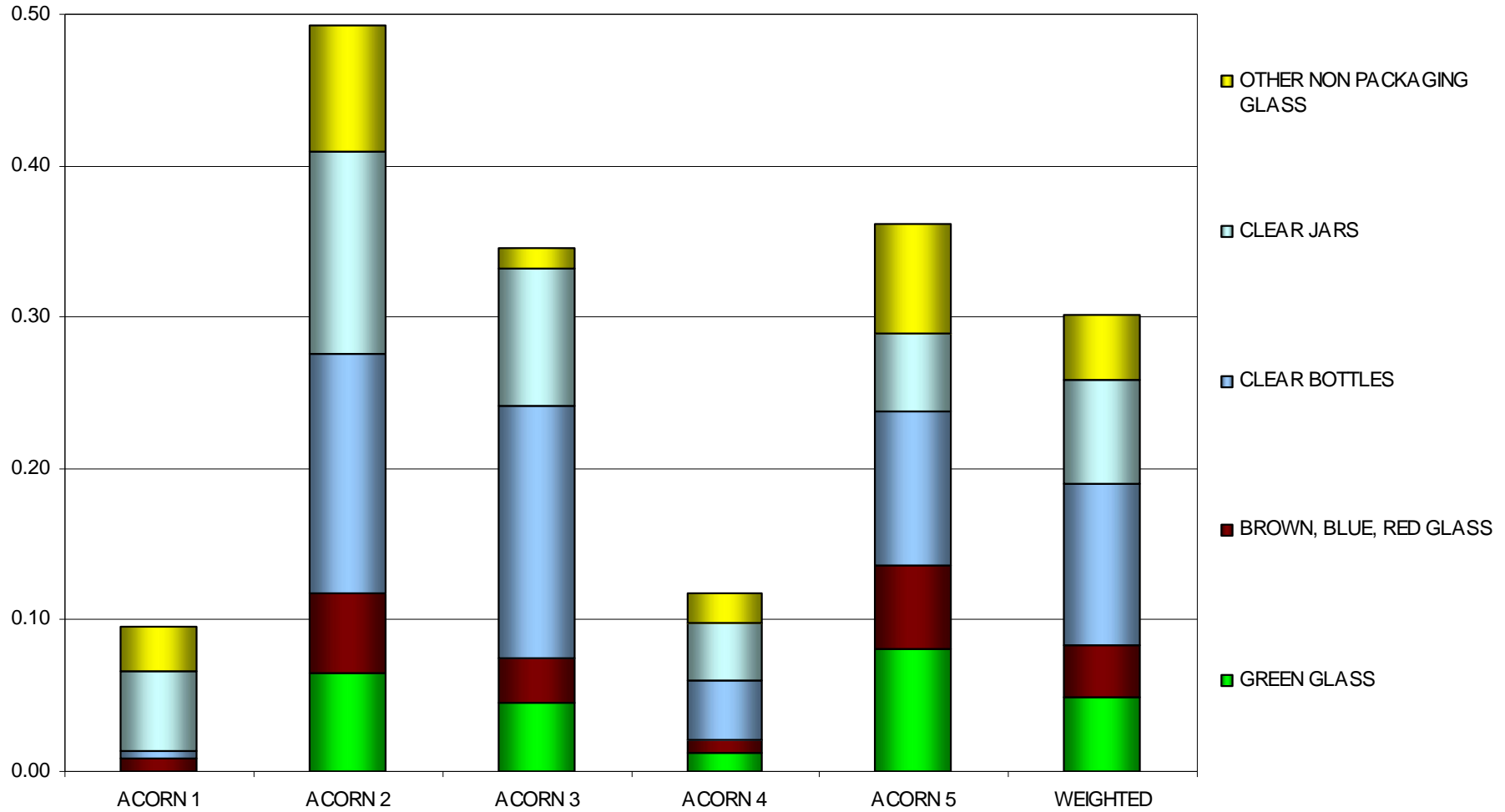


Figure 4.3.6.2: Levels of glass averaged for each Acorn and weighted for Leicester (kg/hh/wk)



4.3.7 Textiles

The concentration of residual textile waste was seen to be 3.4% textiles from Acorn 2 households to 8.3% in the waste from Acorn 5 households. Leicester residents are currently not able to recycle textiles at the kerbside. The average weight of textile waste in the residual waste from Acorn 2 was 0.28kg/hh/wk rising to 0.78kg/hh/wk in Acorn 5. On average 6.2% or 0.56kg/hh/wk of residual waste is classified as textile waste.

A proportion of this textile waste is available for recycling either at bring banks or charity outlets in the form of reusable clothes and shoes. It was found that between 26% (Acorn 1) and 54% of Acorn 3 of textile waste was of this potentially recyclable type. Up to 0.36kg/hh/wk (Acorn 5) of recyclable textiles are being placed into the residual waste by Leicester householders. Across the City an average of 46% or 0.25kg/hh/wk of residual textiles are classified as reusable, this equates to 2.8% of all collected residual waste.

Table 4.3.7.1 & 4.3.7.2 and Figure 4.3.7.1 & 4.3.7.2 show the amounts of the different forms of textile waste found within the samples from each Acorn.

Table 4.3.7.1: Levels of textiles within the residual waste of each Acorn sample (kg/hh/wk)

RESIDUAL TEXTILES	1C9	2E19	2F20	2F21	3G25	3H31	4K38 (M)	4K38 (H)	4M42	5N45	5N48	5O51
REUSABLE CLOTHING	0.07	0.10	0.10	0.04	0.30	0.20	0.24	0.02	0.05	0.05	0.11	0.16
SHOES	0.03	0.10	0.04	0.04	0.07	0.01	0.06	0.03	0.05	0.11	0.29	0.38
ALL OTHER TEXTILES	0.28	0.06	0.14	0.20	0.23	0.27	0.73	0.04	0.11	0.14	0.86	0.25
KG/HH/WK TOTAL TEXTILES	0.38	0.26	0.29	0.28	0.61	0.49	1.03	0.09	0.21	0.30	1.25	0.79
KG/HH/WK REUSABLE TEXTILES	0.10	0.20	0.14	0.08	0.38	0.21	0.31	0.05	0.10	0.16	0.39	0.54
% REUSABLE TEXTILES	25.63%	77.56%	50.09%	28.85%	62.16%	43.87%	29.67%	57.53%	47.61%	52.21%	31.50%	68.25%

Table 4.3.7.2: Levels of textiles averaged for each Acorn and weighted for Leicester (kg/hh/wk)

RESIDUAL TEXTILES	ACORN 1	ACORN 2	ACORN 3	ACORN 4	ACORN 5	WEIGHTED
REUSABLE CLOTHING	0.07	0.08	0.25	0.10	0.11	0.14
SHOES	0.03	0.06	0.04	0.05	0.26	0.11
ALL OTHER TEXTILES	0.28	0.13	0.25	0.29	0.42	0.30
KG/HH/WK TOTAL TEXTILES	0.38	0.28	0.55	0.44	0.78	0.56
KG/HH/WK REUSABLE TEXTILES	0.10	0.14	0.30	0.15	0.36	0.25
% REUSABLE TEXTILES	25.63%	51.34%	54.01%	34.33%	46.57%	45.82%

Figure 4.3.7.1: Levels of textiles within the residual waste of each Acorn sample (kg/hh/wk)

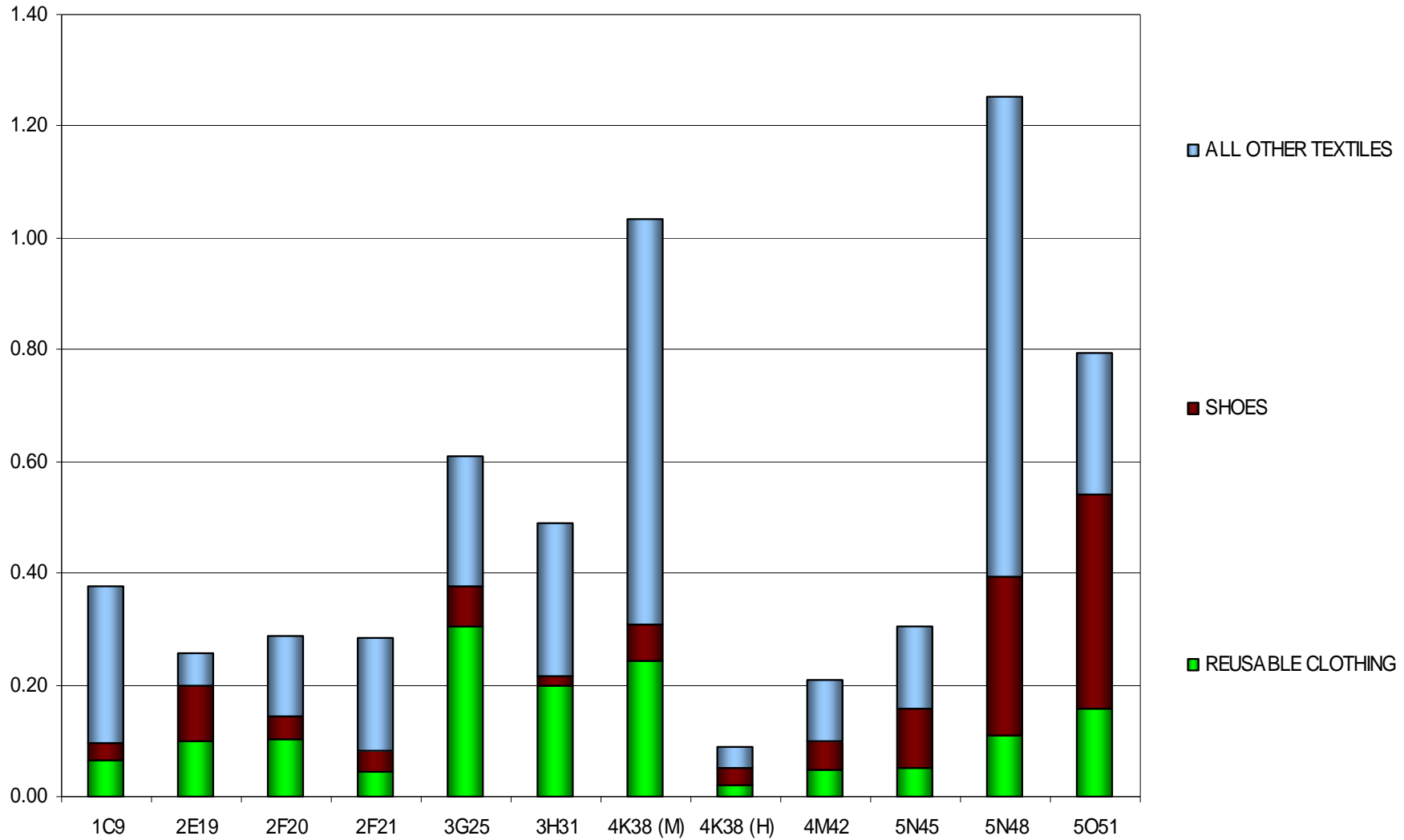
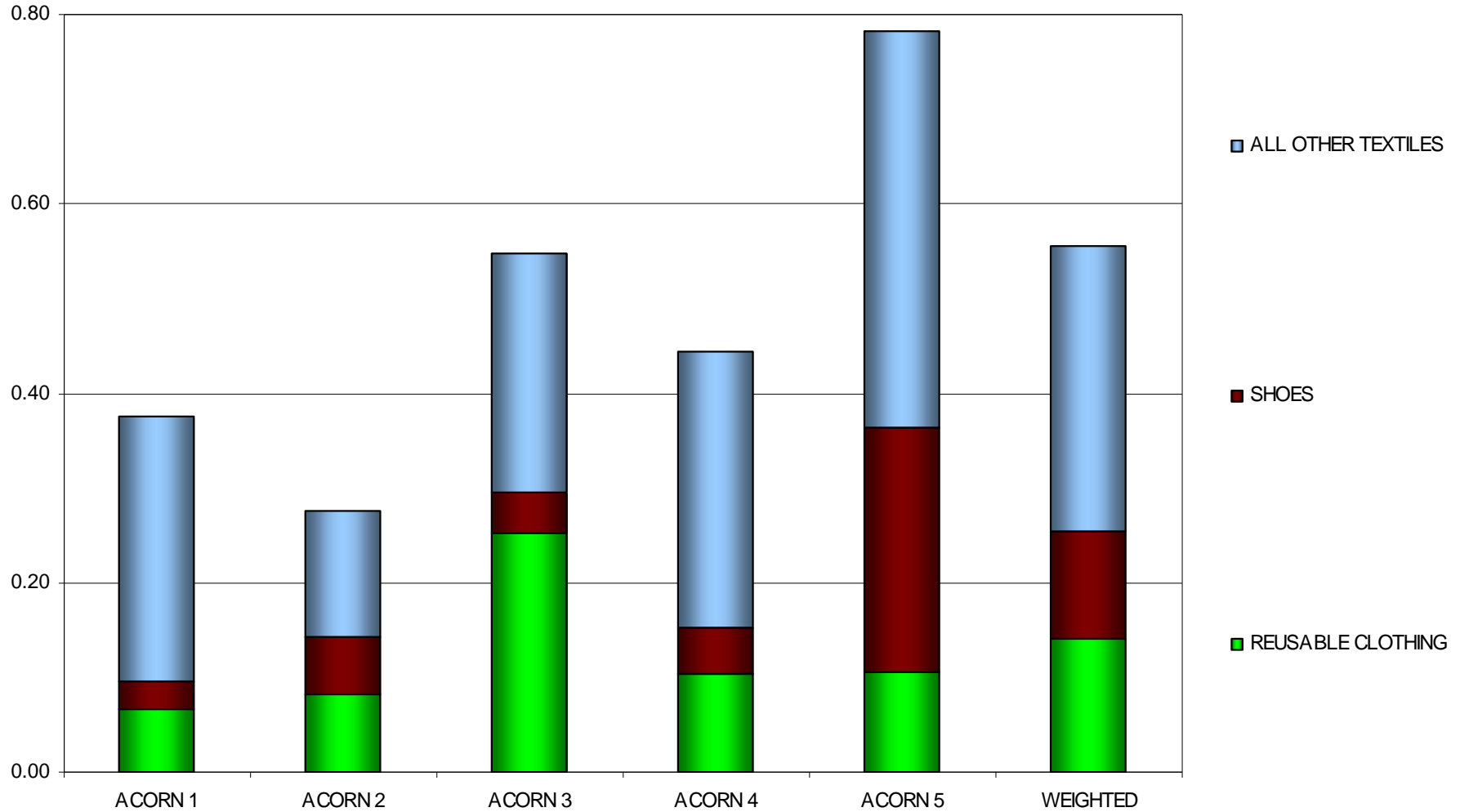


Figure 4.3.7.2: Levels of textiles averaged for each Acorn and weighted for Leicester (kg/hh/wk)



4.3.8 Hazardous Items (HHW) & WEEE

Across the survey the average overall concentration of hazardous and WEEE waste was seen to be 1.3% which equates to around 0.12kg/hh/wk. Acorn 3 households disposed of the most HHW and WEEE waste, where it was responsible for 1.8% of collected waste or 0.18kg/hh/wk. Table 4.2.8.1 shows the amounts of HHW and WEEE within the samples from each Acorn.

Table 4.3.8.1: Levels of HHW and WEEE within each Acorn (kg/hh/wk)

RESIDUAL HHW & WEEE	ACORN 1	ACORN 2	ACORN 3	ACORN 4	ACORN 5	WEIGHTED AV.
HHW	0.01	0.01	0.01	0.06	0.04	0.03
WEEE	0.02	0.04	0.17	0.01	0.10	0.08
TOTAL	0.02	0.05	0.18	0.07	0.14	0.12
% HHW & WEEE	0.29%	0.60%	1.79%	0.91%	1.45%	1.29%

HHW	WEEE	
PAINT	CHARGERS	HOOVER
HALOGEN BULB	MOBILE PHONE	ALARM CLOCK
BATTERIES	SMOKE ALARM	HAIR CLIPPERS
MEDICINES	MODEM	VIDEO PLAYER
DEAD ANIMALS	LAMPS	CASSETTE PLAYER
SYRINGES	STEREO & SPEAKERS	SCALES
CHEMICALS	TELEPHONE	CLOCK
GLUES	HAIR STRAIGHTENERS	TOASTER
	CABLES & LEADS	PLUG IN FRESHENER
	SOCKETS	HARD DRIVE
	ROUTER	USB DRIVES
	IRON	WATCH
	REMOTE CONTROL	HAIRDRYER
	AERIAL	HEADPHONES

4.3.9 Disposable Nappies

The profile of this type of waste has increased in recent years. Levels of this waste within the residual bins of households with babies can be extremely high. In this survey the concentrations of disposable nappies ranged between 4.4% in Acorn 1 up to 15.1% in Acorn 5. Bins from this area were seen to contain around 1.43kg/hh/wk of disposable nappies. The sample surveyed from Acorn 5N-48 was 25.6% disposable nappies accounting for 2.67kg/hh/wk of total residual waste. Throughout Leicester as a whole around 10.4% of collected residual waste consists of disposable nappies, which equates to 0.94kg/hh/wk.

4.4 Potential recyclability of the residual waste

The overall recyclability of the residual waste relates to all the items present that could have been accepted into the orange kerbside recycling sacks currently used in Leicester. Results from the survey showed that the overall recyclability of the residual waste was highest in Acorn 2 households at 21.6%, and lowest in Acorn 1 at 11.8%. The most recyclable residual waste was recovered from the Acorn 2F-20 sample where 24.8% could have been placed into orange sacks this equates to 2.24kg/hh/wk of potentially recyclable material. Across Leicester it is expected that 17.4% of all residual waste being disposed of is recyclable at the kerbside. Figures 4.4.1 & 4.4.2 clearly shows the levels of residual materials currently collectable using the orange sacks available in Leicester. Different households were seen to dispose of differing types as well as levels of recyclable materials in terms of volume and composition.

The most prevalent recyclable material in the residual waste was recyclable paper. This formed 22.7% of the recyclable element of the residual waste, accounting for up to 4% of the total residual waste. The highest concentrations of this recyclate were seen in the Acorn 4K-38(H) sample where it formed 6% of the residual waste (0.49kg/hh/wk).

Recyclable card & cardboard formed 20.8% of the recyclable element of the residual waste, accounting for up to 3.6% of the total residual waste. The highest concentrations of this recyclate were seen in the Acorn 3G-25 sample where it formed 4.9% of the residual waste (0.40kg/hh/wk).

Recyclable plastic film formed 17.2% of the recyclable element of the residual waste, accounting for up to 3% of the total residual waste. The highest concentrations of this recyclate were seen in the Acorn 2F-20 sample where it formed 4.1% of the residual waste (0.37kg/hh/wk).

Recyclable glass formed 16.5% of the recyclable element of the residual waste, accounting for up to 2.9% of the total residual waste. The highest concentrations of this recyclate were seen in the Acorn 2F-20 sample where it formed 7.8% of the residual waste (0.70kg/hh/wk).

Recyclable dense plastics formed 12.4% of the recyclable element of the residual waste, accounting for up to 2.2% of the total residual waste. The highest concentrations of this recyclate were seen in the Acorn 4K-38(M) sample where it formed 3.7% of the residual waste (0.37kg/hh/wk).

Recyclable metals formed 10.5% of the recyclable element of the residual waste, accounting for up to 1.8% of the total residual waste. The highest concentrations of this recyclate were seen in the Acorn 4K-38(M) sample where it formed 2.7% of the residual waste (0.27kg/hh/wk).

Table 4.4.1. Proportion of residual waste currently recyclable relative to current schemes by Acorn sample (%)

% OF RECYCLABLES IN RESIDUAL WASTE	1C9	2E19	2F20	2F21	3G25	3H31	4K38 (M)	4K38 (H)	4M42	5N45	5N48	5O51
RECYCLABLE PAPER	2.48%	3.85%	3.59%	4.82%	3.18%	3.39%	3.50%	5.98%	5.12%	3.87%	4.57%	4.47%
RECYCLABLE CARD & CARDBOARD	3.31%	3.70%	4.26%	3.64%	4.89%	3.58%	3.89%	4.25%	4.84%	2.82%	2.21%	3.42%
RECYCLABLE PLASTIC FILM	1.83%	3.43%	4.11%	3.76%	3.16%	2.59%	4.08%	3.40%	3.23%	2.95%	2.36%	2.80%
RECYCLABLE DENSE PLASTICS	2.06%	3.25%	3.40%	2.37%	2.20%	1.37%	3.66%	1.65%	2.77%	1.71%	1.44%	2.79%
RECYCLABLE GLASS	0.78%	5.33%	7.77%	1.53%	6.96%	0.84%	0.58%	1.75%	1.87%	1.81%	3.59%	3.76%
RECYCLABLE METALS	1.36%	2.00%	1.61%	1.87%	2.13%	1.27%	2.68%	1.00%	2.43%	1.57%	2.28%	2.09%
TOTAL RECYCLABLE	11.84%	21.56%	24.74%	17.98%	22.52%	13.05%	18.40%	18.04%	20.26%	14.72%	16.46%	19.34%

Table 4.4.2. Proportion of residual waste currently recyclable relative to current schemes averaged by Acorn and weighted for Leicester (%)

% OF RECYCLABLES IN RESIDUAL WASTE	ACORN 1	ACORN 2	ACORN 3	ACORN 4	ACORN 5	WEIGHTED
RECYCLABLE PAPER	2.48%	4.07%	3.30%	4.72%	4.31%	3.95%
RECYCLABLE CARD & CARDBOARD	3.31%	3.88%	4.11%	4.22%	2.78%	3.62%
RECYCLABLE PLASTIC FILM	1.83%	3.79%	2.82%	3.66%	2.69%	2.99%
RECYCLABLE DENSE PLASTICS	2.06%	3.02%	1.70%	2.77%	1.94%	2.15%
RECYCLABLE GLASS	0.78%	4.99%	3.29%	1.26%	3.07%	2.87%
RECYCLABLE METALS	1.36%	1.81%	1.62%	2.04%	1.99%	1.83%
TOTAL RECYCLABLE	11.84%	21.56%	16.83%	18.66%	16.79%	17.41%

Table 4.4.3. Kg/hh/wk of residual waste currently recyclable relative to current schemes by Acorn sample

% OF RECYCLABLES IN RESIDUAL WASTE	1C9	2E19	2F20	2F21	3G25	3H31	4K38 (M)	4K38 (H)	4M42	5N45	5N48	5O51
RECYCLABLE PAPER	0.21	0.29	0.32	0.39	0.26	0.41	0.36	0.49	0.25	0.35	0.48	0.39
RECYCLABLE CARD & CARDBOARD	0.28	0.28	0.38	0.29	0.40	0.44	0.40	0.35	0.24	0.26	0.23	0.30
RECYCLABLE PLASTIC FILM	0.15	0.26	0.37	0.30	0.26	0.31	0.42	0.28	0.16	0.27	0.25	0.25
RECYCLABLE DENSE PLASTICS	0.17	0.25	0.31	0.19	0.18	0.17	0.37	0.14	0.14	0.16	0.15	0.24
RECYCLABLE GLASS	0.07	0.40	0.70	0.12	0.56	0.10	0.06	0.14	0.09	0.16	0.37	0.33
RECYCLABLE METALS	0.11	0.15	0.15	0.15	0.17	0.16	0.27	0.08	0.12	0.14	0.24	0.18
TOTAL RECYCLABLE	0.99	1.63	2.24	1.44	1.82	1.59	1.87	1.48	1.00	1.34	1.72	1.69

Table 4.4.4. Kg/hh/wk of residual waste currently recyclable relative to current schemes averaged by Acorn and weighted for Leicester

% OF RECYCLABLES IN RESIDUAL WASTE	ACORN 1	ACORN 2	ACORN 3	ACORN 4	ACORN 5	WEIGHTED
RECYCLABLE PAPER	0.21	0.33	0.33	0.37	0.41	0.36
RECYCLABLE CARD & CARDBOARD	0.28	0.32	0.42	0.33	0.26	0.33
RECYCLABLE PLASTIC FILM	0.15	0.31	0.29	0.28	0.25	0.27
RECYCLABLE DENSE PLASTICS	0.17	0.25	0.17	0.22	0.18	0.19
RECYCLABLE GLASS	0.07	0.41	0.33	0.10	0.29	0.26
RECYCLABLE METALS	0.11	0.15	0.16	0.16	0.19	0.17
TOTAL RECYCLABLE	0.99	1.77	1.70	1.45	1.58	1.57

Figure 4.4.1. Kg/hh/wk of residual waste currently recyclable relative to current schemes by Acorn sample

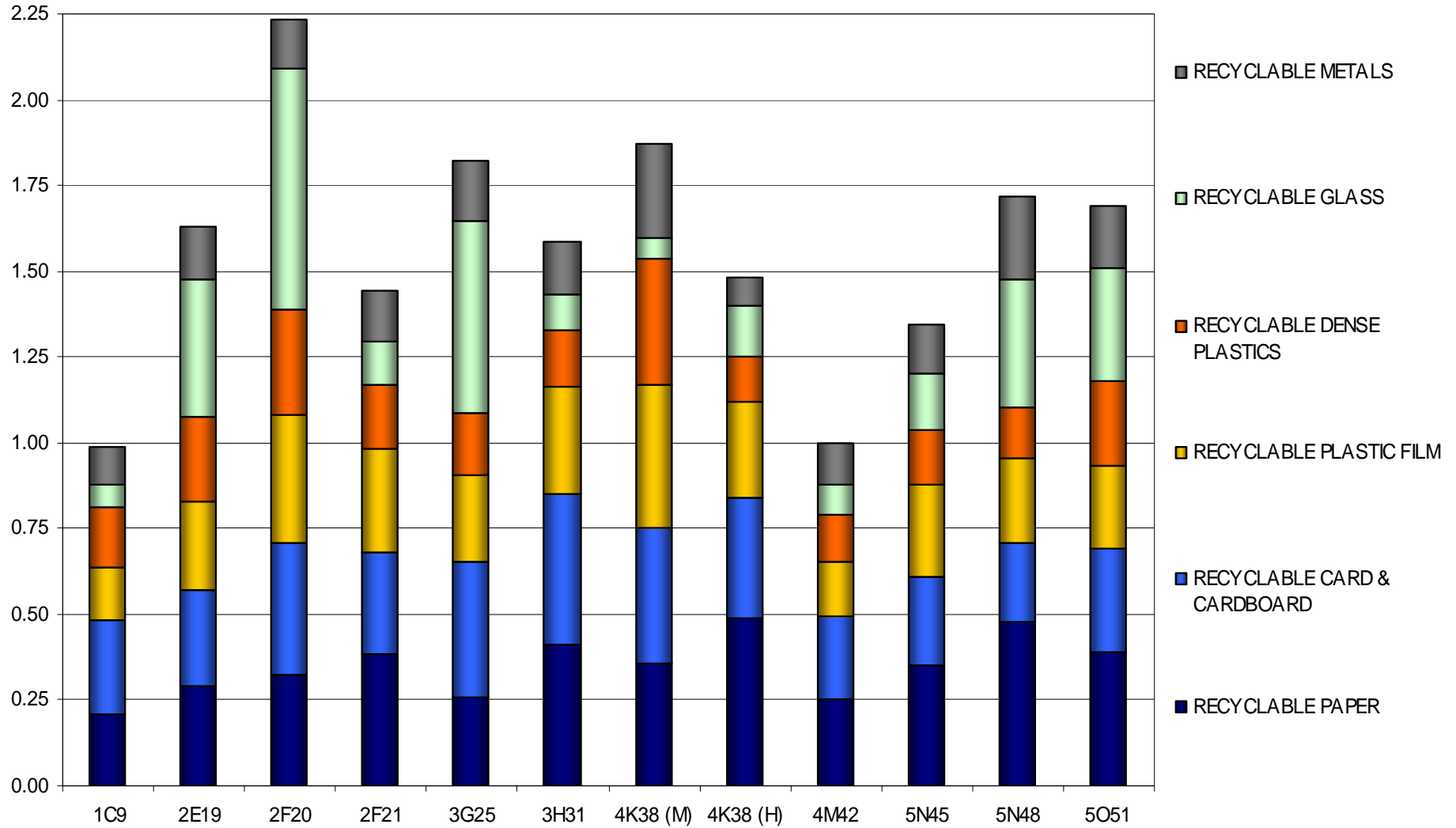
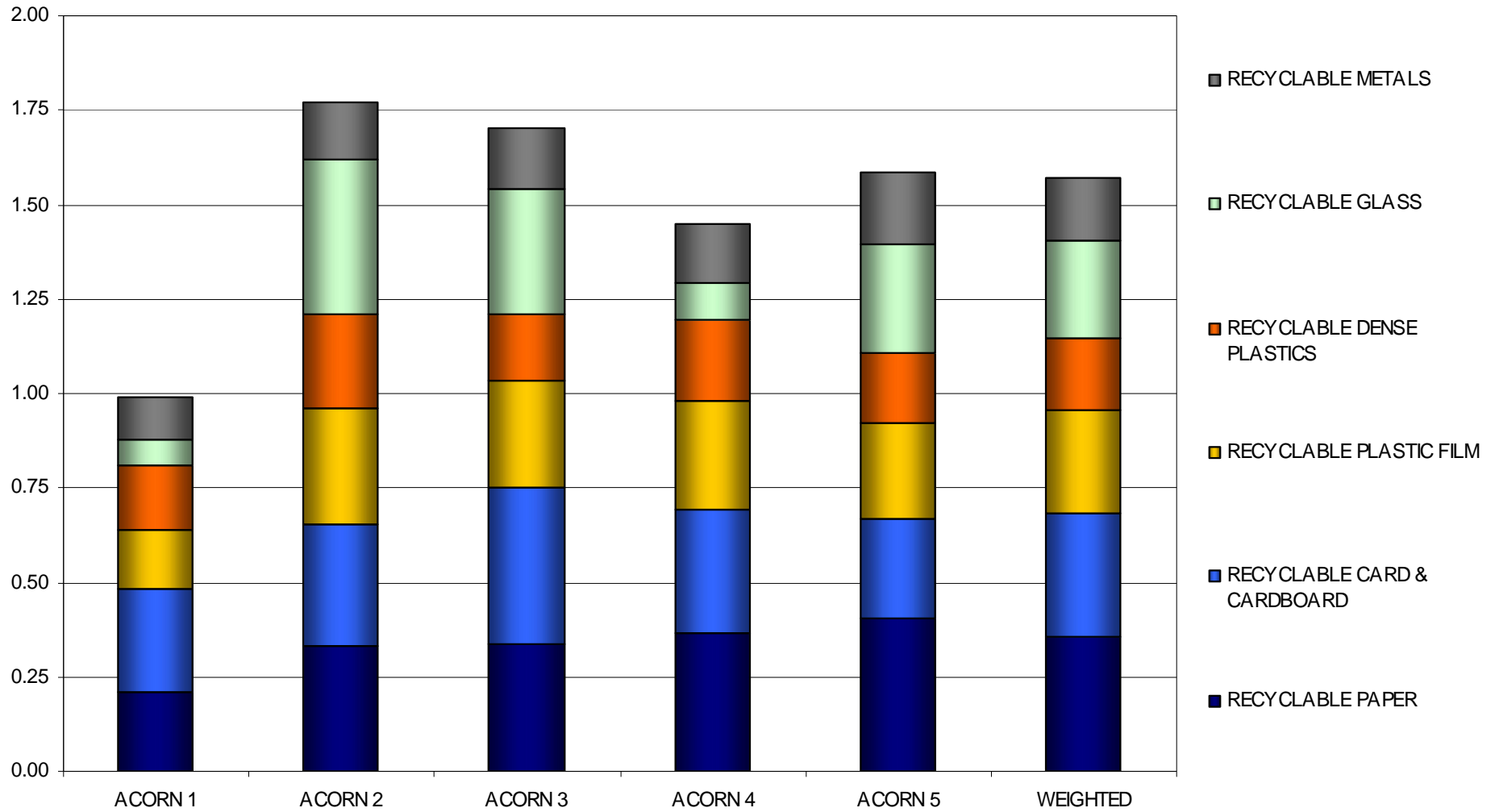


Figure 4.4.2. Kg/hh/wk of residual waste currently recyclable relative to current schemes averaged by Acorn and weighted for Leicester



4.5 Biodegradable waste

These figures are useful when considering the proportion of biodegradable waste, which may be subject to the national provision of the Landfill Directive. The data has been calculated using the compositional data in accordance with the percentages outlined in previous reports. For example, only 50% of miscellaneous combustible materials are considered to be biodegradable whereas 100% of paper and card is considered to be biodegradable.

National average figures are around 68%; in this survey the biodegradability of residual waste weighted across Leicester was well below this level at 56.8%. Acorn 4 residual waste displayed the highest concentration of biodegradable items at 69.1%, with Acorn 1 residual wastes being just 39% biodegradable. On average, around 5.13kg/hh/wk of biodegradable material was being placed into residual containers by Leicester residents.

4.6 Packaging Waste

These figures are useful when considering the proportion of packaging waste, which may be subject to the national provision of the Landfill Directive. The data has been calculated using a similar method to that used to calculate biodegradability.

Levels of packaging in the residual waste ranged from 7.9% in Acorn 1 residual waste to 16.6% in Acorn 2 residual waste. On average, around 1.15kg/hh/wk of packaging materials were being placed into residual containers by Leicester residents, 12.8% of the total waste being disposed of.

Table 4.5.1a: Percentage composition of residual waste per sample – biodegradable materials

BIODEGRADABLE CONTRIBUTION	1C9	2E19	2F20	2F21	3G25	3H31	4K38 (M)	4K38 (H)	4M42	5N45	5N48	5O51
PAPER AND CARD	7.85%	8.84%	9.56%	10.65%	9.70%	9.60%	10.38%	11.61%	11.48%	12.71%	8.16%	9.73%
TEXTILES	2.24%	1.71%	1.59%	1.77%	3.76%	2.01%	5.09%	0.54%	2.12%	1.66%	6.01%	4.53%
MISC. COMBUSTIBLE*	3.02%	6.22%	8.06%	5.40%	5.56%	4.37%	3.47%	8.24%	3.67%	4.51%	16.74%	7.54%
	2.19%	4.73%	6.49%	4.15%	4.07%	3.51%	3.37%	6.69%	2.81%	2.29%	12.79%	6.84%
PUTRESCIBLES	25.54%	45.62%	46.93%	44.53%	41.83%	36.77%	57.49%	40.89%	46.74%	23.87%	20.02%	34.22%
FINES	0.34%	0.42%	0.53%	0.46%	0.54%	0.56%	0.35%	0.46%	1.29%	0.80%	0.35%	0.42%
TOTAL BIODEGRADABLE	38.99%	62.82%	66.67%	62.81%	61.38%	53.31%	76.78%	61.74%	65.30%	43.55%	51.27%	56.45%

Table 4.5.1b: Percentage composition of residual waste per Acorn – biodegradable materials

BIODEGRADABLE CONTRIBUTION	ACORN 1	ACORN 2	ACORN 3	ACORN 4	ACORN 5	WEIGHTED
PAPER AND CARD	7.85%	9.70%	9.64%	11.05%	10.11%	9.97%
TEXTILES	2.24%	1.69%	2.71%	2.86%	4.15%	3.07%
MISC. COMBUSTIBLE*	3.02%	6.63%	4.85%	5.19%	9.95%	6.68%
	2.19%	5.19%	3.73%	4.42%	7.56%	5.20%
PUTRESCIBLES	25.54%	45.75%	38.79%	49.37%	25.65%	36.53%
FINES	0.34%	0.47%	0.55%	0.59%	0.52%	0.53%
TOTAL BIODEGRADABLE	38.99%	64.23%	56.53%	69.05%	50.38%	56.79%

* Disposable nappies are part of the miscellaneous combustible section. Their contribution to this section of biodegradable waste is highlighted in red.

Table 4.6.1b: Percentage composition of residual waste per sample – packaging materials

PACKAGING CONTRIBUTION	1C9	2E19	2F20	2F21	3G25	3H31	4K38 (M)	4K38 (H)	4M42	5N45	5N48	5O51
PAPER AND CARD	3.60%	4.72%	5.17%	5.20%	6.03%	4.09%	4.91%	5.56%	6.33%	3.20%	3.42%	4.15%
PLASTIC FILM	0.21%	1.60%	2.16%	1.78%	1.51%	1.29%	1.51%	1.82%	1.65%	1.56%	1.09%	1.56%
DENSE PLASTIC	2.12%	3.36%	3.42%	2.37%	2.86%	1.37%	3.66%	1.76%	2.88%	1.78%	1.44%	2.87%
GLASS	0.78%	5.33%	7.77%	1.53%	6.96%	0.84%	0.58%	1.75%	1.87%	1.81%	3.59%	3.76%
METALS	1.20%	1.87%	1.45%	1.77%	1.89%	1.21%	2.59%	0.93%	2.32%	1.46%	2.13%	1.95%
TOTAL PACKAGING	7.91%	16.88%	19.97%	12.64%	19.25%	8.80%	13.24%	11.82%	15.05%	9.81%	11.67%	14.30%

Table 4.6.1b: Percentage composition of residual waste per Acorn – packaging materials

PACKAGING CONTRIBUTION	ACORN 1	ACORN 2	ACORN 3	ACORN 4	ACORN 5	WEIGHTED
PAPER AND CARD	3.60%	5.04%	4.86%	5.44%	3.57%	4.50%
PLASTIC FILM	0.21%	1.86%	1.38%	1.65%	1.39%	1.42%
DENSE PLASTIC	2.12%	3.06%	1.96%	2.83%	1.99%	2.27%
GLASS	0.78%	4.99%	3.29%	1.26%	3.07%	2.87%
METALS	1.20%	1.68%	1.48%	1.95%	1.86%	1.70%
TOTAL PACKAGING	7.91%	16.63%	12.97%	13.12%	11.88%	12.76%

5) Mixed dry recycling waste

5.1 Set out rates and waste generation

Table 5.1.1 and Figure 5.1.1 highlight the average set out rates for orange sacks observed at the times waste was collected for compositional analysis. Table 5.1.2 and Figure 5.1.2 show the average amount of mixed recycling waste generated in kg/hh/wk. The same houses that had their residual waste surveyed were visited. It was possible to calculate the set out relating to the proportion of these households actively placing out their waste. The amount of waste in kilograms per household per week is derived from the number of households who could set out waste and not just those that are participating. Set out rates for mixed recycling waste ranged between 54% for Acorn 2 and 67% for Acorn1. Across Leicester it is estimated that around 60% of residents are placing out their orange sacks for collection.

Just 37% of households in Acorn 2E-19 and 40% of those in Acorn 4K-38(M) were seen to be setting out recycling for collection. This compares with 74% of households in the Acorn 4K-38(H) sample area.

In this survey the average amount of mixed recycling generated in orange sacks ranged between 1.46kg/hh/wk from Acorn 4 to 2.92kg/hh/wk from Acorn 1. Across Leicester around 2.10kg/hh/wk of orange sack recycling waste is being placed out for collection at the kerbside.

Just 0.83kg/hh/wk of recycling waste was collected from households in Acorn 4K-38(M). This was 0.50kg/hh/wk less than the amount collected from the next lowest sample area (1.33kg/hh/wk from Acorn 2F-21) and over 2kg/hh/wk less than households in the Acorn 1 sample area.

Table 5.1.1: Average set out for mixed recycling waste (%)

Acorn Sample	Acorn Type	Acorn Category	Weighted
1C9	66.67%	66.67%	59.99%
2E19	36.73%	54.09%	
2F20	66.00%		
2F21	46.94%		
3G25	58.00%	63.00%	
3H31	68.00%		
4K38 (M)	40.00%	55.69%	
4K38 (I)	74.00%		
4M42	53.06%		
5N45	60.42%	61.37%	
5N48	57.69%		
5O51	66.00%		

Figure 5.1.1: Average set out for mixed recycling waste (%)

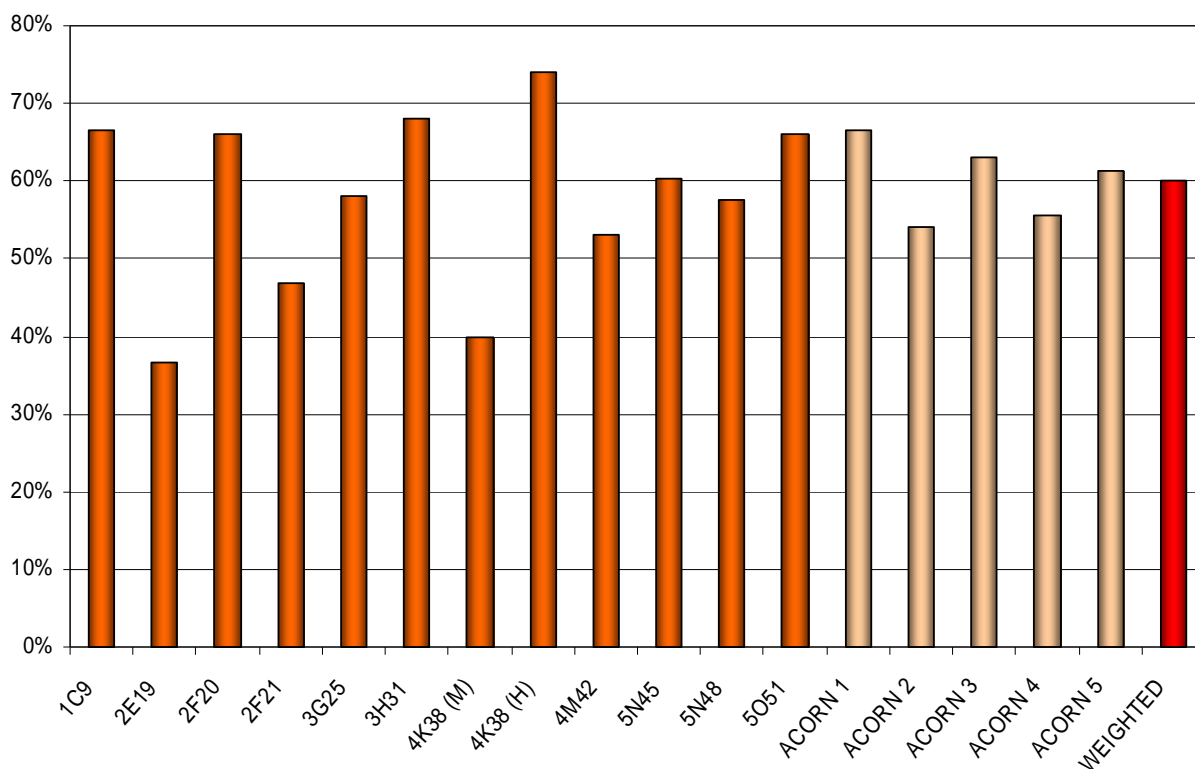
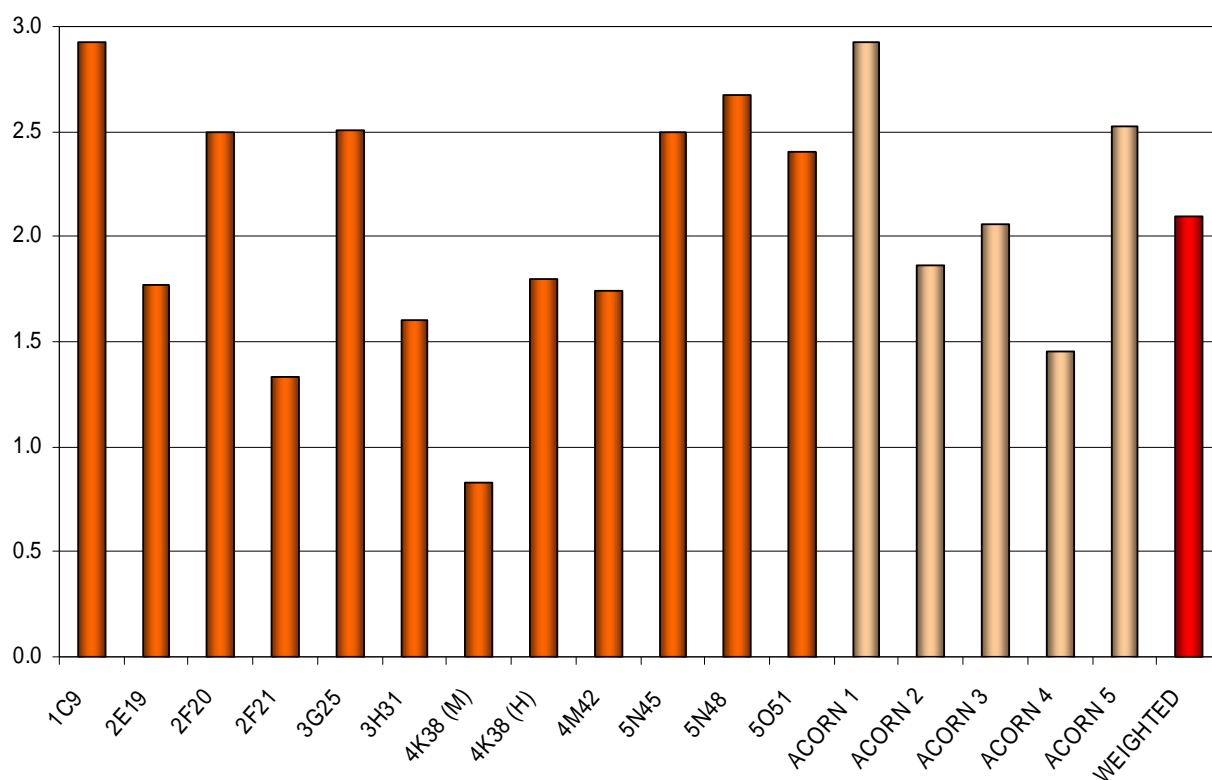


Table 5.1.2: Average mixed recycling waste generation rates (kg/hh/wk)

Acorn Sample	Acorn Type	Acorn Category	Weighted
1C9	2.92	2.92	2.10
2E19	1.77	1.86	
2F20	2.50		
2F21	1.33		
3G25	2.51	2.06	
3H31	1.60		
4K38 (M)	0.83	1.46	
4K38 (I)	1.80		
4M42	1.74		
5N45	2.50	2.53	
5N48	2.68		
5O51	2.40		

Figure 5.1.2: Average mixed recycling waste generation rates (kg/hh/wk)



5.2 Compositional analysis of mixed recycling waste

This section looks at the average amount and composition of the mixed recycling waste presented by households sampled throughout Leicester. Hand sorting of the recycling waste gave concentration by weight figures for the fifteen main categories of waste as well as the more detailed sub-categories. The same households were surveyed that were used for the residual waste samples.

Results can again be expressed in terms of percentage concentration and kg/hh/wk for individual samples and in relation to the household Acorn type surveyed. Tables 5.2.1 & 5.2.2 and Figure 5.2.1 & 5.2.2 show mixed recycling data in terms of percentage composition with Tables 5.2.3 & 5.2.4 and Figure 5.2.3 & 5.2.4 showing generation rates for major materials in terms of kg/hh/wk for each sample taken from the orange recycling sacks.

As residual waste will contain a proportion that is classified as potentially recyclable; then recycling waste will contain a fraction that is deemed to be contamination. That is to say that it is not compatible with the materials currently acceptable to the recycling sacks it is placed into.

Table 5.2.1: Composition of mixed recycling (% concentration) by Acorn samples

ORANGE SACK RECYCLING	1C9	2E19	2F20	2F21	3G25	3H31	4K38 (M)	4K38 (H)	4M42	5N45	5N48	5O51
RECYCLABLE PAPER	52.67%	16.45%	18.37%	33.64%	35.82%	23.29%	11.85%	26.08%	28.92%	50.17%	18.38%	45.97%
RECYCLABLE CARD & CARDBOARD	12.02%	21.76%	16.12%	15.69%	15.04%	21.53%	16.07%	22.00%	16.29%	14.32%	18.10%	10.36%
RECYCLABLE PLASTIC FILM	3.77%	6.16%	3.37%	5.56%	5.99%	5.43%	4.17%	3.96%	5.56%	4.13%	5.78%	4.27%
RECYCLABLE DENSE PLASTICS	2.15%	11.67%	12.02%	16.55%	10.98%	21.16%	31.37%	16.78%	13.69%	10.85%	14.43%	9.73%
RECYCLABLE GLASS	20.96%	30.12%	34.32%	14.80%	19.50%	13.52%	19.66%	17.71%	23.00%	10.43%	22.72%	17.59%
RECYCLABLE METALS	3.82%	5.49%	7.41%	7.55%	10.02%	9.50%	6.26%	7.39%	6.52%	5.52%	10.08%	5.83%
TOTAL CONTAMINATION	4.61%	8.35%	8.40%	6.20%	2.65%	5.57%	10.62%	6.07%	6.02%	4.57%	10.51%	6.25%
TOTAL WEIGHT	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Table 5.2.2: Composition of mixed recycling (% concentration) averaged by Acorn and weighted for Leicester

ORANGE SACK RECYCLING	ACORN 1	ACORN 2	ACORN 3	ACORN 4	ACORN 5	WEIGHTED
RECYCLABLE PAPER	52.67%	21.39%	30.94%	24.51%	37.61%	33.29%
RECYCLABLE CARD & CARDBOARD	12.02%	17.80%	17.57%	18.60%	14.40%	16.08%
RECYCLABLE PLASTIC FILM	3.77%	4.77%	5.77%	4.64%	4.76%	4.93%
RECYCLABLE DENSE PLASTICS	2.15%	12.98%	14.95%	18.32%	11.76%	12.97%
RECYCLABLE GLASS	20.96%	28.35%	17.17%	20.19%	17.04%	19.11%
RECYCLABLE METALS	3.82%	6.84%	9.82%	6.83%	7.23%	7.54%
TOTAL CONTAMINATION	4.61%	7.86%	3.79%	6.91%	7.20%	6.08%
TOTAL WEIGHT	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Figure 5.2.1: Composition of mixed recycling (% concentration) by Acorn samples

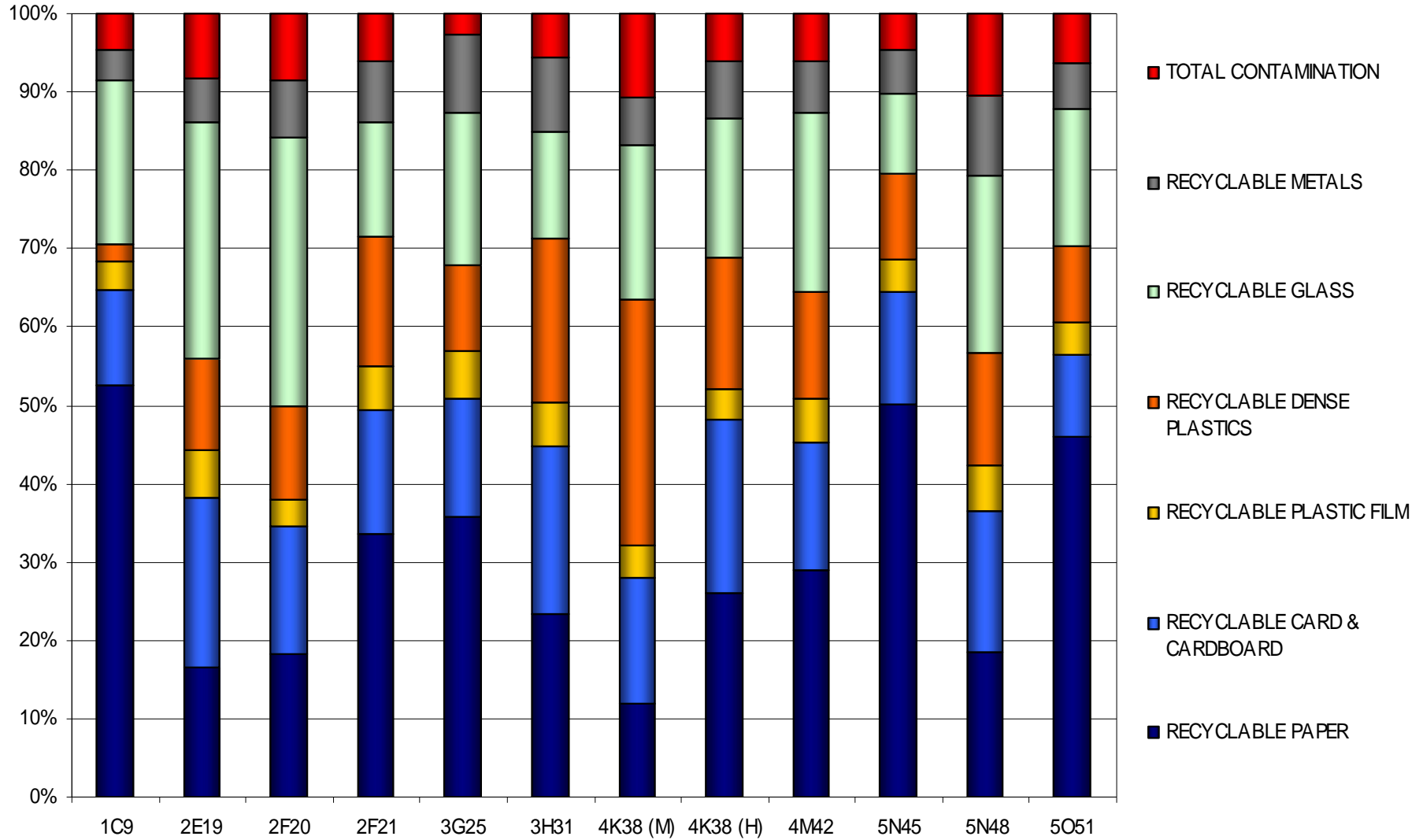


Figure 5.2.2: Composition of mixed recycling (% concentration) averaged by Acorn and weighted for Leicester

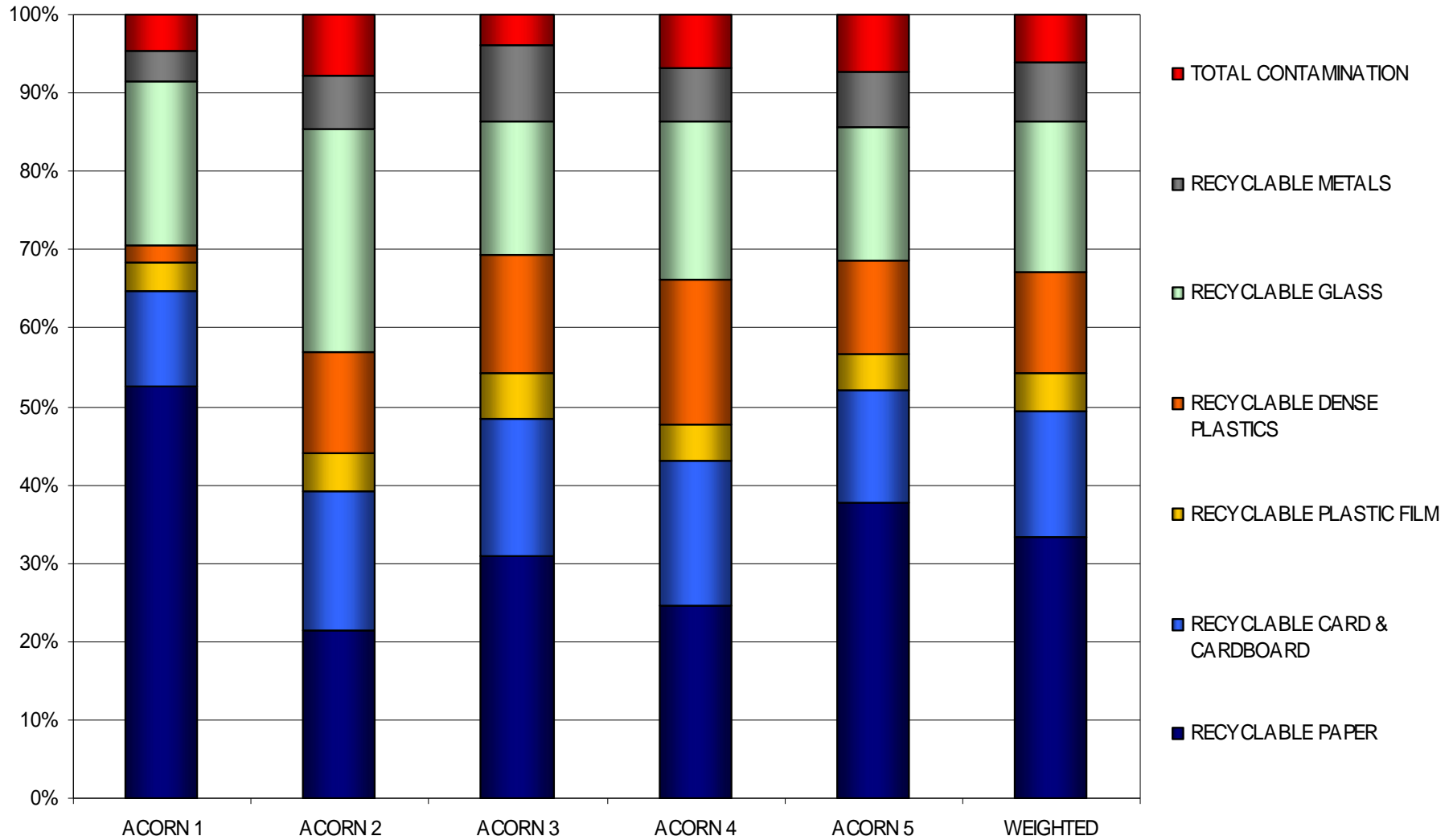


Table 5.2.3 Levels of mixed recycling (kg/hh/wk) by Acorn samples

ORANGE SACK RECYCLING	1C9	2E19	2F20	2F21	3G25	3H31	4K38 (M)	4K38 (H)	4M42	5N45	5N48	5O51
RECYCLABLE PAPER	1.54	0.29	0.46	0.45	0.90	0.37	0.10	0.47	0.50	1.25	0.49	1.11
RECYCLABLE CARD & CARDBOARD	0.35	0.38	0.40	0.21	0.38	0.34	0.13	0.40	0.28	0.36	0.48	0.25
RECYCLABLE PLASTIC FILM	0.11	0.11	0.08	0.07	0.15	0.09	0.03	0.07	0.10	0.10	0.15	0.10
RECYCLABLE DENSE PLASTICS	0.06	0.21	0.30	0.22	0.28	0.34	0.26	0.30	0.24	0.27	0.39	0.23
RECYCLABLE GLASS	0.61	0.53	0.86	0.20	0.49	0.22	0.16	0.32	0.40	0.26	0.61	0.42
RECYCLABLE METALS	0.11	0.10	0.19	0.10	0.25	0.15	0.05	0.13	0.11	0.14	0.27	0.14
TOTAL CONTAMINATION	0.13	0.15	0.21	0.08	0.07	0.09	0.09	0.11	0.10	0.11	0.28	0.15
TOTAL WEIGHT	2.92	1.77	2.50	1.33	2.51	1.60	0.83	1.80	1.74	2.50	2.68	2.40

Table 5.2.4: Levels of mixed recycling (% concentration) averaged by Acorn and weighted for Leicester

ORANGE SACK RECYCLING	ACORN 1	ACORN 2	ACORN 3	ACORN 4	ACORN 5	WEIGHTED
RECYCLABLE PAPER	1.54	0.40	0.64	0.36	0.95	0.70
RECYCLABLE CARD & CARDBOARD	0.35	0.33	0.36	0.27	0.36	0.34
RECYCLABLE PLASTIC FILM	0.11	0.09	0.12	0.07	0.12	0.10
RECYCLABLE DENSE PLASTICS	0.06	0.24	0.31	0.27	0.30	0.27
RECYCLABLE GLASS	0.61	0.53	0.35	0.29	0.43	0.40
RECYCLABLE METALS	0.11	0.13	0.20	0.10	0.18	0.16
TOTAL CONTAMINATION	0.13	0.15	0.08	0.10	0.18	0.13
TOTAL WEIGHT	2.92	1.86	2.06	1.46	2.53	2.10

Figure 5.2.3 Levels of mixed recycling (kg/hh/wk) by Acorn samples

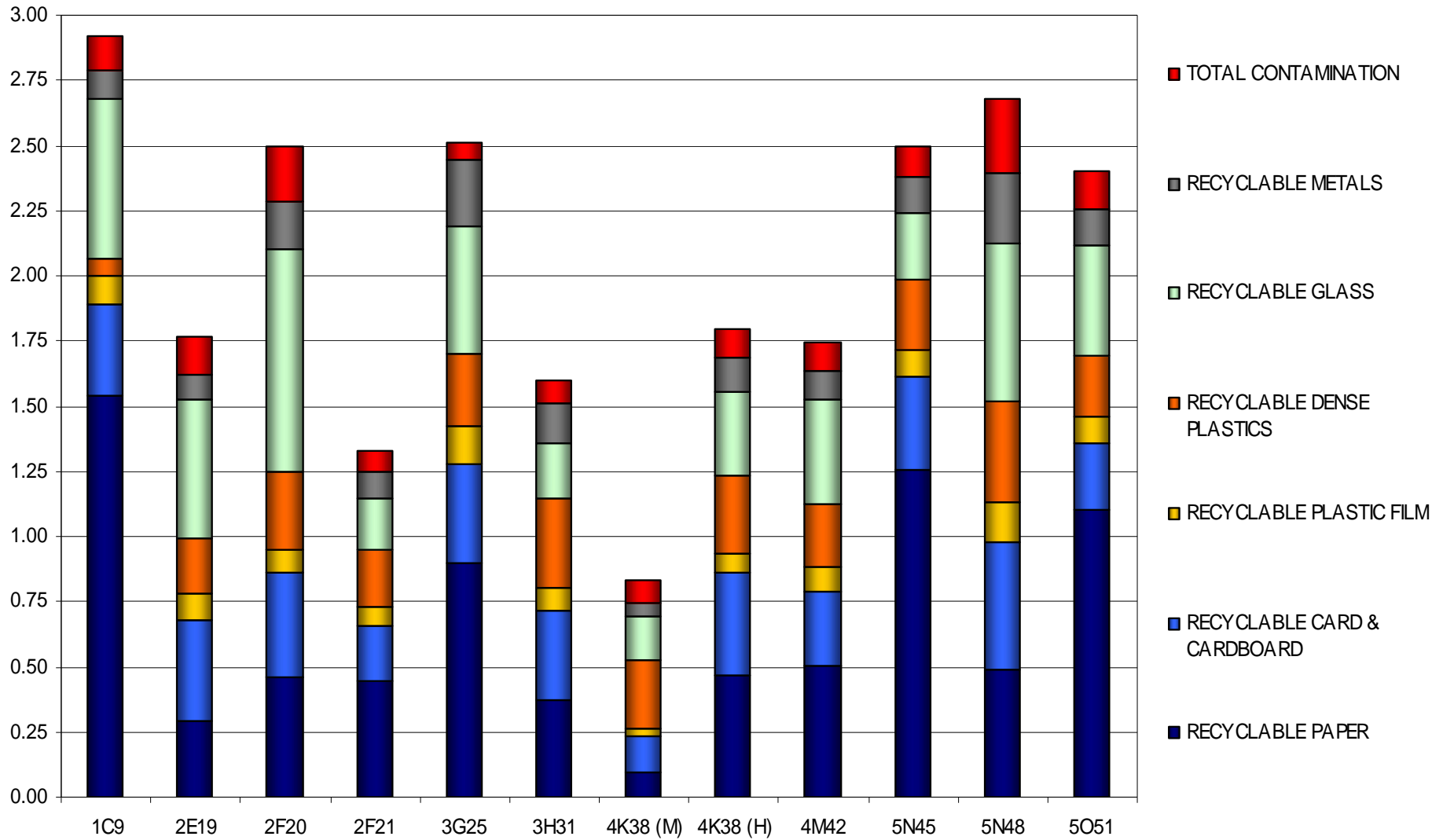
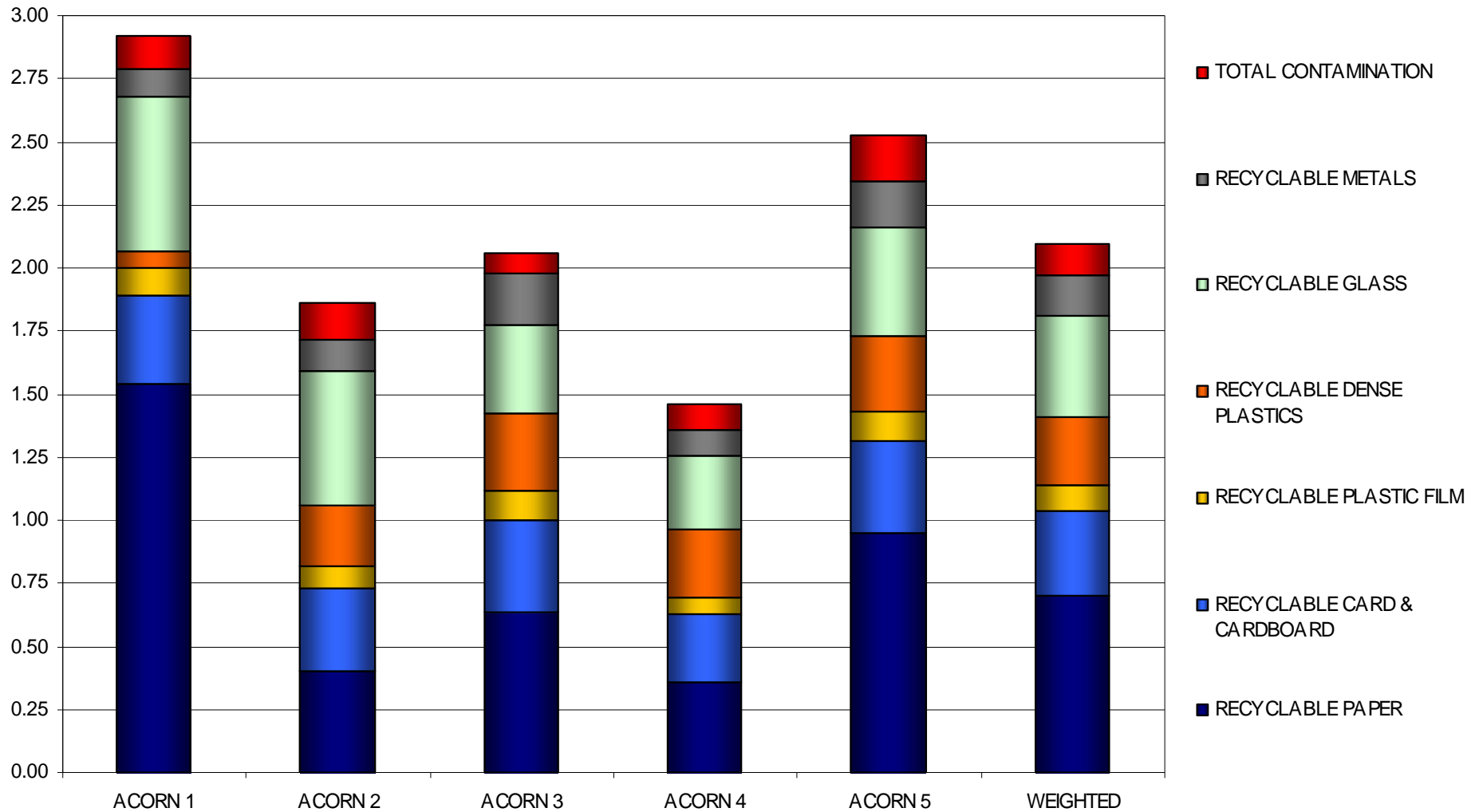


Figure 5.2.4: Levels of mixed recycling (% concentration) averaged by Acorn and weighted for Leicester



5.3 Materials placed out for mixed recycling collections

This chapter looks in more detail at the individual materials placed out for orange sack recycling collections and highlights the effectiveness with which the mixed recycling scheme is capturing these items. Looking at the relationship between the residual and recycling waste streams presented will additionally give indications as to the overall diversion being achieved in the Leicester samples. Tables 5.3.1 & 5.3.2 summarise the capture and diversion rates seen for the range of materials collected in the dry recycling collections. Recyclable paper, card & cardboard, plastics, glass and metals are collected in the supplied orange sacks.

Across Leicester around 55.6% of all the materials currently compatible with orange sack recycling collections are being correctly recycled at the kerbside. Residents in Acorn 2 and 4 areas are capturing less than half of the available materials in their orange sacks. In comparison almost three quarters of the recyclable materials from Acorn 1 are being correctly disposed of in orange sacks. Householders from the 4K38 (M) sample area only managed to capture 28% of all the recyclable materials that they were disposing of at the kerbside. The capture rates for individual materials are discussed more fully in the following sections.

Overall around 17.7% of kerbside waste is being diverted through orange sack recycling collections throughout Leicester. The lowest diversion rates were seen in Acorn 4 at around 14.7%; this compares with 24.7% for Acorn 1. Householders from the 4K38 (M) sample area only managed to divert 6.8% of all their waste through the orange sack collections.

Table 5.3.1: Summary table for material capture and diversion rates (%) for mixed recycling by Acorn sample

RECYCLING RATES	1C9	2E19	2F20	2F21	3G25	3H31	4K38 (M)	4K38 (H)	4M42	5N45	5N48	5O51
% CAPTURE RECYCLABLE PAPER	88.10%	49.98%	58.55%	53.62%	77.79%	47.50%	21.66%	48.86%	66.61%	78.01%	50.78%	73.90%
% CAPTURE RECYCLABLE CARD & CARDBOARD	55.91%	57.93%	51.15%	41.66%	48.85%	44.17%	25.23%	53.14%	54.29%	58.16%	67.77%	45.43%
% CAPTURE RECYCLABLE PLASTIC FILM	41.77%	29.60%	18.49%	19.68%	37.03%	21.64%	7.69%	20.33%	37.82%	27.70%	38.55%	29.51%
% CAPTURE RECYCLABLE DENSE PLASTICS	26.67%	45.69%	49.39%	53.63%	60.75%	67.06%	41.15%	68.96%	63.53%	63.51%	71.99%	48.97%
% CAPTURE RECYCLABLE GLASS	90.32%	56.96%	54.97%	61.58%	46.50%	67.89%	73.61%	68.88%	81.26%	61.25%	61.89%	56.26%
% CAPTURE RECYCLABLE METALS	49.52%	39.20%	55.95%	40.12%	59.39%	49.53%	16.02%	61.85%	48.69%	49.07%	53.16%	43.37%
% CAPTURE ALL RECYCLABLE	73.78%	49.88%	50.58%	46.35%	57.30%	48.80%	28.41%	53.29%	62.09%	63.95%	58.26%	57.15%
% DIVERSION	24.69%	17.39%	19.83%	13.33%	23.07%	10.99%	6.75%	16.88%	24.52%	20.50%	18.28%	20.23%

Table 5.3.2: Summary table for material capture and diversion rates (%) for mixed recycling averaged by Acorn & weighted for Leicester

RECYCLING RATES	ACORN 1	ACORN 2	ACORN 3	ACORN 4	ACORN 5	WEIGHTED
% CAPTURE RECYCLABLE PAPER	88.10%	54.42%	65.54%	49.36%	70.02%	66.21%
% CAPTURE RECYCLABLE CARD & CARDBOARD	55.91%	51.02%	46.50%	45.26%	58.10%	50.77%
% CAPTURE RECYCLABLE PLASTIC FILM	41.77%	22.27%	29.37%	19.19%	32.14%	27.70%
% CAPTURE RECYCLABLE DENSE PLASTICS	26.67%	49.44%	64.08%	55.37%	61.85%	58.32%
% CAPTURE RECYCLABLE GLASS	90.32%	56.38%	51.48%	74.96%	59.80%	60.77%
% CAPTURE RECYCLABLE METALS	49.52%	46.16%	55.25%	38.62%	49.28%	48.92%
% CAPTURE ALL RECYCLABLE	73.78%	49.27%	53.72%	48.32%	59.69%	55.62%
% DIVERSION	24.69%	17.07%	16.24%	14.70%	19.60%	17.70%

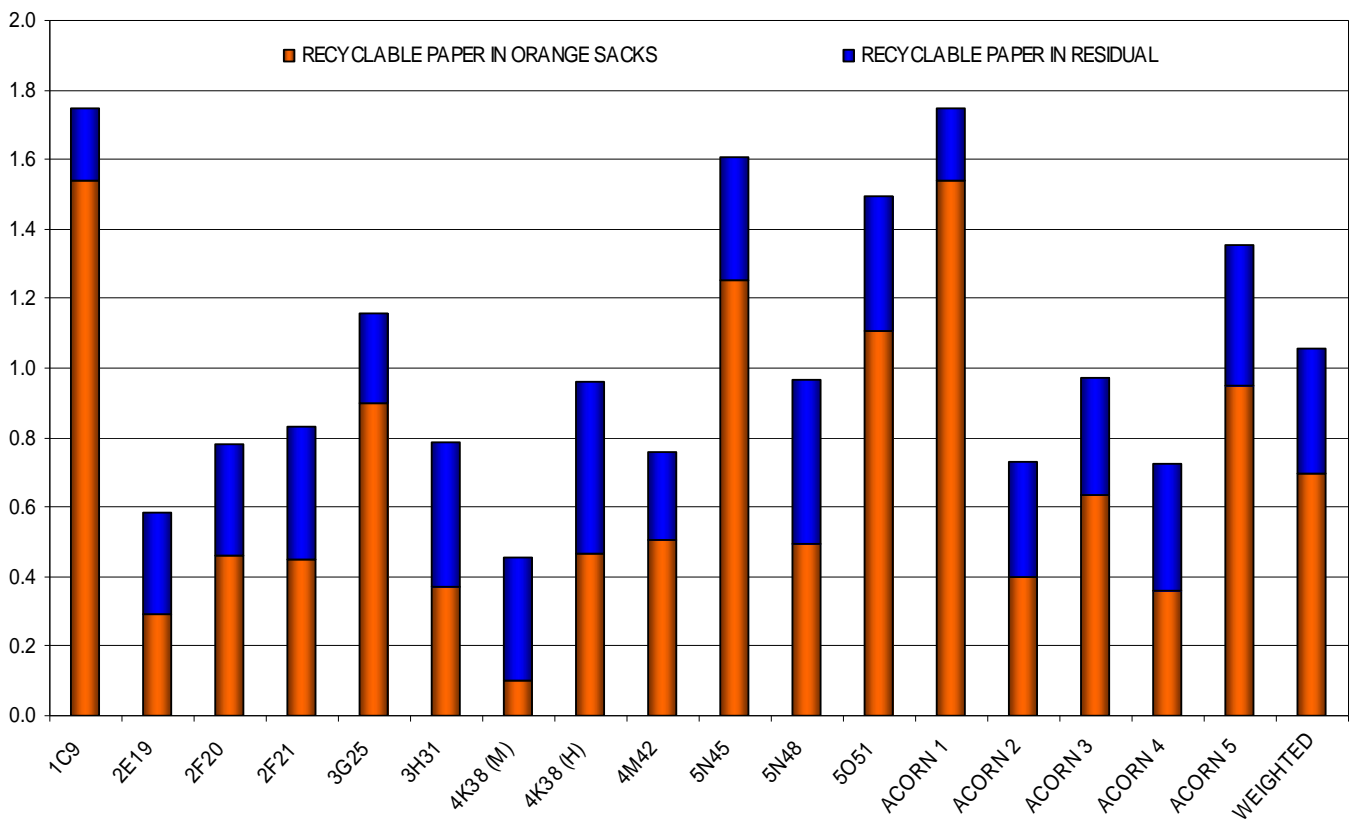
5.3.1 Paper Capture

Acorn 1 residents captured the highest proportion of their recyclable paper with 88% correctly being recycled; they generated 1.75kg/hh/wk of this material which was the highest level seen. Residents in Acorn 4 areas captured the least recyclable paper at 49% additionally they also generated the least of this recyclable paper at 0.72kg/hh/wk.

Across Leicester it is estimated that 1.06kg/hh/wk of recyclable paper is generated with around 66% being correctly placed into orange sacks.

There are many different forms of paper and decisions have to be made by residents as to whether a particular piece of paper is to go into the recycling or residual waste. On average, the majority of all recyclable forms of paper are being correctly diverted by most of the sample areas although there is around 0.36kg/hh/wk of potentially recyclable paper not being placed into orange sacks. Figure 5.3.1.1 shows the distribution of recyclable paper throughout the residual and recycling waste by Acorn category.

Figure 5.3.1.1: Distribution of recyclable paper within residual and mixed recycling samples (kg/hh/wk)



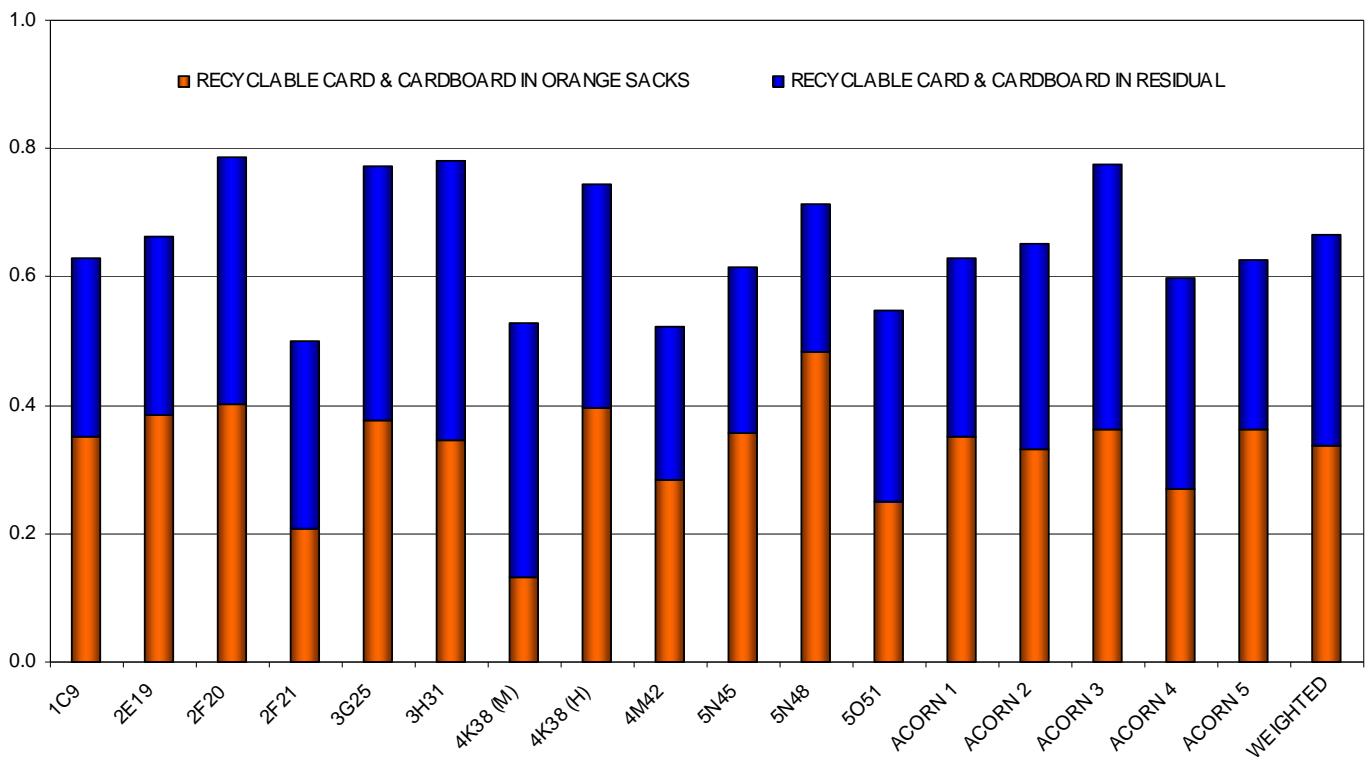
5.3.2 Card & Cardboard Capture

Acorn 5 residents captured the highest proportion of their recyclable card & cardboard with 58% correctly being recycled; they generated 0.63kg/hh/wk of this material. Residents in Acorn 4 areas captured the least at 45% and also generated the least recyclable card & cardboard at 0.60kg/hh/wk. Acorn 3 households generated the most of this recyclable card & cardboard at 0.78kg/hh/wk.

Across Leicester it is estimated that 0.66kg/hh/wk of recyclable card and cardboard is generated with around 51% being correctly placed into orange sacks.

As for paper, are many different forms of card & cardboard and decisions have to be made by residents as to whether a particular piece is to go into the recycling or residual waste. The majority of all recyclable forms of card & cardboard are being correctly diverted by most of the sample areas although there is around 0.33kg/hh/wk of potentially recyclable card & cardboard not being placed into orange sacks. Figure 5.3.2.1 shows the distribution of recyclable card & cardboard throughout the residual and recycling waste by Acorn category.

Figure 5.3.2.1: Distribution of recyclable card within residual and mixed recycling samples (kg/hh/wk)



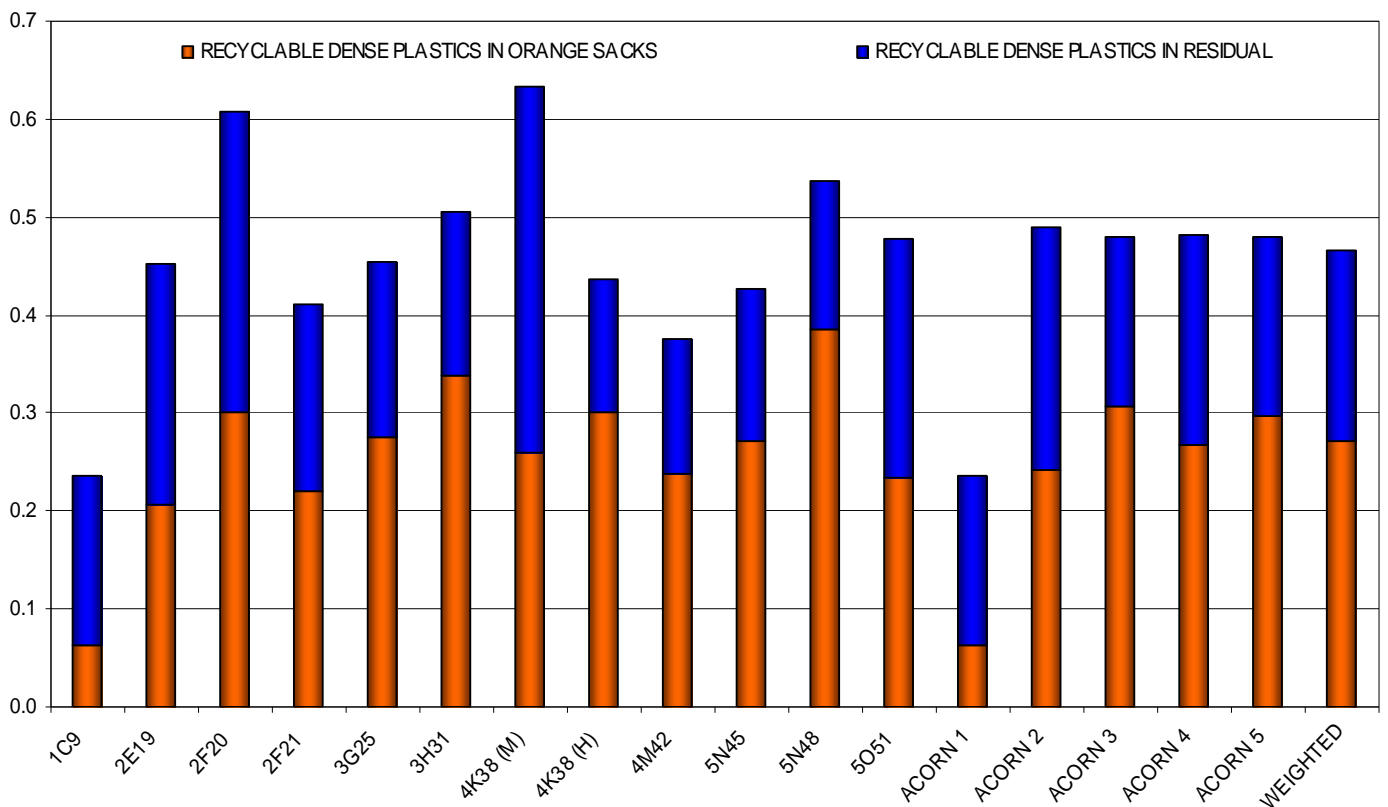
5.3.3 Dense Plastic Packaging Capture

Acorn 3 residents captured the highest proportion of their recyclable plastic bottles & packaging containers with 64% correctly being recycled; they generated 0.48kg/hh/wk of this material. Residents in Acorn 1 areas captured the least recyclable plastic bottles & packaging containers at 27% they generated 0.24kg/hh/wk which was the lowest level seen. Acorn 2 households created the most plastic packaging waste at 0.49kg/hh/wk.

Across Leicester it is estimated that 0.47kg/hh/wk of recyclable plastic bottles & packaging containers are generated with around 58% being correctly placed into orange recycling sacks. Interestingly around 69% of plastic bottles were captured compared with just 39% of other forms of recyclable plastic packaging.

Plastic bottles, trays, tubs and pots are easily identifiable when compared with other non-recyclable plastics. The majority of all recyclable plastic bottles & packaging containers are being correctly diverted by most of the sample areas and there is 0.19kg/hh/wk of these materials not being placed into orange sacks. Figure 5.3.3.1 shows the distribution of recyclable dense plastics throughout the residual and recycling waste by Acorn category.

Figure 5.3.3.1: Distribution of recyclable plastic bottles within residual and mixed recycling samples (kg/hh/wk)

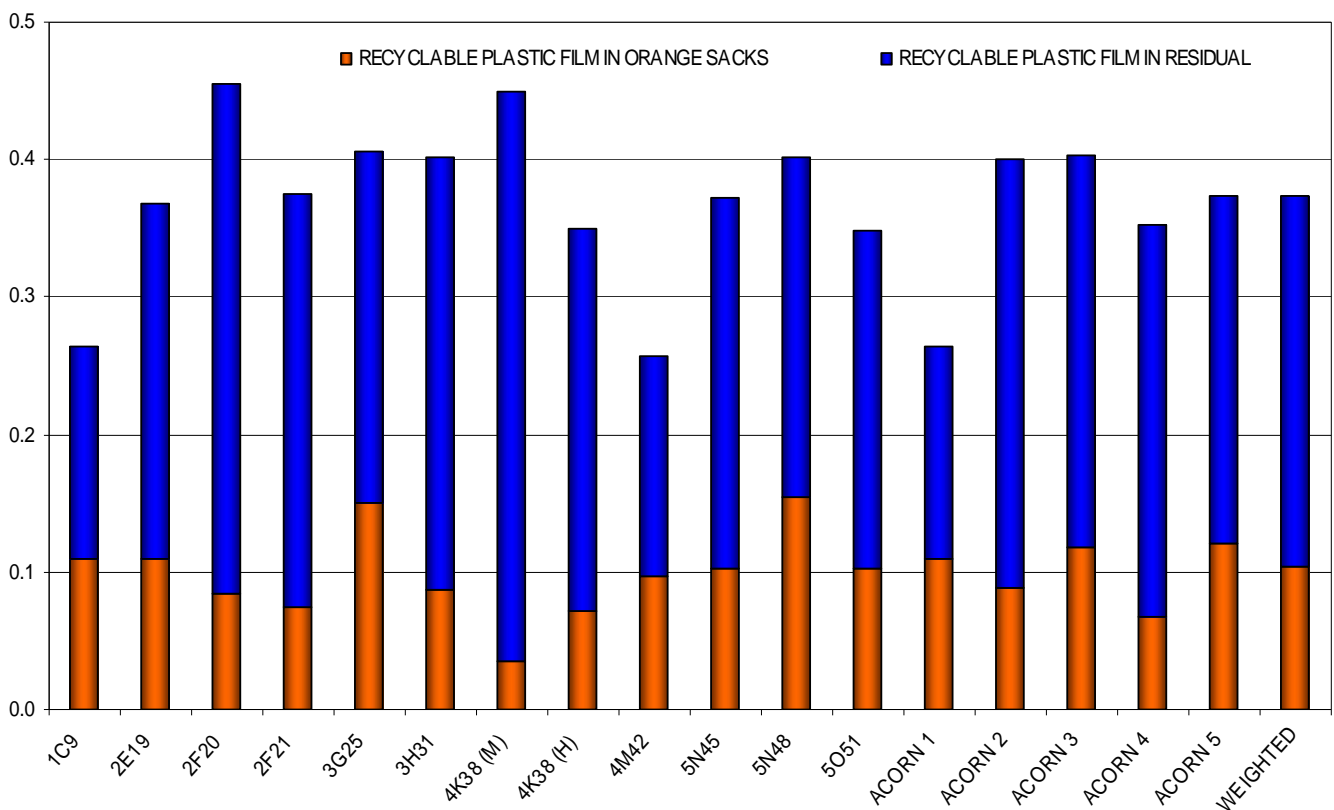


5.3.4 Plastic Film Capture

As well as plastic bottles and packaging containers, plastic films are included in the list of items that can be recycled in orange sacks. Acorn 1 residents captured the highest proportion of their recyclable plastic film with 42% correctly being recycled; they generated just 0.26kg/hh/wk of this material. Residents in Acorn 4 areas captured the lowest proportion of their recyclable plastic film at 19%. Acorn 2 and 3 households disposed of the most plastic film at 0.40kg/hh/wk. Across Leicester it is estimated that 0.37kg/hh/wk of recyclable plastic film is generated with around 28% being correctly placed into orange sacks.

Figure 5.3.4.1 shows the distribution of plastic film. In general it is seen that this is the least effectively recycled material with only four of the twelve individual sample areas capturing more than a third of that available.

Figure 5.3.4.1: Distribution of recyclable plastic film within residual and mixed recycling samples (kg/hh/wk)

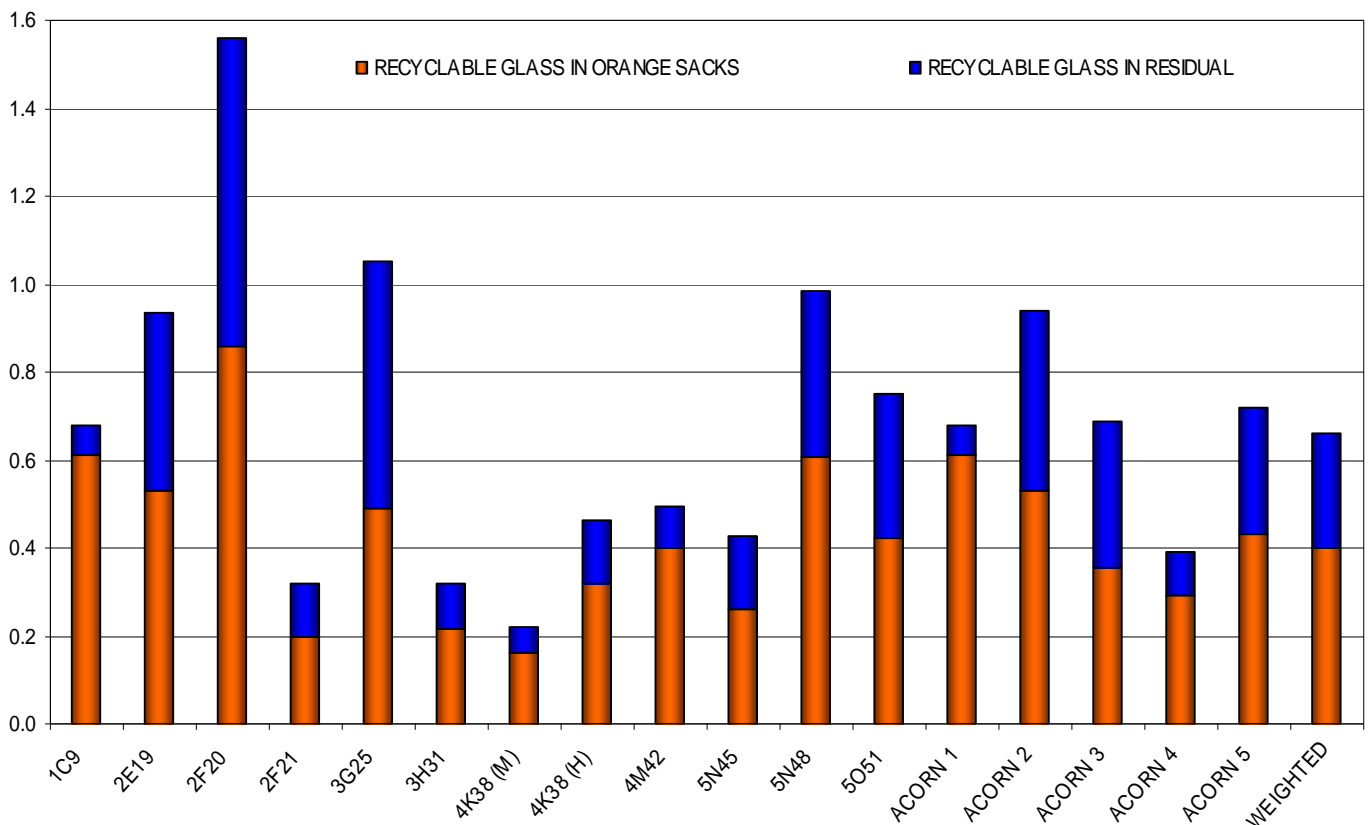


5.3.5 Glass Capture

Acorn 1 residents captured the highest proportion of their recyclable glass with 90% correctly being recycled, while residents from communal bin areas captured just 53%. Acorn 2 households produced the most recyclable glass in their combined kerbside waste at 0.94kg/hh/wk compared with 0.39kg/hh/wk from Acorn 4. On average, 61% of all recyclable glass is being correctly diverted by the Leicester residents sampled with around 0.66kg/hh/wk being sampled.

Overall capture rates for coloured glass were 64% with 59% of clear glass similarly captured. Clear glass is generally considered to be more highly valued as a recyclate and is often seen to be the case that empty jars are more messy than empty bottles and residents may not clean them for recycling, thus choosing to place them in the residual bins. On average, the vast majority of all recyclable forms of glass are being correctly diverted by the residents sampled although there is around 0.26kg/hh/wk of potentially recyclable glass not being placed into orange sacks. Figure 5.3.5.1 shows the distribution of recyclable glass throughout the residual and mixed recycling waste.

Figure 5.3.5.1: Distribution of recyclable glass within residual and mixed recycling samples (kg/hh/wk)



5.3.6 Metals Capture

Acorn 3 residents captured the highest proportion of their recyclable metals with 55.3% correctly being recycled, while residents from Acorn 4 areas captured less than 39%. Acorn 3 and 5 areas produced the most recyclable metals in their combined kerbside waste at 0.37kg/hh/wk compared with 0.23kg/hh/wk from Acorn 1. On average, 49% of all recyclable metals are being correctly diverted by Leicester residents sampled with around 0.32kg/hh/wk being generated.

Overall capture rates for drinks cans were 50.5%, with 51.8% of food tins recycled. Although not the case for this survey, is often seen that residents are unwilling to clean out food tins before recycling and this can lead to low capture rates when compared with cleaner drinks cans. Capture rates for empty aerosols were seen to be lower with just 47% of those available being placed into recycling containers. Just four of the sample areas captured the majority of all recyclable forms of metals. Overall there is around 0.17kg/hh/wk of potentially recyclable metal not being placed into orange sacks. Figure 5.3.6.1 shows the distribution of recyclable metals throughout the residual and mixed recycling waste.

Figure 5.3.6.1: Distribution of recyclable metals within residual and mixed recycling samples (kg/hh/wk)

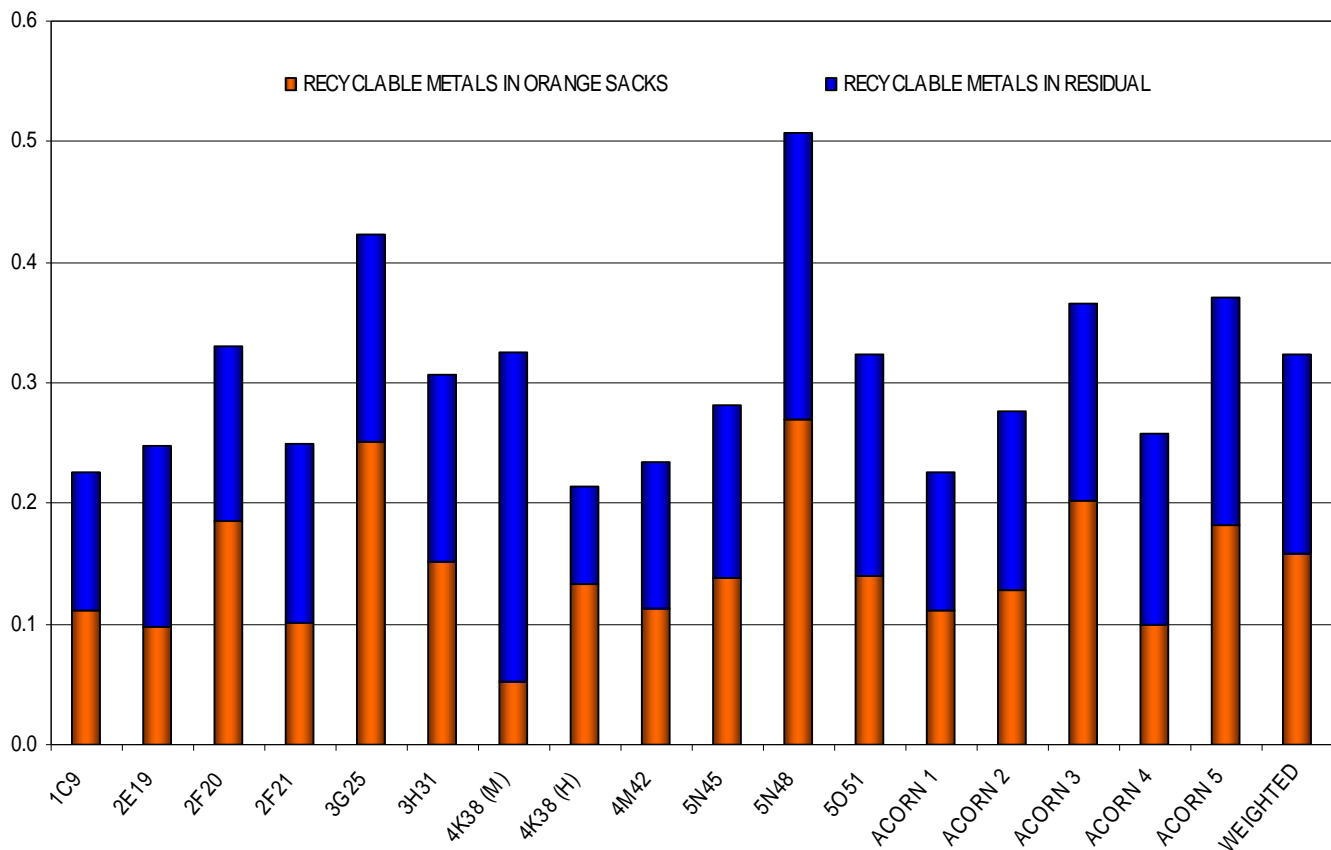
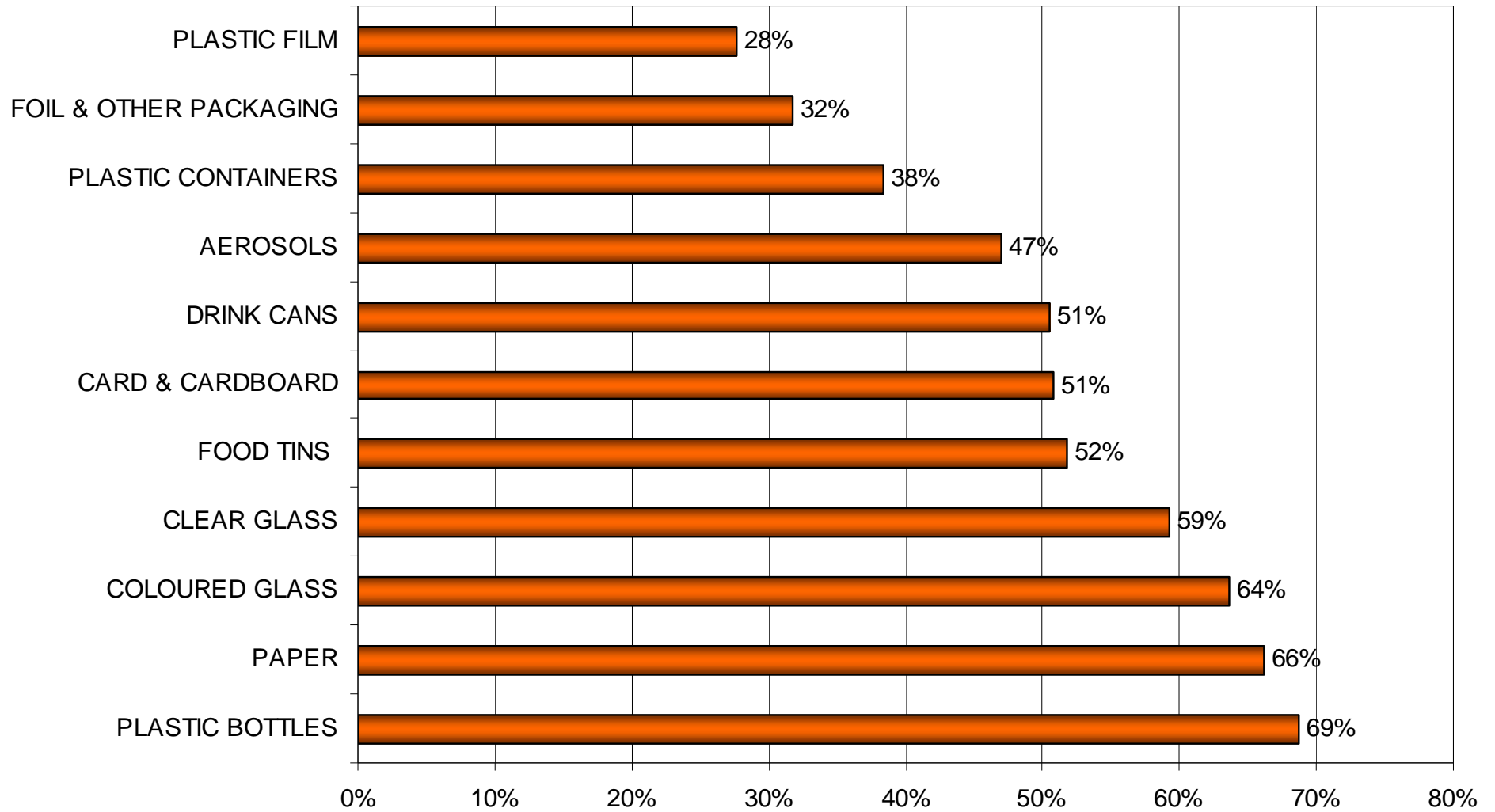


Figure 5.3.6.2: Summary chart of capture rates for orange sack recyclables – weighted for Leicester.



5.4 Orange Sack Recycling Contamination

From Table 5.2.2 it has been shown that on average 6.1% of orange sack recycling is made up of contamination. This equates to around 0.13kg/hh/wk. This section looks to breakdown the amounts and concentrations of various contaminants being placed into the recycling waste in Leicester.

Some forms of contamination may be due to residents' lack of knowledge in relation to the recycling scheme. For example a householder may believe sheet glass and glass crockery is accepted alongside recyclable glass bottles and jars. Other contamination will be formed from waste that is totally unrelated to the materials collected (i.e. disposable nappies, wood or bagged kitchen waste). Tables 5.4.1 & 5.4.2 and Figures 5.4.1 & 5.4.2 show the amounts of contamination materials recovered from the orange sacks.

The orange sacks contained between 0.08kg/hh/wk (Acorn 3) and 0.18kg/hh/wk (Acorn 5) of contamination. This represents an overall figure for Leicester of 0.13kg/hh/wk. From the individual samples the least contamination was present in Acorn 3G-25 at 0.07kg/hh/wk. The most contamination was present in the orange sacks surveyed from Acorn 5N-48 where 0.28kg/hh/wk was recovered.

Tables 5.4.3 & 5.4.4 and Figures 5.4.3 & 5.4.4 show the levels of contamination materials recovered from the orange sacks as a percentage of the total. On average 6.1% of orange sack recycling is deemed to be contamination ranging from 3.8% for Acorn 3 up to 7.9% for Acorn 2. Just 2.7% of Acorn 3G-25 recycling consisted of contaminants compared with 10.6% of that collected from Acorn 4K38 (M). Overall, 1.7% of collected recycling is due to food and garden waste with a further 1.5% being non-recyclable plastics. Almost 5% of the Acorn 2F-20 sample was seen to consist of food waste.

Therefore around 28% of the contamination was due to food and garden waste. In Acorn 5 this contamination formed 37% of the total. Non-recyclable plastics made up 35% of the contaminants present overall and 47% of those from Acorn 4. These plastics were formed of bulky white packaging polystyrene and pieces of rigid plastics which are unacceptable to the recycling scheme.

Orange sacks from Acorn 2 and 3 had higher levels of miscellaneous contamination at between a quarter and a third of the total. These materials are a combination of all the other waste contaminants that are not listed in Table 5.4.1. These items are typical of general residual waste being placed into recycling sacks, examples include, but are not limited to:-

Carpet waste (almost 2% of Acorn 2E-19 recycling)

Rubble & ceramics (over 2% of Acorn 3H-31 recycling)

HHW, WEEE & nappies which formed over 2.5% of Acorn 5N-48 recycling.

In many cases actual bags of household rubbish were present. In Acorn 2E-19 bagged residual waste formed almost 50% of the contamination present (4% of collected recycling).

Table 5.4.1: Breakdown of contamination materials in the orange sack recycling waste (kg/hh/wk) by Acorn sample

ORANGE SACK CONTAMINATION	1C9	2E19	2F20	2F21	3G25	3H31	4K38 (M)	4K38 (H)	4M42	5N45	5N48	5O51
NON-RECYCLABLE PAPER	0.01	0.01	0.04	0.01	0.01	0.01	0.00	0.00	0.01	0.01	0.02	0.01
NON-RECYCLABLE CARD & CARDBOARD	0.04	0.01	0.03	0.01	0.01	0.01	0.00	0.03	0.01	0.00	0.02	0.01
NON-RECYCLABLE PLASTICS	0.05	0.02	0.00	0.00	0.01	0.02	0.08	0.05	0.01	0.02	0.08	0.03
TEXTILES	0.00	0.04	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.02	0.01	0.00
NON-RECYCLABLE GLASS	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.02	0.01
NON-RECYCLABLE METALS	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00
FOOD & GARDEN WASTE	0.02	0.00	0.12	0.03	0.02	0.01	0.00	0.00	0.04	0.06	0.05	0.09
ALL OTHER CONTAMINANTS	0.01	0.07	0.01	0.02	0.02	0.04	0.00	0.00	0.02	0.01	0.09	0.01
TOTAL	0.13	0.15	0.21	0.08	0.07	0.09	0.09	0.11	0.10	0.11	0.28	0.15

Table 5.4.2: Breakdown of contamination materials in the orange sack recycling waste (kg/hh/wk) averaged by Acorn and weighted for Leicester

ORANGE SACK CONTAMINATION	ACORN 1	ACORN 2	ACORN 3	ACORN 4	ACORN 5	WEIGHTED
NON-RECYCLABLE PAPER	0.01	0.02	0.01	0.00	0.01	0.01
NON-RECYCLABLE CARD & CARDBOARD	0.04	0.01	0.01	0.02	0.01	0.01
NON-RECYCLABLE PLASTICS	0.05	0.01	0.01	0.05	0.04	0.03
TEXTILES	0.00	0.02	0.00	0.00	0.01	0.01
NON-RECYCLABLE GLASS	0.01	0.00	0.00	0.00	0.01	0.01
NON-RECYCLABLE METALS	0.00	0.00	0.00	0.00	0.00	0.00
FOOD & GARDEN WASTE	0.02	0.05	0.01	0.01	0.07	0.04
ALL OTHER CONTAMINANTS	0.01	0.03	0.03	0.01	0.03	0.03
TOTAL	0.13	0.15	0.08	0.10	0.18	0.13

Figure 5.4.1: Breakdown of contamination materials in the orange sack recycling waste (kg/hh/wk) by Acorn sample

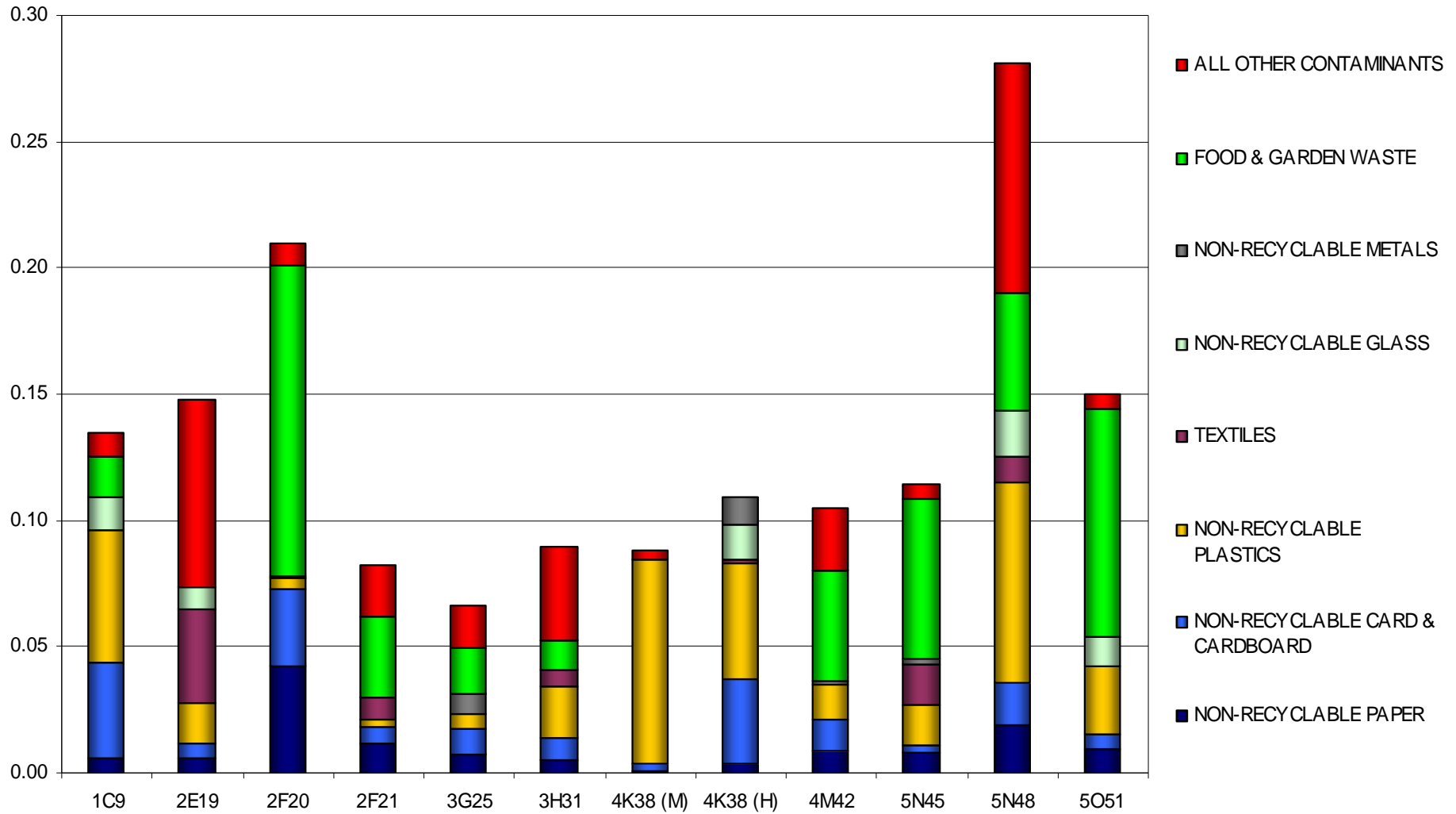


Figure 5.4.2: Breakdown of contamination materials in the orange sack recycling waste (kg/hh/wk) averaged by Acorn and weighted for Leicester

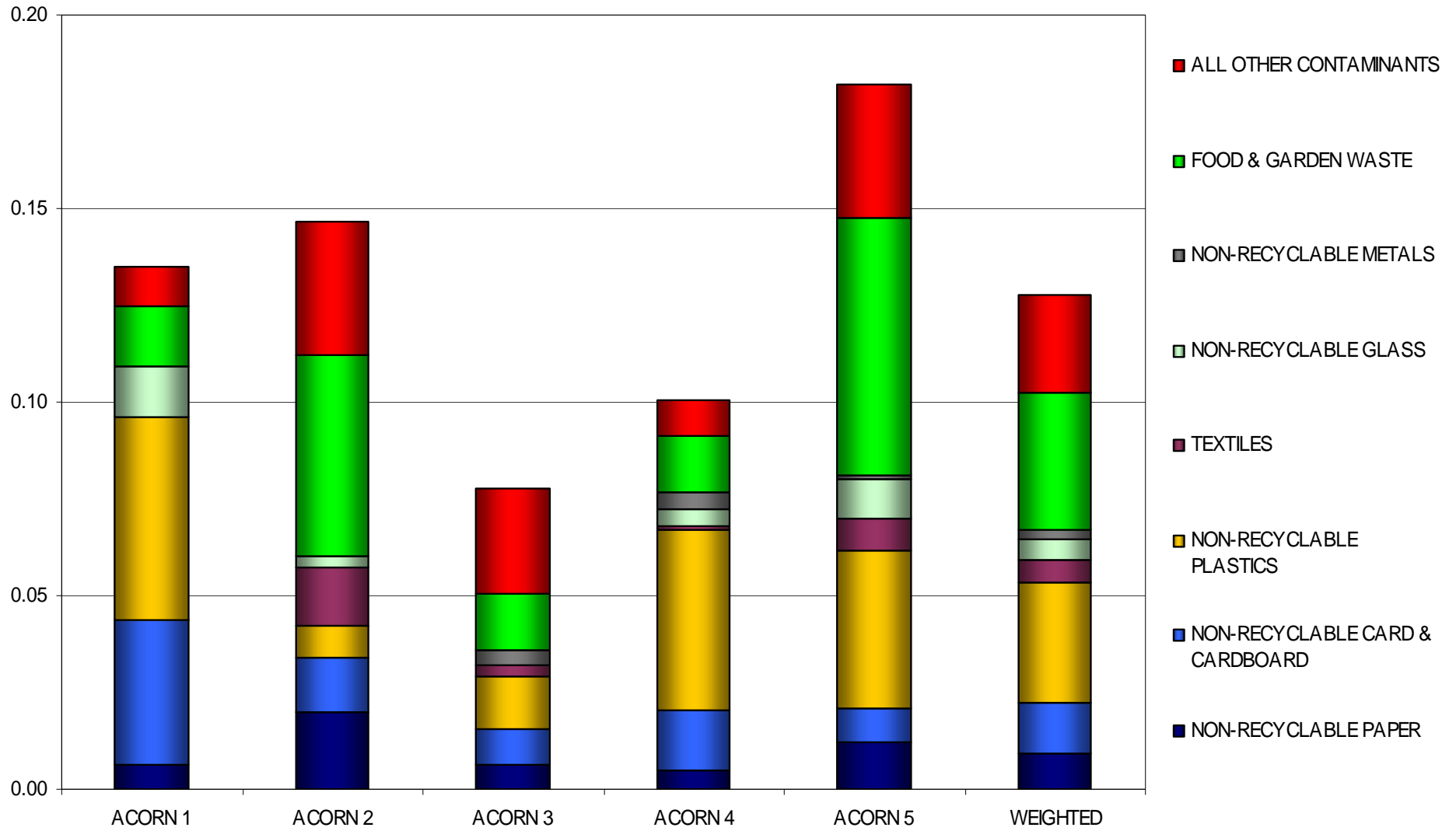


Table 5.4.3: Concentrations of contamination within the orange sack recycling waste (% of total) – by Acorn samples

ORANGE SACK CONTAMINATION	1C9	2E19	2F20	2F21	3G25	3H31	4K38 (M)	4K38 (H)	4M42	5N45	5N48	5O51
NON-RECYCLABLE PAPER	0.21%	0.33%	1.70%	0.89%	0.30%	0.34%	0.12%	0.22%	0.52%	0.33%	0.70%	0.39%
NON-RECYCLABLE CARD & CARDBOARD	1.29%	0.32%	1.21%	0.49%	0.41%	0.51%	0.31%	1.84%	0.69%	0.13%	0.63%	0.25%
NON-RECYCLABLE PLASTICS	1.79%	0.92%	0.19%	0.18%	0.23%	1.30%	9.71%	2.55%	0.78%	0.64%	2.98%	1.11%
TEXTILES	0.00%	2.09%	0.00%	0.66%	0.00%	0.39%	0.00%	0.11%	0.00%	0.63%	0.37%	0.00%
NON-RECYCLABLE GLASS	0.46%	0.48%	0.03%	0.00%	0.00%	0.00%	0.00%	0.77%	0.00%	0.00%	0.70%	0.50%
NON-RECYCLABLE METALS	0.00%	0.00%	0.00%	0.00%	0.32%	0.00%	0.00%	0.58%	0.09%	0.10%	0.00%	0.00%
FOOD & GARDEN WASTE	0.53%	0.00%	4.92%	2.41%	0.70%	0.72%	0.00%	0.00%	2.51%	2.53%	1.72%	3.74%
ALL OTHER CONTAMINANTS	0.33%	4.19%	0.35%	1.57%	0.69%	2.31%	0.48%	0.00%	1.43%	0.23%	3.42%	0.25%
TOTAL	4.61%	8.35%	8.40%	6.20%	2.65%	5.57%	10.62%	6.07%	6.02%	4.57%	10.51%	6.25%

Table 5.4.4: Concentrations of contamination within the orange sack recycling waste (% of total) – averaged by Acorn & weighted for Leicester

ORANGE SACK CONTAMINATION	ACORN 1	ACORN 2	ACORN 3	ACORN 4	ACORN 5	WEIGHTED
NON-RECYCLABLE PAPER	0.21%	1.08%	0.32%	0.32%	0.48%	0.45%
NON-RECYCLABLE CARD & CARDBOARD	1.29%	0.76%	0.45%	1.09%	0.34%	0.61%
NON-RECYCLABLE PLASTICS	1.79%	0.42%	0.65%	3.21%	1.62%	1.49%
TEXTILES	0.00%	0.82%	0.15%	0.05%	0.34%	0.26%
NON-RECYCLABLE GLASS	0.46%	0.17%	0.00%	0.32%	0.40%	0.26%
NON-RECYCLABLE METALS	0.00%	0.00%	0.19%	0.28%	0.03%	0.11%
FOOD & GARDEN WASTE	0.53%	2.77%	0.71%	1.00%	2.63%	1.69%
ALL OTHER CONTAMINANTS	0.33%	1.85%	1.32%	0.66%	1.36%	1.21%
TOTAL	4.61%	7.86%	3.79%	6.91%	7.20%	6.08%

Figure 5.4.3: Concentrations of contamination within the orange sack recycling waste (% of total) – by Acorn samples

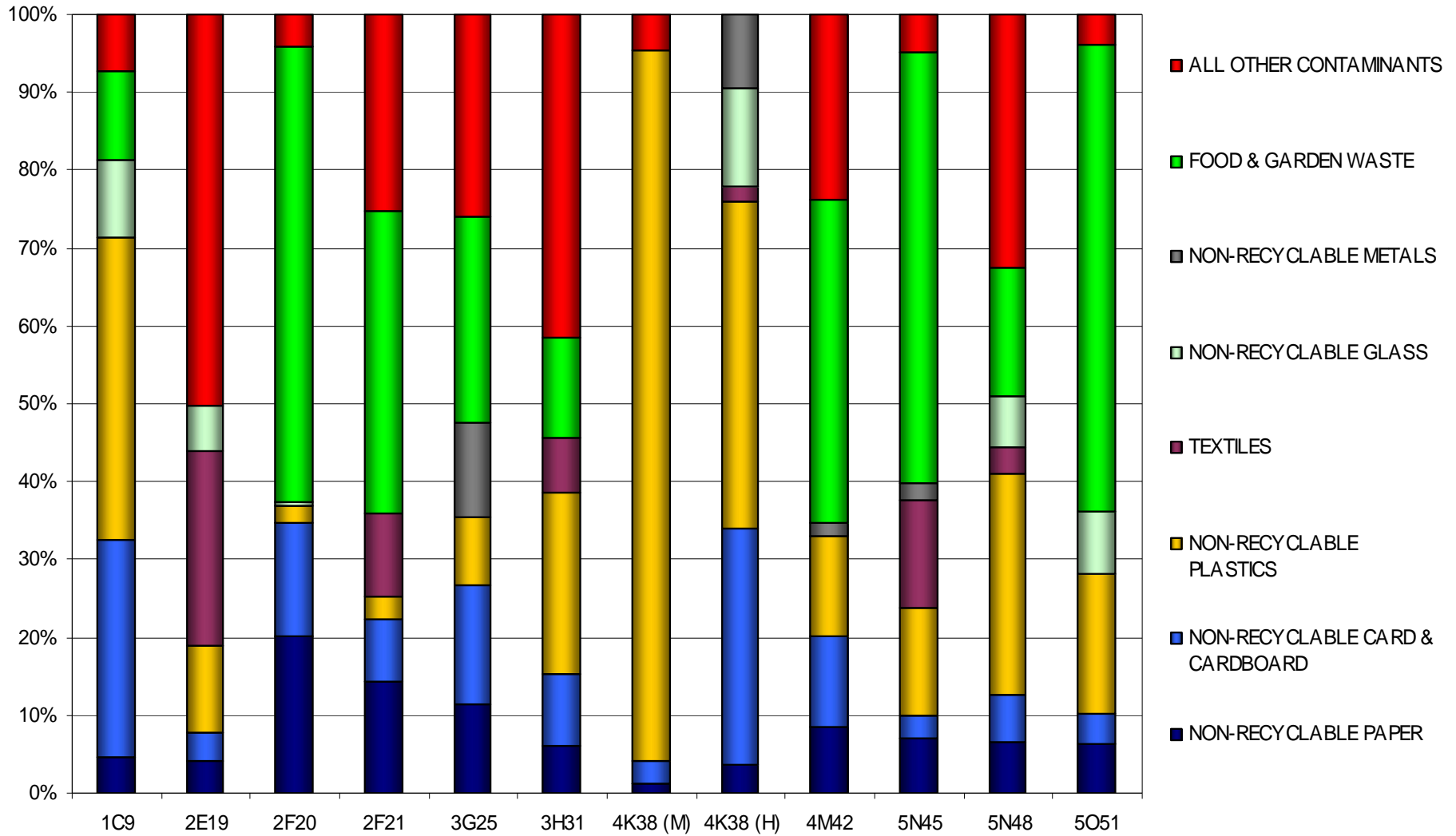
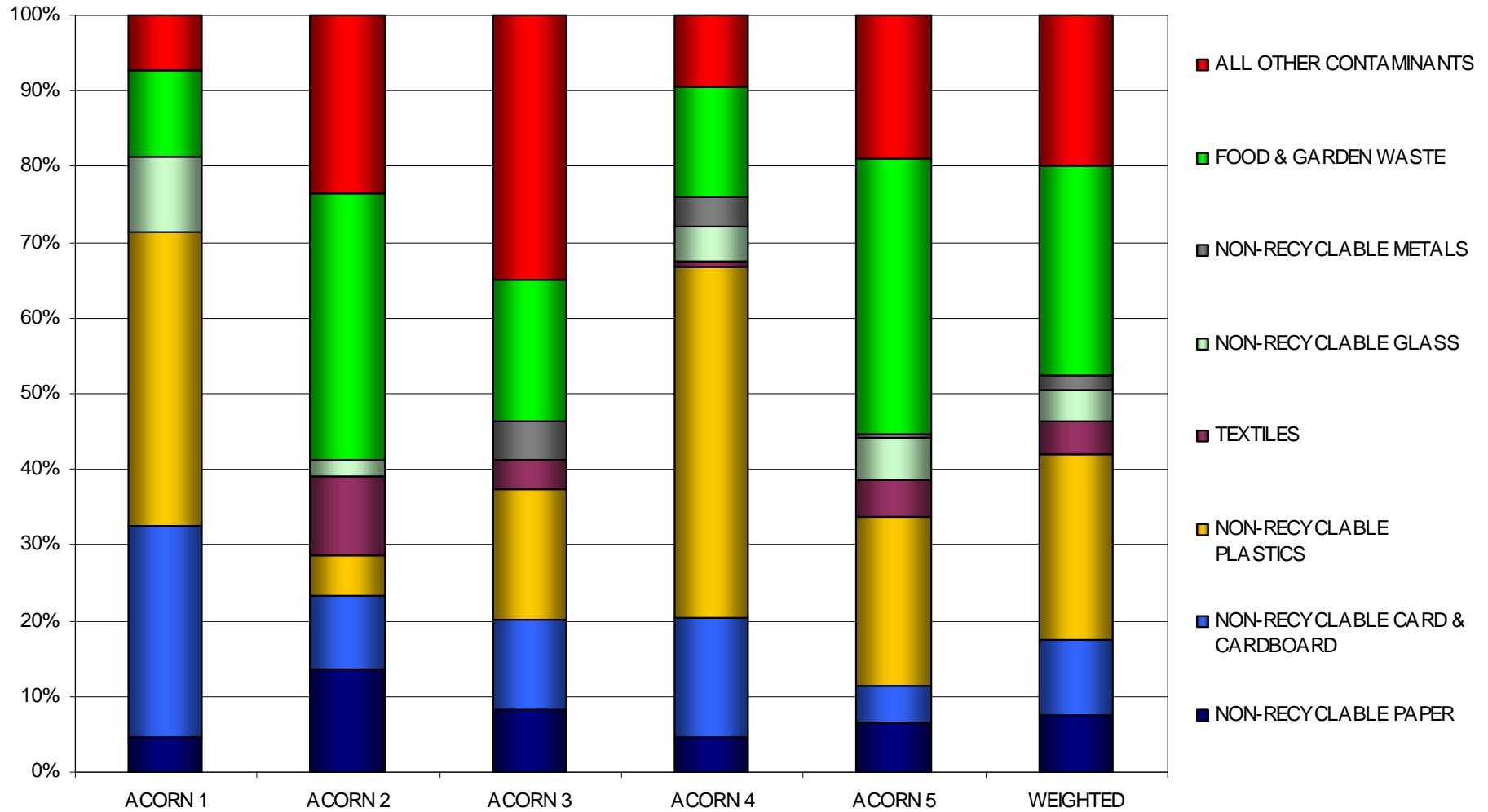


Figure 5.4.4: Concentrations of contamination within the orange sack recycling waste (% of total) – averaged by Acorn & weighted for Leicester



6) Overall Diversion through Recycling Collections

6.1 Total waste generation levels & diversion

Capture rates determine how much of a material that should be recycled actually is being recycled. Diversion rates show the percentage of total generated waste produced from an area that is being 'Diverted' via the available recycling stream(s).

Tables 6.1.1 and 6.1.2 and Figures 6.1.1 and 6.1.2 show the total waste generation (residual waste and orange sack recycling) for each of the areas sampled. Acorn 4 produced the lowest levels of total waste at 9.2kg/hh/wk with Acorn 3 households generating the most at 12.2kg/hh/wk. For the individual samples the lowest waste generators were seen to be Acorn 4M-42 at 6.7kg/hh/wk; this compared with Acorn 3H-31 where 13.8kg/hh/wk was recorded. Across Leicester it is estimated that the weekly output of kerbside waste is 11.1kg/hh/wk.

Tables 6.1.3 and 6.1.4 and Figures 6.1.3 and 6.1.4 show the proportion of this total waste that is being diverted through orange sack recycling collections. Using this service, Leicester residents are diverting an average of 17.7% of all waste generated at the kerbside. Residents from Acorn 1 were managing to divert 24.7% of their waste compared with 14.7% for Acorn 4. The low performing 4K-38(M) area residents diverted just 6.8% of their waste at the kerbside.

Data from this survey suggests a level of 471.4kg/hh/yr for residual waste and 580.9kg/hh/yr for total kerbside waste. This annual level for residual waste closely resembles the Defra indicated generation rate of 497.7kg/hh/yr (NI 191 Residual household waste per household)².

If all of the currently recyclable materials being disposed of by Leicester households were placed into orange sacks and the contamination rate was zero, then the maximum attainable diversion rate would be 31.8%.

² Defra Municipal Waste Statistics 2011/12

<http://www.defra.gov.uk/statistics/environment/waste/wrfq23-wrmsannual/>

Table 6.1.1: Average waste generation levels by Acorn samples (kg/hh/wk)

TOTAL KERBSIDE WASTE	1C9	2E19	2F20	2F21	3G25	3H31	4K38 (M)	4K38 (H)	4M42	5N45	5N48	5O51
KG/HH/WK RESIDUAL	8.37	7.55	9.04	8.02	8.08	12.16	10.16	8.20	4.94	9.13	10.42	8.74
KG/HH/WK RECYCLING	2.92	1.77	2.50	1.33	2.51	1.60	0.83	1.80	1.74	2.50	2.68	2.40
TOTAL KG/HH/WK	11.29	9.32	11.54	9.35	10.59	13.77	10.99	10.00	6.68	11.62	13.10	11.14

Table 6.1.2: Average waste generation levels by averaged by Acorn and weighted for Leicester (kg/hh/wk)

TOTAL KERBSIDE WASTE	ACORN 1	ACORN 2	ACORN 3	ACORN 4	ACORN 5	WEIGHTED
KG/HH/WK RESIDUAL	8.37	8.20	10.12	7.77	9.43	9.03
KG/HH/WK RECYCLING	2.92	1.86	2.06	1.46	2.53	2.10
TOTAL KG/HH/WK	11.29	10.07	12.18	9.22	11.95	11.13

Figure 6.1.1: Average waste generation levels by Acorn samples (kg/hh/wk)

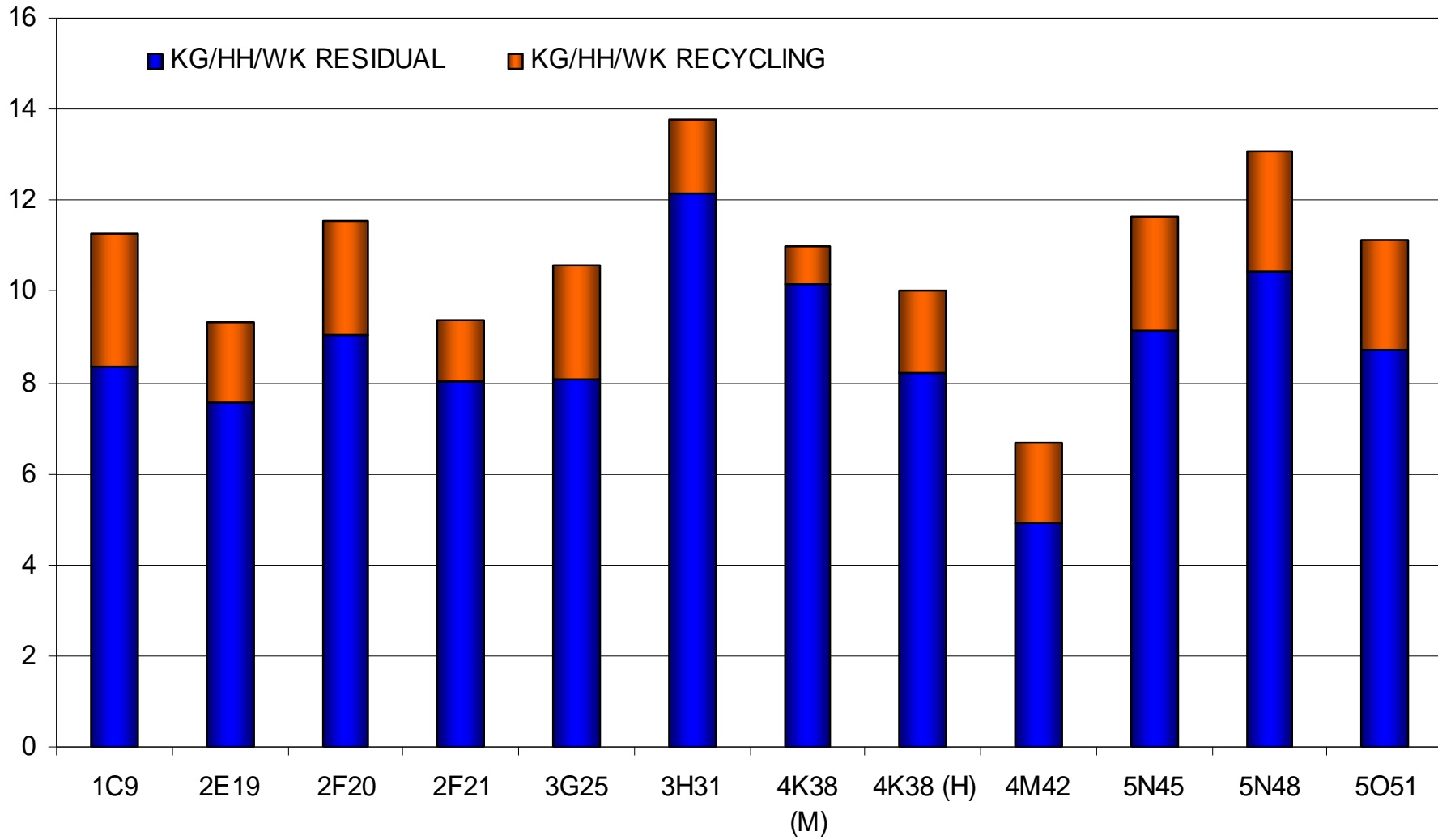


Figure 6.1.2: Average waste generation levels by averaged by Acorn and weighted for Leicester (kg/hh/wk)

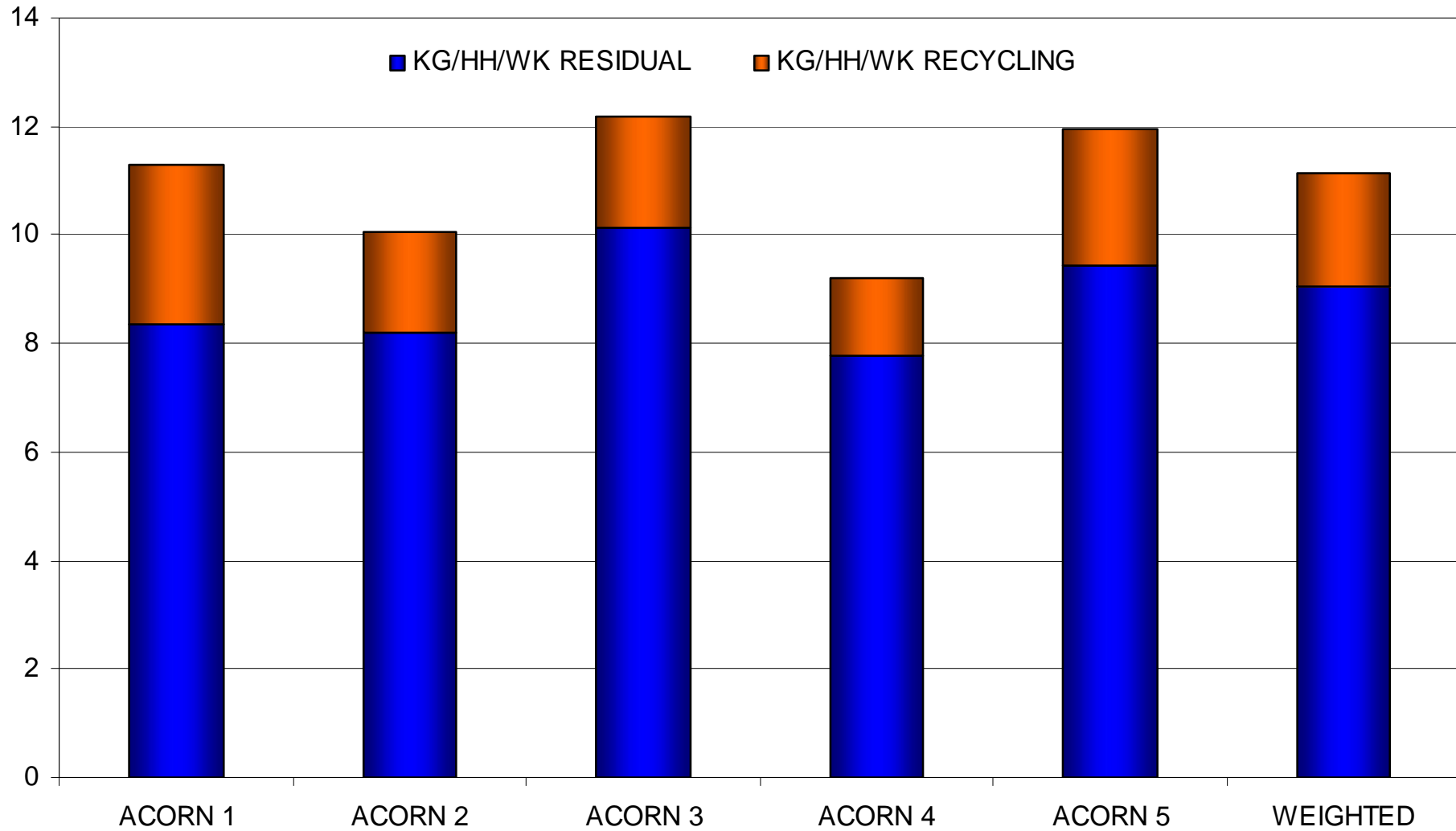


Table 6.1.3: Average diversion rates via orange sack recycling (%) by Acorn samples

DIVERSION RATES	1C9	2E19	2F20	2F21	3G25	3H31	4K38 (M)	4K38 (H)	4M42	5N45	5N48	5O51
% DIVERTED VIA ORANGE SACKS	24.69%	17.39%	19.83%	13.33%	23.07%	10.99%	6.75%	16.88%	24.52%	20.50%	18.28%	20.23%
KG/HH/YR RESIDUAL WASTE	436.6	394.0	471.7	418.5	421.6	634.6	530.4	427.9	257.6	476.1	543.9	456.0
KG/HH/YR TOTAL KERBSIDE WASTE	589.0	486.2	602.0	487.8	552.5	718.2	573.7	521.6	348.5	606.4	683.5	581.5
CURRENT MAXIMUM DIVERSION	33.46%	34.86%	39.21%	28.76%	40.25%	22.52%	23.76%	31.67%	39.49%	32.05%	31.38%	35.40%

Table 6.1.4: Average diversion rates via orange sack recycling (%) averaged by Acorn and weighted for Leicester

DIVERSION RATES	ACORN 1	ACORN 2	ACORN 3	ACORN 4	ACORN 5	WEIGHTED
% DIVERTED VIA ORANGE SACKS	24.69%	17.07%	16.24%	14.70%	19.60%	17.70%
KG/HH/YR RESIDUAL WASTE	436.6	428.1	528.1	405.3	492.0	471.4
KG/HH/YR TOTAL KERBSIDE WASTE	589.0	525.4	635.4	481.3	623.8	580.9
CURRENT MAXIMUM DIVERSION	33.46%	34.63%	30.23%	30.42%	32.85%	31.83%

Appendix 1: ACORN Category Classification³.

ACORN 1 – WEALTHY ACHIEVERS – U.K. AVERAGE 23.3%
<p>These are some of the most successful and affluent people in the UK. They live in wealthy, high status rural, semi-rural and suburban areas of the country. Middle-aged or older people predominate, with many empty nesters and wealthy retired. Some neighbourhoods contain large numbers of well-off families with school age children, particularly in the more suburban locations. These people live in large houses, which are usually detached with four or more bedrooms. Almost 90% are owner occupiers, with half of those owning their home outright. They are very well educated and most are employed in managerial and professional occupations. Many own their own business. Car ownership is high, with many households running two or more cars. Incomes are high, as are levels of savings and investments. These people are well established at the top of the social ladder. They enjoy all the advantages of being healthy, wealthy and confident consumers.</p>
ACORN 2 – URBAN PROSPERITY – U.K. AVERAGE 13.3%
<p>These are well educated and mostly prosperous people living in our major towns and cities. They include both older wealthy people living in the most exclusive parts of London and other cities, and highly educated younger professionals moving up the corporate ladder. This category also includes some well educated but less affluent individuals, such as students and graduates in their first jobs. The wealthier people tend to be in senior managerial or professional careers, and often live in large terraced or detached houses with four or more bedrooms. Some of the younger professionals may be buying or renting flats. The less affluent will be privately renting. These people have a cosmopolitan outlook and enjoy their urban lifestyle. They like to eat out in restaurants go to the theatre and cinema and make the most of the culture and nightlife of the big city.</p>
ACORN 3 – COMFORTABLY OFF – U.K. AVERAGE 28.1%
<p>This category contains much of 'middle-of-the-road' Britain. Most people are comfortably off. They may not be wealthy, but they have few major financial worries. All life stages are represented in this category. Younger singles and couples, just starting out on their careers, are the dominant group in some areas. Other areas have mostly stable families and empty nesters, especially in suburban or semi-rural locations. Comfortably off pensioners, living in retirement areas around the coast or in the countryside, form the other main group in this category. Most people own their own home, with owner occupation exceeding 80%. Most houses are semidetached or detached. Employment is in a mix of professional and managerial, clerical and skilled occupations. Educational qualifications tend to be in line with the national average. This category incorporates the home-owning, stable and fairly comfortable backbone of modern Britain.</p>
ACORN 4 – MODERATE MEANS – U.K. AVERAGE 13.2%
<p>This category contains much of what used to be the country's industrial heartlands. Many people are still employed in traditional, blue-collar occupations. Others have become employed in service and retail jobs as the employment landscape has changed. In the better off areas, incomes are in line with the national average and people have reasonable standards of living. However, in other areas, where levels of qualifications are low, incomes can fall below the national average. There are also some isolated pockets of unemployment and long-term illness. This category also includes some neighbourhoods with very high concentrations of Asian families on low incomes. Most housing is terraced, with two or three bedrooms, and largely owner occupied. It includes many former council houses, bought by their tenants in the 1980s. Overall, the people in this category have modest lifestyles, but are able to get by.</p>
ACORN 5 – HARD PRESSED – U.K. AVERAGE 21.7%
<p>This category contains the poorest areas of the UK. Unemployment is well above the national average. Levels of qualifications are low and those in work are likely to be employed in unskilled occupations. Household incomes are low and there are high levels of long-term illness in some areas. Housing is a mix of low-rise estates, with terraced or semi-detached houses, and purpose built flats, including high-rise blocks. Properties tend to be small and there is much overcrowding. Over 50% of the housing is rented from the local Council or a housing association. There are a large number of single adult households, including many single Pensioners and lone parents. In some neighbourhoods, there are high numbers of black and Asian residents. These people are experiencing the most difficult social and economic conditions in the whole country, and appear to have limited opportunity to improve their circumstances.</p>

³ <http://www.caci.co.uk/download.aspx?path=/libraries/document/394.pdf>

Appendix 2: Survey Sort Sheet

Primary categories	Sub-categories	Weight Kg
PAPER	Newspaper & magazines	
	Catalogues & Directories	
	Other recyclable paper (inc PB books)	
	Paper tissue	
	Shredded paper	
	Other non-recyclable paper (inc Jiffy Bags)	
CARD	Tetrapak cartons	
	Corrugated Cardboard	
	Thin high-grade packaging card	
	Thin high-grade non-packaging card	
	Thin low-grade brown card	
	Non-recyclable card & HB books	
PLASTIC FILM	Packaging film	
	Carrier Bags	
	Refuse Sacks	
	All other film	
DENSE PLASTIC	PET bottles	
	HDPE bottles	
	Other bottles	
	Polystyrene Food Trays & Containers	
	Bulky White Packaging Polystyrene	
	Plastic Food packaging containers	
	Other plastic packaging containers	
	Other dense plastic	
TEXTILES	Reusable clothing	
	Pairs of shoes	
	Accessories	
	Carpet & underlay	
	Clean bed linen, curtains, blankets & towels	
	All other textiles & odd shoes	
MISC COMBUSTIBLES	Composite & laminates INC TREATED WOOD	
	DIY based materials	
	Untreated Wood	
	Disposable nappies	
	All other	
MISC NON-COMBUSTIBLES	Plasterboard	
	DIY rubble & ceramics	
	All other inc Pet Litter non-organic	
GLASS	Green packaging	
	Brown packaging	
	Clear bottles	
	Clear jars	
	Other glass	
FERROUS METAL	Drinks cans	
	Food cans & tins	
	Aerosols	
	Other ferrous packaging inc jar lids	
	Other ferrous	
NON-FERROUS METAL	Drinks cans	
	Food cans & tins	
	Aerosols	
	Aluminium foil & trays	
	Other non-ferrous	
GARDEN WASTE	Flora organics	
	Soil & turf	
PUTRESCIBLES	All Home Compostable Food Waste	
	Cooked Meat & Fish Waste	
	Uncooked Meat & Fish Waste	
	All other non-home compostable food waste; plate scrapings	
	Composite Mixed Food Waste	
	Herbivorous Pet Straw & Sawdust Bedding	
	Consumable Liquids	
Fats & Oils		
FINES	Particles passing a 10mm screen	
HHW	Separately listed	
WEEE	Separately listed	

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