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waste insights

Hackney Kerbside Waste Composition Analysis

Hackney London Borough
Council

Summary Report
January 2020



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Project details and acknowledgements

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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.

Introduction

Background

Hackney council is looking at the possibility of reducing the frequency of non-recyclable waste collections from every week to every two weeks at street-level properties (generally houses, or houses that have been converted into flats, which have green sack recycling services) in Hackney.

Hackney currently has a combined recycling and composting rate of 27.9% (2017/18). Further work is required to reduce the amount of waste sent to be incinerated or to landfill, where it releases harmful greenhouse gases into the atmosphere.

Figures suggest that across Hackney, over half of the rubbish people currently throw away in their general waste bins could have been recycled or composted. The council are therefore proposing to reduce the frequency of waste collections, which will encourage people to use their weekly recycling and food waste collections.

Other London boroughs that have introduced less frequent waste collections have seen their recycling rates increase. If these increases were replicated in Hackney, around 5000 tonnes of waste - the equivalent of the waste contained in 500 bin lorries - would be recycled instead of being thrown away every year. Changes are aimed at increasing the amount residents recycle. By recycling more waste and throwing away less rubbish, there is a potential to reduce disposal costs in the longer term.

Hackney council therefore commissioned MEL waste insights to study the composition of the domestic kerbside collected residual and recycling waste streams for a selection of households. These households were selected from areas identified as high waste producers. Results would help the council gauge the impact of reducing the frequency of general waste collections for households where levels of this waste may be particularly high.

As well as giving indications as to the levels of waste and recycling being generated, this report also provides observations on 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 an analysis of kerbside collected residual and recycling waste collected from three streets in January 2020. It focusses on the levels and composition of residual bins, kerbside recycling sacks and food bins that are currently available for residents to place out for collection.

Objectives

Specific aims of the work were to:

- Understand the levels of residual waste being generated by the selected households
- Evaluate the amount of specific materials collected in the residual bins that could potentially be collected separately for recycling at the kerbside
- Assess the amount of separate recycling being generated
- Evaluate the levels and types of contamination present within the separated recycling
- Detect capture rates for individual materials which are collected separately for recycling
- Determine the amount of overall waste diverted by each recycling collection and overall

Executive Summary

Key findings

Kerbside residual waste

- Surveyed households are generating 33.1kg/hh/wk of residual waste. This is the equivalent of 1.72 tonnes per annum.
- Food waste was seen to be the major component of residual waste forming 42.1% of the total, equating to 13.9kg/hh/wk. Of this food waste 62% is deemed to be avoidable.
- Paper items made up 13.8% of the residual waste; 64% of this (2.9g/hh/wk) was alternatively recyclable at the kerbside.
- Card and cardboard made up around 2.9% of collected residual waste; 63% of this (0.6kg/hh/wk) was alternatively recyclable at the kerbside.
- Plastics formed 19.3% of the residual waste; 43% of all plastic waste (2.7kg/hh/wk) was due to recyclable plastic bottles, bags and containers.
- 4.0% of residual waste was metallic; 82% of this (1.1kg/hh/wk) was recyclable.
- Around 1.8% of residual waste was seen to be glass; 86% of this (0.5kg/hh/wk) was due to glass bottles and jars.
- 3.3% of residual waste was found to be garden waste (1.1kg/hh/wk).
- Overall, 23.5% of collected residual waste could have been placed into the green recycling sacks available– the equivalent of 7.8kg/hh/wk.
- Overall, 42.1% of collected residual waste could have been placed into the food recycling bins available– the equivalent of 13.9kg/hh/wk.
- In total 69.0% of residual waste collected could have been recycled alternatively at the kerbside – 22.8kg/hh/wk. This is 1.2 tonnes per annum of recyclable material placed into residual bins per household.

Kerbside mixed recycling – green recycling sacks

- Over the survey, an average of 85% of households presented recycling sacks out for collection.
- In terms of waste generation, all kerbside households were setting out an average of 5.1kg/hh/wk of mixed recycling.
- Overall, 12% of recycling waste collected from all properties was classified as contamination – the equivalent of 0.6kg/hh/wk.
- 35% of contamination was due to scrap metal with 25% being non-recyclable plastics and 14% non-recyclable paper and card.
- Around 30% of recyclable paper and 76% of recyclable card was correctly captured
- 53% of plastic bottles were recycled along with 15% of plastic containers and 5% of bags.
- 29% of tins, cans and aerosols were recycled with just 2% of foil.
- 60% of glass bottles and jars were recycled
- Overall, 37% of all materials compatible with green recycling sacks were correctly recycled. This is 4.5kg/hh/wk of the 12.3kg/hh/wk disposed of.
- Kerbside properties diverted around 11.7% of their total waste through mixed recycling collections.

Food Recycling

- Over the survey, an average of 12% of households presented food bins for collection
- In terms of waste generation, all kerbside households were setting out an average of 0.45kg/hh/wk of food recycling.
- Overall <1% of food recycling waste collected from all properties was classified as contamination
- All contamination was plastic bags and film.
- 6.5% of all unavoidable food waste was correctly captured using the supplied container along with just 0.8% of avoidable food waste. This equates to just 3.1% of all the food waste disposed of.
- Households are disposing of 14.4kg/hh/wk of food waste with just 0.44kg/hh/wk recycled.
- Kerbside properties diverted around 1.1% of their total waste through food recycling collections.
- In total households are diverting 12.8% of kerbside waste. Were all recyclable materials correctly recycled then the achievable rate would be 69.1%

Residual Waste

Waste generation levels

A total of 52 households had waste collected and were sampled from three separate streets. Residual waste is collected on a weekly basis and is generally contained within wheeled bins that are located at the property frontage. All surveyed households had residual waste present within their bins with waste bulked for sorting as a single sample.

From the 52 households a total of 1,719kg of residual waste was collected. This equates to 33.1kg/hh/wk or 1.72 tonnes per household per year. Were households to continue placing out these levels of waste, then a fortnightly round may potentially be collecting over 66kg from each household per visit.

Compositional analysis of residual waste

This section looks at the average amount and composition of the residual waste presented by the selected Hackney households. Hand sorting of the residual waste gave concentration by weight figures for the 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). Detailed residual composition tables can be found in a separate data appendix. Figure 1 breaks down the main waste types present within the residual waste.

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 provided:-

Residents currently have green sacks for the collection of mixed dry recycling. This is collected on a weekly basis and acceptable items include:-

Paper and card - cardboard boxes, newspapers, magazines, envelopes, shredded paper, brochures and catalogues, corrugated cardboard, brown paper bags, telephone directories, white computer paper, food and drink cartons including Tetra Paks

Plastic pots and trays- margarine tubs, ice cream tubs, yoghurt pots, fruit punnets, ready meal trays

Plastic bottles - drinks bottles, shampoo and detergent bottles

Tins and cans - steel and aluminium including aerosols, drinks cans, food tins, foil

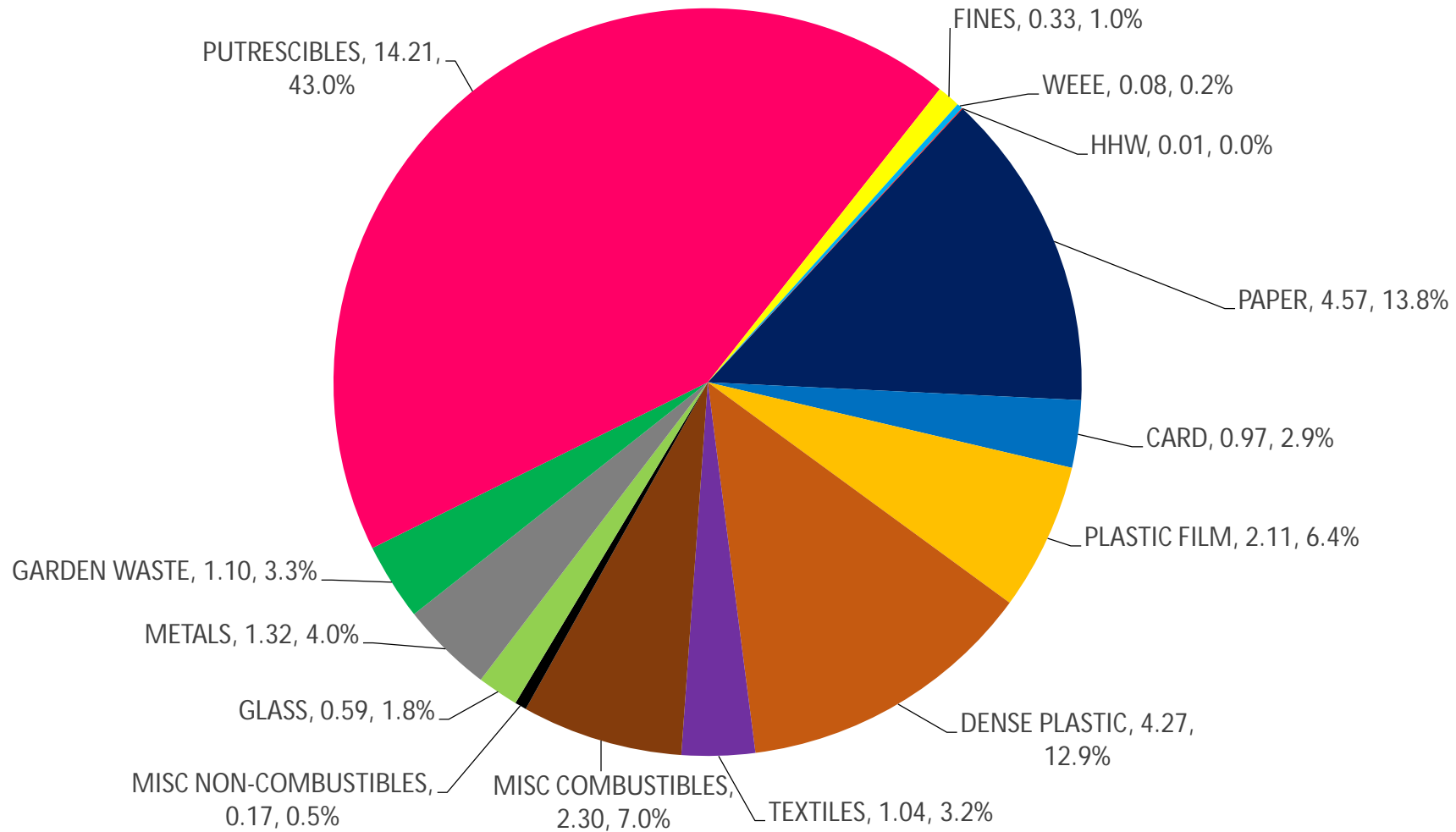
Glass bottles and jars -glass bottles and jars, perfume, aftershave, face creams.

Households are also provided with small blue bins for the disposal of food waste. This is collected on a weekly basis and biodegradable liners are provided. Brown bins are also available for the disposal of garden waste and these bins are collected every two weeks.

Table 1: Average residual waste composition

RESIDUAL WASTE	% COMPOSITION	KG/HH/WK
PAPER	13.81%	4.57
CARD	2.92%	0.97
PLASTIC FILM	6.38%	2.11
DENSE PLASTIC	12.91%	4.27
TEXTILES	3.16%	1.04
MISC COMBUSTIBLES	6.97%	2.30
MISC NON-COMBUSTIBLES	0.50%	0.17
GLASS	1.78%	0.59
METALS	3.98%	1.32
GARDEN WASTE	3.34%	1.10
PUTRESCIBLES	42.97%	14.21
FINES	1.00%	0.33
WEEE	0.25%	0.08
HHW	0.04%	0.01
TOTAL	100.00%	33.06

Figure 1: Average residual waste composition (KG/HH/WK AND %)



Organic Waste

Organic waste, which includes garden and food waste (putrescibles), formed the greatest weight concentration of the primary waste categories. Across the surveyed households around 46.3% of all residual waste (15.3kg/hh/wk) is classified as organic waste. Food waste accounted for the majority of the organic material present totalling 42.1% or 13.9kg/hh/wk.

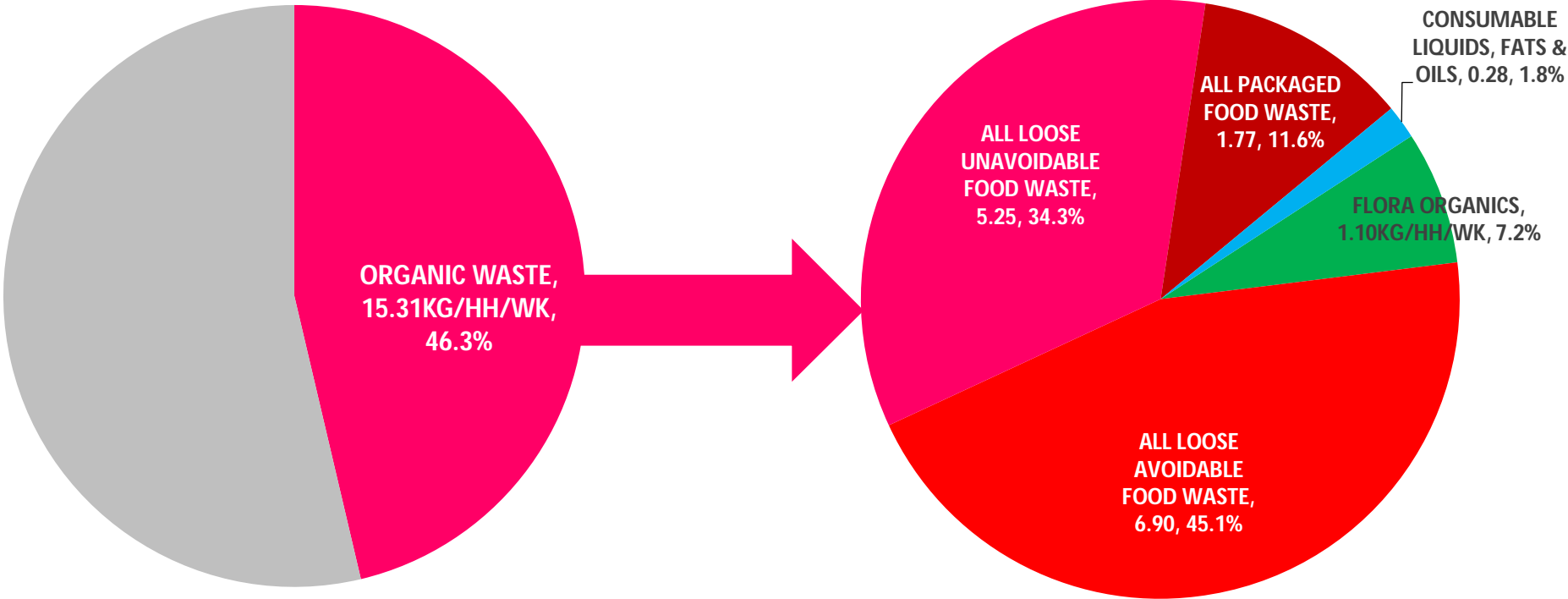
Food waste was further categorised as to whether it was avoidable (uneaten, unused or spoilt) or unavoidable (inedible by products such as shells, stones, skin etc). The majority of food in the residual bins was deemed to be avoidable (62.3%). Therefore, avoidable food waste accounted for 26.2% or 8.7kg/hh/wk of total bin contents. A fifth of the avoidable food was disposed of packaged.

Table 2: Levels of organic material within residual waste

RESIDUAL ORGANICS	% COMPOSITION	KG/HH/WK
FLORA ORGANICS	3.34%	1.10
ALL LOOSE AVOIDABLE FOOD WASTE	20.86%	6.90
ALL LOOSE UNAVOIDABLE FOOD WASTE	15.89%	5.25
ALL PACKAGED FOOD WASTE	5.36%	1.77
CONSUMABLE LIQUIDS, FATS & OILS	0.85%	0.28
TOTAL ORGANICS	46.31%	15.31
TOTAL FOOD WASTE	42.12%	13.92
% OF FOOD WASTE AVOIDABLE		62.3%

Residents throughout Hackney can also use brown bins to recycle garden waste at the kerbside. Levels of garden waste in residual bins averaged 3.3% or 1.1kg/hh/wk.

Figure 2: Levels of organics within residual waste of (KG/HH/WK AND %)



Paper

Across Hackney it was seen that around 13.8% or 4.57kg/hh/wk of residual waste consisted of discarded paper.

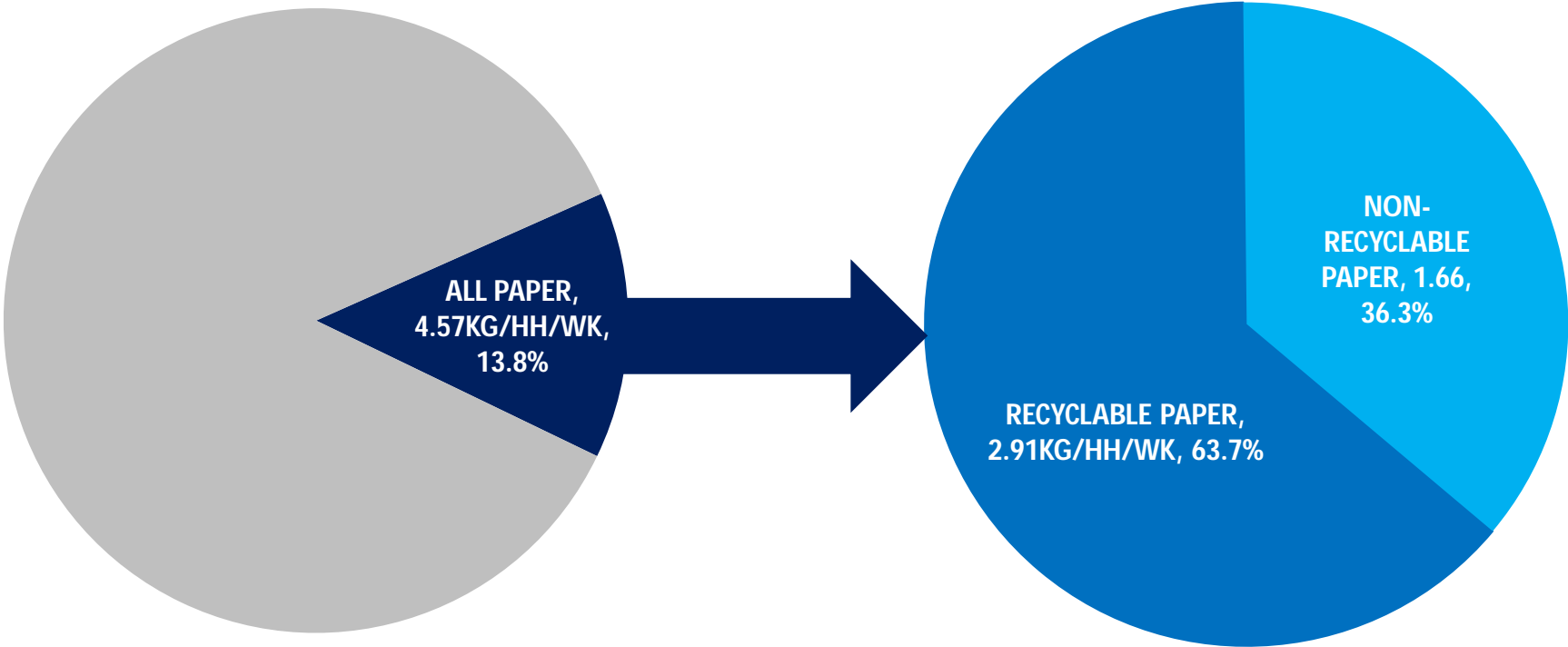
A proportion of this paper is available for recycling at the kerbside. Hackney residents can use their green sacks for recycling paper such as newspapers, junk mail, envelopes and directories. It was found that 63.7% of paper could have been placed into recycling bags as opposed to the residual bins.

Recyclable paper therefore accounted for 8.8% of all the residual waste or 2.91kg/hh/wk.

Table 3: Levels of paper within the residual waste of (kg/hh/wk and %)

RESIDUAL PAPER	% COMPOSITION	KG/HH/WK
RECYCLABLE PAPER	8.80%	2.91
NON-RECYCLABLE PAPER	5.01%	1.66
TOTAL PAPER	13.81%	4.57
% PAPER RECYCLABLE	63.73%	

Figure 3: Levels of paper within the residual waste of (kg/hh/wk and %)



Card & Cardboard

Across Hackney it was seen that around 2.9% or 0.97kg/hh/wk of residual waste consisted of discarded card and cardboard.

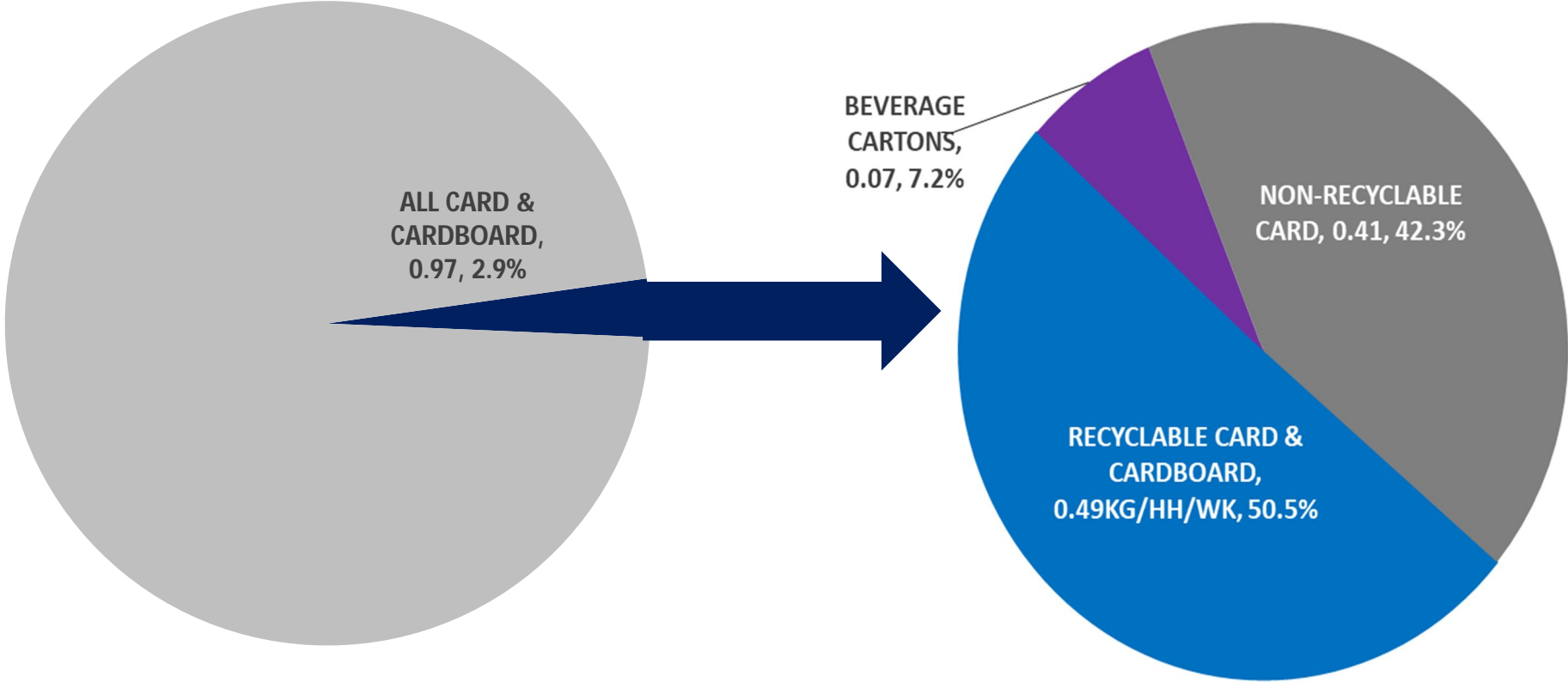
A proportion of this card & cardboard is available for recycling at the kerbside. Hackney residents can recycle clean card and cardboard and liquid cartons in their green sacks. It was found that 57.9% of card and cardboard could have been recycled rather than disposed of in residual bins. This accounted for 1.7% of all the residual waste or 0.56kg/hh/wk.

When combining paper and card together it is estimated that 62.7% of that present in residual bins could have been recycled via kerbside recycling collections. This amounts to 10.5% of all the residual waste being collected – a total of 3.47kg/hh/wk.

Table 4: Levels of card within the residual waste (kg/hh/wk and %)

RESIDUAL CARD	% COMPOSITION	KG/HH/WK
RECYCLABLE CARD & CARDBOARD	1.47%	0.49
BEVERAGE CARTONS	0.22%	0.07
NON-RECYCLABLE CARD	1.23%	0.41
TOTAL CARD & CARDBOARD	2.92%	0.97
% CARD KERBSIDE RECYCLABLE	57.92%	

Figure 4: Levels of card within the residual waste (kg/hh/wk and %)



Plastics

The average plastic content of the residual waste was seen to be 19.3% or 6.38kg/hh/wk. Hackney residents currently recycle plastic bottles, plastic bags and selected containers as part of their dry recycling. On the whole plastic material, although not heavy in itself, can produce large volumes of waste.

Figure 5 clearly shows the levels of recyclable plastics within the residual waste. On average, around 42.7% of the plastic waste present in the residual was recyclable, equating to 2.72kg/hh/wk.

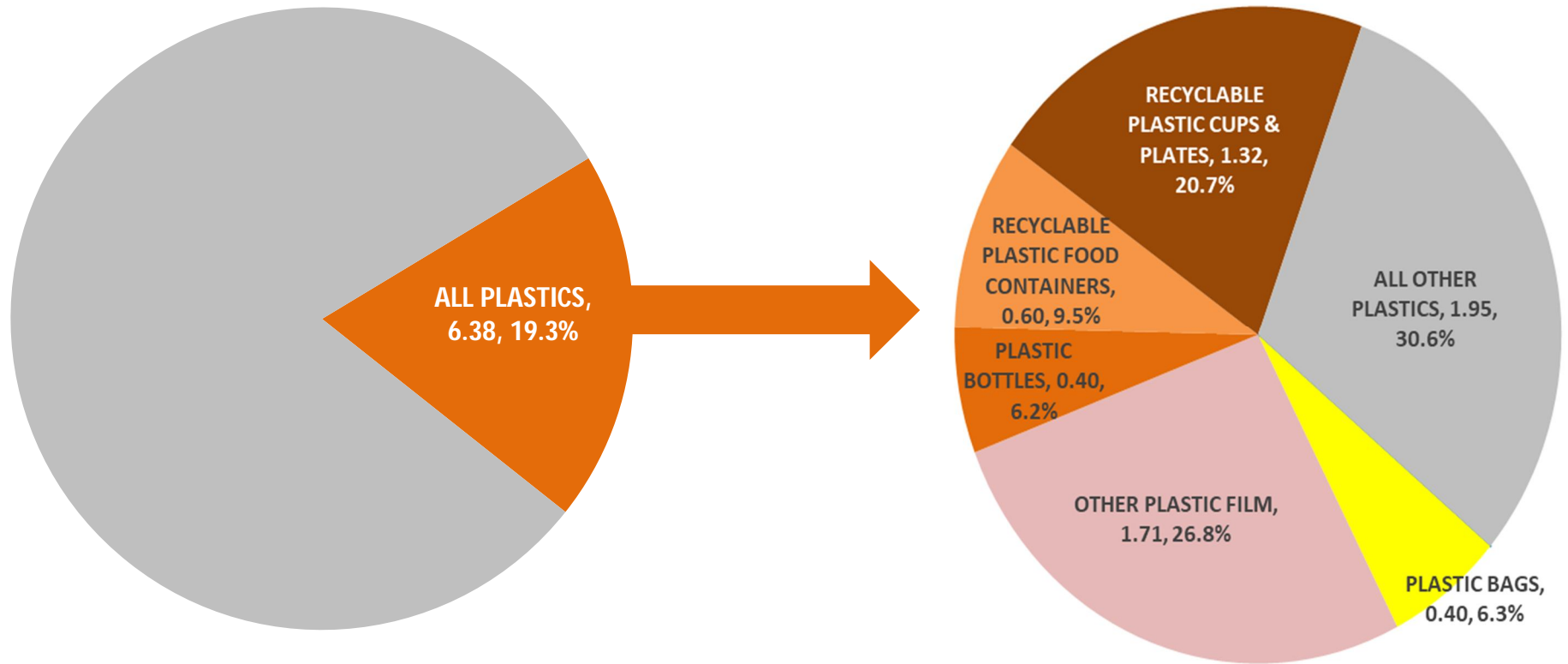
Almost half of the recyclable plastics were formed from clean, disposable plates and cups. Just over a fifth of the recyclable plastics were due to recyclable tubs, pots and trays. Almost all of these (97%) were non-black. Just under 15% of the recyclable plastics were bottles with a similar amount being recyclable bags.

Table 5 and Figure 5 show the amounts of the different forms of plastic waste found within the sampled residual waste.

Table 5: Levels of plastics within residual waste (kg/hh/wk & %)

RESIDUAL PLASTICS	% COMPOSITION	KG/HH/WK
PLASTIC BAGS	1.21%	0.40
OTHER PLASTIC FILM	5.16%	1.71
PLASTIC BOTTLES	1.20%	0.40
RECYCLABLE PLASTIC FOOD CONTAINERS	1.83%	0.60
RECYCLABLE PLASTIC CUPS & PLATES	3.99%	1.32
ALL OTHER PLASTICS	5.90%	1.95
KG/HH/WK TOTAL PLASTIC	19.29%	6.38
KG/HH/WK RECYCLABLE PLASTIC	8.23%	2.72
% PLASTIC RECYCLABLE	42.67%	

Figure 5: Levels of plastics within residual waste (kg/hh/wk & %)



Metals

An average of 4.0% or 1.3kg/hh/wk of residual waste was due to metals. Hackney residents have access to a recycling collection of food and drink cans as well as aerosols and clean foil via their mixed recycling collection.

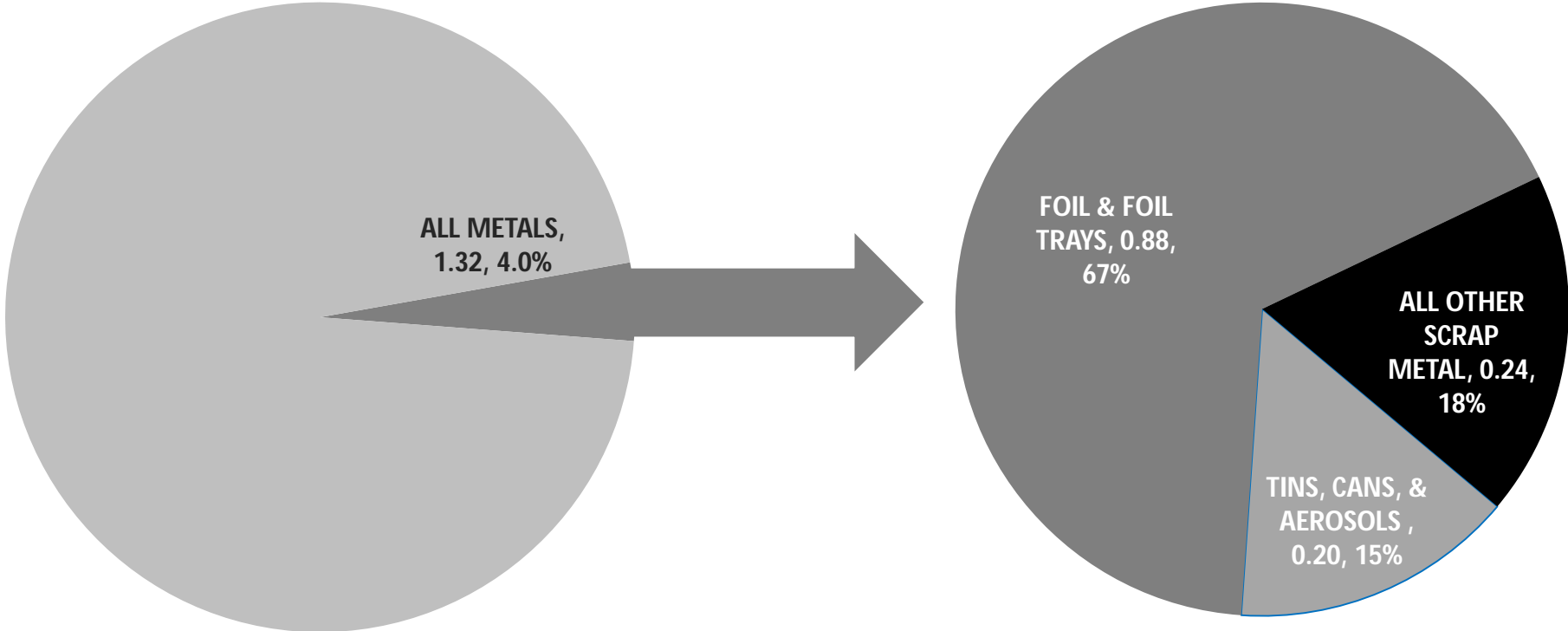
A proportion of this metal waste is available for recycling at the kerbside. It was found that 81.8% of metals were potentially recyclable accounting for 1.1kg/hh/wk or 3.3% of waste.

Table 6 and Figure 6 show the amounts of the different forms of metallic waste found within the sample. The majority of recyclable metal (82%) came from foil and foil trays. These accounted for 2.7% of the collected residual waste.

Table 6: Levels of metals within the residual waste (kg/hh/wk)

RESIDUAL METALS	% COMPOSITION	KG/HH/WK
TINS, CANS, & AEROSOLS	0.60%	0.20
FOIL & FOIL TRAYS	2.66%	0.88
ALL OTHER SCRAP METAL	0.73%	0.24
TOTAL METALS	3.98%	1.32
RECYCLABLE METALS	3.26%	1.08
% RECYCLABLE	81.78%	

Figure 6: Levels of metals within the residual waste (kg/hh/wk)



Glass

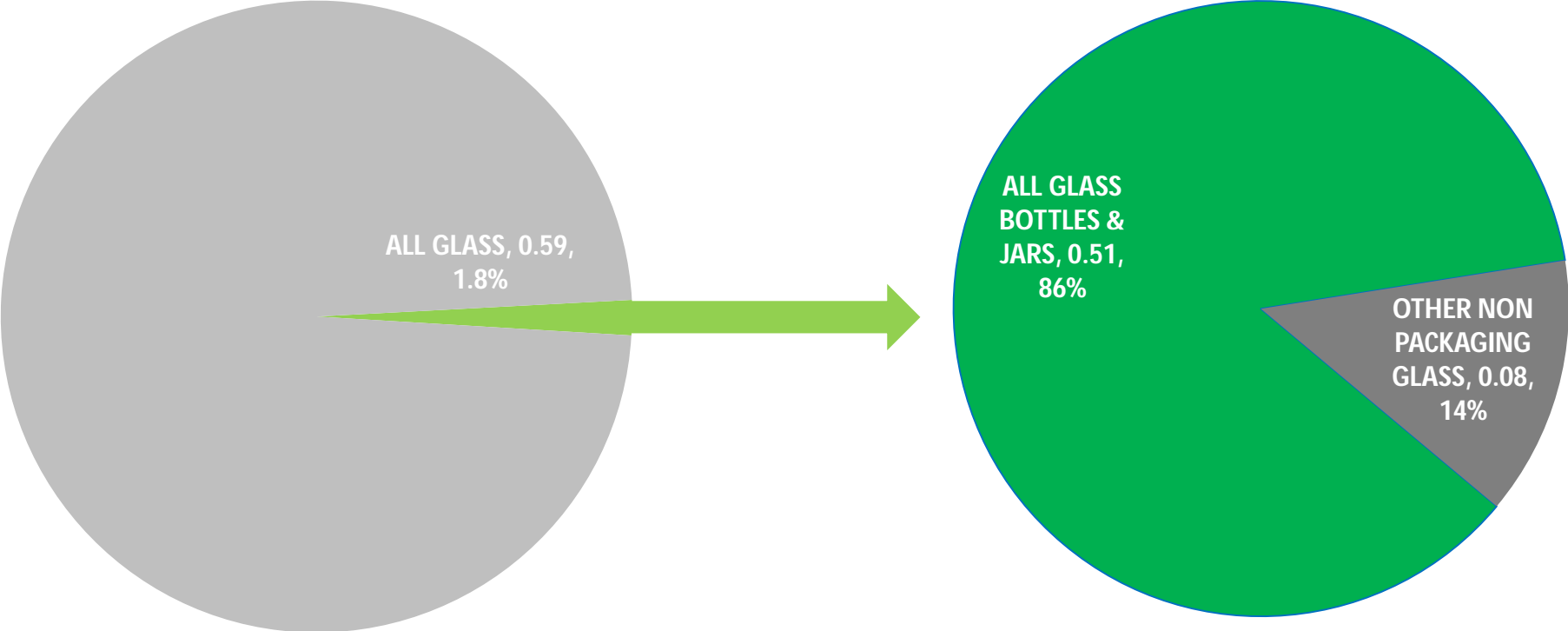
On average around 1.8% or 0.59kg/hh/wk of residual waste sampled was due to glass. Hackney households can recycle bottles and jars as part of their green sack collections.

It was found that across Hackney, an average of 86.4% or 0.51kg/hh/wk of residual waste is classified as recyclable glass bottles and jars.

Table 7: Levels of glass within the residual waste (kg/hh/wk and %)

RESIDUAL GLASS	% COMPOSITION	KG/HH/WK
ALL GLASS BOTTLES & JARS	1.53%	0.51
OTHER NON PACKAGING GLASS	0.24%	0.08
KG/HH/WK TOTAL GLASS	1.78%	0.59
% RECYCLABLE	86.38%	

Figure 7: Levels of glass within the residual waste (kg/hh/wk and %)



Other notable materials within the residual waste

Textiles - From the survey, around 4.8% of the residual waste was seen to consist of textiles, this equates to 1.04kg/hh/wk.

Hackney households do not currently have provision to recyclable bagged textiles at the kerbside.

Disposable Nappies -The profile of this type of waste has increased in recent years and nappy levels within the residual bins of households with babies can be extremely high. In this survey, the concentrations of disposable nappies averaged 4.6% or 1.53kg/hh/wk. Generally, a small number of individual households are largely responsible for increasing this type of waste collected from a sample area.

Inert rubble – This type of waste is generally one of the densest materials placed into residual bins. Although more suited for disposal at HWRC's small amounts mixed with general residual waste are to be expected. Often it is seen that a small number of individual houses may place increased levels of construction / clearance type waste into their bins. On average just 0.5% or 0.17kg/hh/wk consisted of mixed non-combustible waste.

Hazardous waste and WEEE – On average just 0.3% or 0.09kg/hh/wk of residual waste consisted of hazardous waste and WEEE .

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 kerbside recycling schemes currently running in Hackney.

Overall around 42% of residual waste was compatible with food collections with 23.5% recyclable in green sacks and 3.3% recyclable in garden bins. This equates to a total of 69% of residual bin contents.

In terms of the amount of recyclables disposed of around 22.8kg/hh/wk of recyclable material is being disposed of in the residual waste. This is formed of 13.9kg/hh/wk of food waste, 7.8% of mixed recycling and 1.1kg/hh/wk of garden vegetation.

Table 8: Proportion of residual waste currently recyclable relative to current schemes (%)

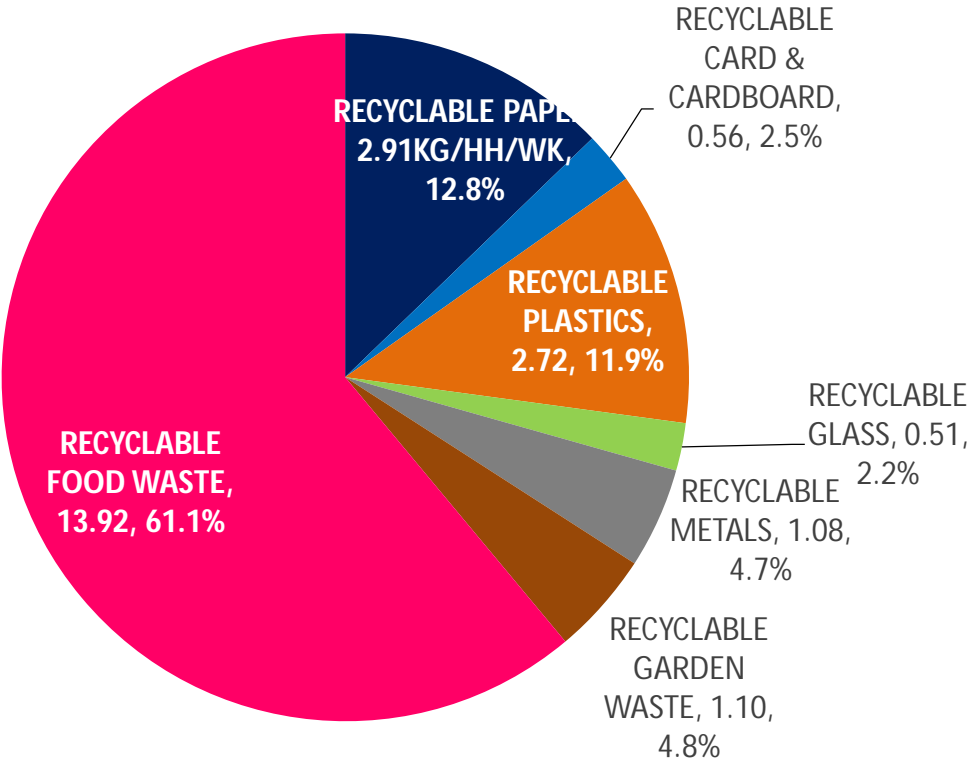
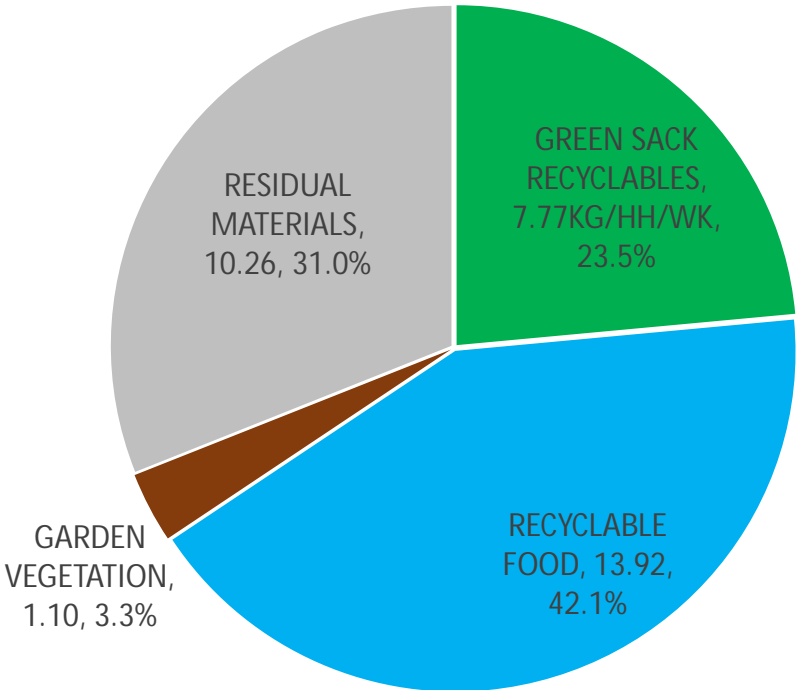
RECYCLABLE CONTENT	% COMPOSITION	KG/HH/WK
TOTAL MIXED RECYCLABLES - GREEN SACK	23.52%	7.77
TOTAL FOOD RECYCLABLES - BLUE BIN	42.12%	13.92
TOTAL GARDEN RECYCLABLES -BROWN BIN	3.34%	1.10
TOTAL KERBSIDE RECYCLABLE	68.97%	22.80

Figure 8 clearly shows the levels of residual materials currently collectable in the recycling collections available in Hackney. Over 61% of the recyclable material is food waste with 15% recyclable paper and card, 12% recyclable plastics, 5% garden waste, 5% recyclable metals and 2% glass bottles and jars.

Table 9: Kg/hh/wk of residual waste potentially recyclable (Kg/hh/wk)

RECYCLABLE CONTENT	% COMPOSITION	KG/HH/WK
RECYCLABLE PAPER	8.80%	2.91
RECYCLABLE CARD & CARDBOARD	1.69%	0.56
RECYCLABLE PLASTICS	8.23%	2.72
RECYCLABLE GLASS	1.53%	0.51
RECYCLABLE METALS	3.26%	1.08
RECYCLABLE GARDEN WASTE	3.34%	1.10
RECYCLABLE FOOD WASTE	42.12%	13.92
TOTAL KERBSIDE RECYCLABLE	68.97%	22.80

Figure 8: Residual waste potentially recyclable (Kg/hh/wk and %)



Dry recycling waste

Set out rates and waste generation

Figures below show the set out rates and generation rates for mixed kerbside recycling (green sacks) observed at the time waste was collected for compositional analysis. The overall 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.

An average of 85% of households across the Hackney samples set out green sacks for collection. An average of 5.12kg/hh/wk of this mixed recycling is generated.

Compositional analysis of mixed recycling sacks

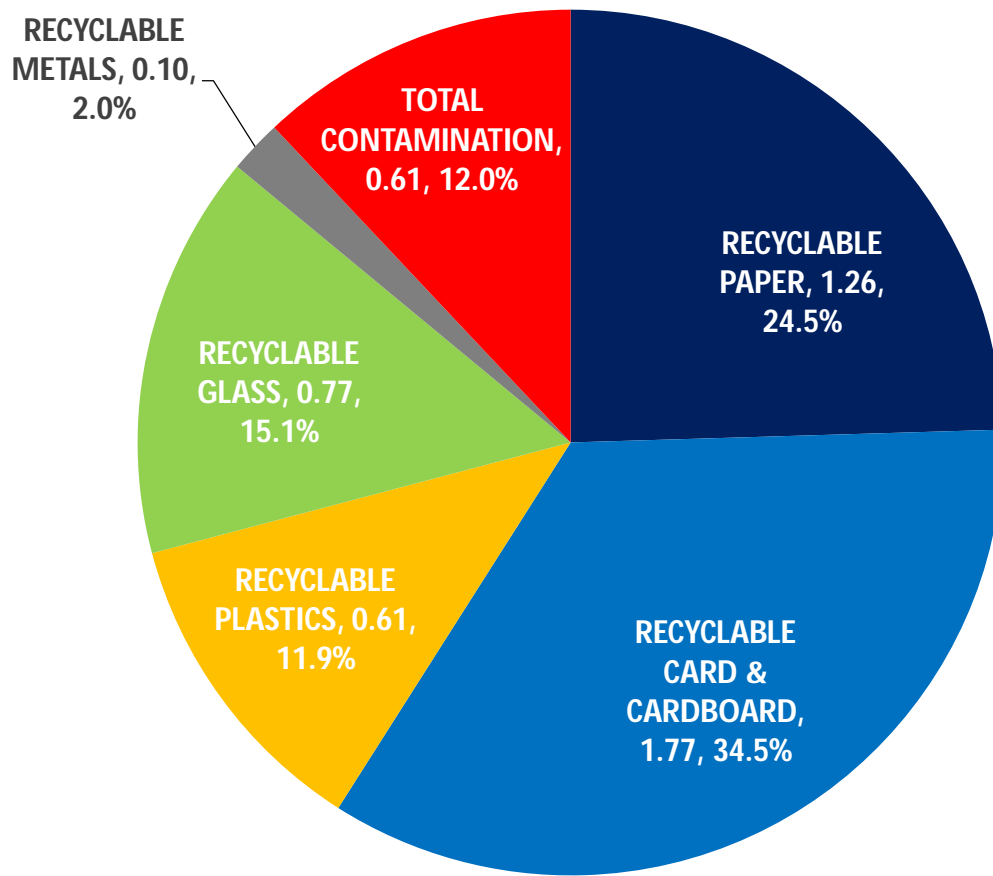
This section looks at average amounts and composition of the green recycling sacks presented by households sampled throughout Hackney. Hand sorting of the recycling waste gave concentration by weight figures for the fifteen main categories of waste as well as the more detailed sub-categories. Results can again be expressed in terms of percentage concentration and kg/hh/wk. Table 10 and Figure 9 show recycling data in terms of percentage composition and kg/hh/wk.

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

Table 10: Composition of mixed recycling

RECYCLABLE CONTENT	% COMPOSITION	KG/HH/WK
RECYCLABLE PAPER	24.53%	1.26
RECYCLABLE CARD & CARDBOARD	34.49%	1.77
RECYCLABLE PLASTICS	11.86%	0.61
RECYCLABLE GLASS	15.11%	0.77
RECYCLABLE METALS	2.00%	0.10
TOTAL ACCEPTABLE MATERIALS	87.99%	4.50
TOTAL CONTAMINATION	12.01%	0.61

Figure 9: Composition of mixed recycling



This section looks in more detail at the individual materials placed out for mixed recycling collections and highlights the effectiveness with which this 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 sample area.

Table 11 summarises the capture rates seen for the range of materials collected in mixed recycling bags. These figures are calculated by determining the distribution of recyclables across all waste streams for all households surveyed.

It can be seen that households are recycling just 30% of their recyclable paper compared with 76% of their recyclable card and cardboard using their green sacks.

Less than a fifth of the recyclable plastics disposed of are placed into green recycling sacks

Glass bottles and jars are the more effectively recycled material with 60% placed into recycling sacks; however less than 9% of recyclable metals are correctly disposed of.

Overall, just under 37% of all the items compatible with green recycling sacks are correctly disposed of.

Table 11: Summary table for material capture rates (%) mixed recycling

CAPTURE RATES KERBSIDE RECYCLABLES	CORRECTLY RECYCLED (KG/HH/WK)	UNRECYCLED (KG/HH/WK)	TOTAL (KG/HH/WK)	% CAPTURED
RECYCLABLE PAPER	1.26	2.91	4.17	30.14%
RECYCLABLE CARD & CARDBOARD	1.77	0.56	2.32	75.95%
RECYCLABLE PLASTICS	0.61	2.72	3.33	18.24%
RECYCLABLE GLASS	0.77	0.51	1.28	60.41%
RECYCLABLE METALS	0.10	1.08	1.18	8.66%
ALL MIXED RECYCLABLES	4.50	7.77	12.28	36.68%

Paper Capture

There are many different forms of paper and therefore decisions have to be made by residents as to whether a particular piece is to go into the recycling or residual waste. Households surveyed generated 4.17kg/hh/wk of recyclable paper with 1.26kg/hh/wk placed into green recycling sacks. This represents an average capture of 30.1% with 2.91kg/hh/wk not being recycled.

Card & Cardboard Capture

Households surveyed generated 2.32kg/hh/wk of recyclable card, cardboard and cartons with 1.77kg/hh/wk placed into green recycling sacks. This represents an average capture of 76.0% with 0.56kg/hh/wk not being recycled. Clean disposable plates had the highest capture rates of 96% compared with 82% for other card and cardboard and 48% for liquid cartons.

Plastics Capture

Households surveyed generated 3.33kg/hh/wk of recyclable plastics with just 0.61kg/hh/wk placed into green recycling sacks. This represents an average capture of 18.2% with 2.72kg/hh/wk not being recycled. Plastic bottles were the most effectively captured with 53% placed into green recycling sacks. This compares with capture rates of 17% for black food containers, 14.5% for non-black food containers, 5% for plastic bags and 3% for clean plastic plates and cups. Around 5% of the plastic food containers which were recycled were black.

Metals Capture

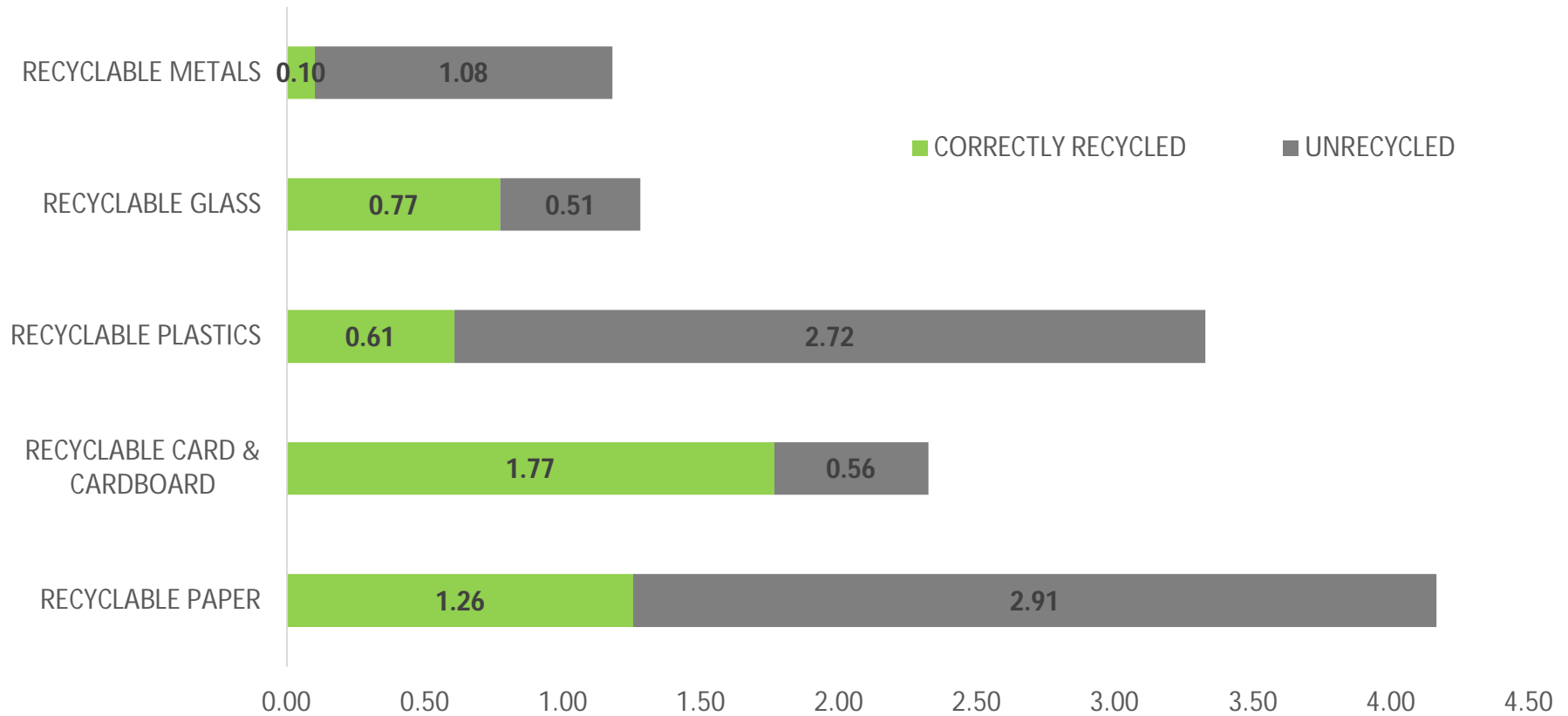
Households surveyed generated 1.18kg/hh/wk of recyclable metals with just 0.10kg/hh/wk placed into green recycling sacks. This represents an average capture of 8.7% with 1.1kg/hh/wk not being recycled. Whereas 29% of tins, cans and aerosols were recycled, just 2% of discarded foil and foil trays were placed into green recycling sacks.

Glass Capture

Households surveyed generated 1.28kg/hh/wk of recyclable glass bottles and jars with 0.77kg/hh/wk placed into green recycling sacks. This represents an average capture of 60.4% with 0.51kg/hh/wk not being recycled.

Figure 10: Distribution of recyclable materials (kg/hh/wk)

In total, 12.3% of materials compatible with green recycling sacks are disposed of at the kerbside. Of these, 4.50 or 36.7% are correctly recycled. This means that there is 7.8kg/hh/wk of recyclable material not being placed into green sacks.



Recycling Contamination

Table 10 shows that on average 0.61kg/hh/wk of the items present in recycling bins are made up of contamination. This equates to around 12%. This section looks to breakdown the amounts and concentrations of various contaminants being placed into the recycling in Hackney.

Some forms of contamination may be due to residents' lack of knowledge in relation to the recycling scheme. For example, a householder may believe anything metallic is acceptable with tins and cans. Other contamination will be formed from waste that is totally unrelated to the materials collected (i.e. disposable nappies, wood or food waste). Table 10 and Figure 11 show the amounts of contamination materials recovered from the recycling bins

Table 10: Unacceptable materials within in the mixed recycling

CONTAMINATION	% COMPOSITION	KG/HH/WK
NON-RECYCLABLE PAPER & CARD	1.71%	0.09
NON-RECYCLABLE PLASTICS	2.99%	0.15
NON-RECYCLABLE METALS	4.19%	0.21
FOOD WASTE	0.95%	0.05
CONTAINED LIQUIDS	0.65%	0.03
ALL OTHER MATERIALS	1.52%	0.08
TOTAL CONTAMINATION	12.01%	0.61

- Overall, it was seen that the most prevalent single contaminant in the recycling bins was scrap metal. This accounted for 35% of contamination; equating to 4.2% or 0.21kg/hh/wk of collected recycling.
- Non-recyclable plastics accounted for 25% of contamination; equating to 3.0% or 0.15kg/hh/wk of collected recycling. Three quarters of plastic contamination was due to plastic films with the remainder mainly mixed general plastics with a small amount of heavily food soiled plates.
- Just over 14% of contamination as due to non-recyclable paper and card. This accounted for 1.7% or 0.1kg/hh/wk of collected recycling.
- 13.3% of contamination was due to food waste and bottled liquids. Combined these materials formed 1.6% or 0.08kg/hh/wk of the collected recycling.
- The remaining contamination was due to general residual waste materials including textiles and hazardous waste (printer cartridges).

Food recycling waste

Set out rates and waste generation

On average, just 12% of households within the Hackney sample area presented blue food waste bins for collection. The low uptake of this service resulted in an average waste generation rate of 0.45kg/hh/wk.

Compositional analysis of food recycling

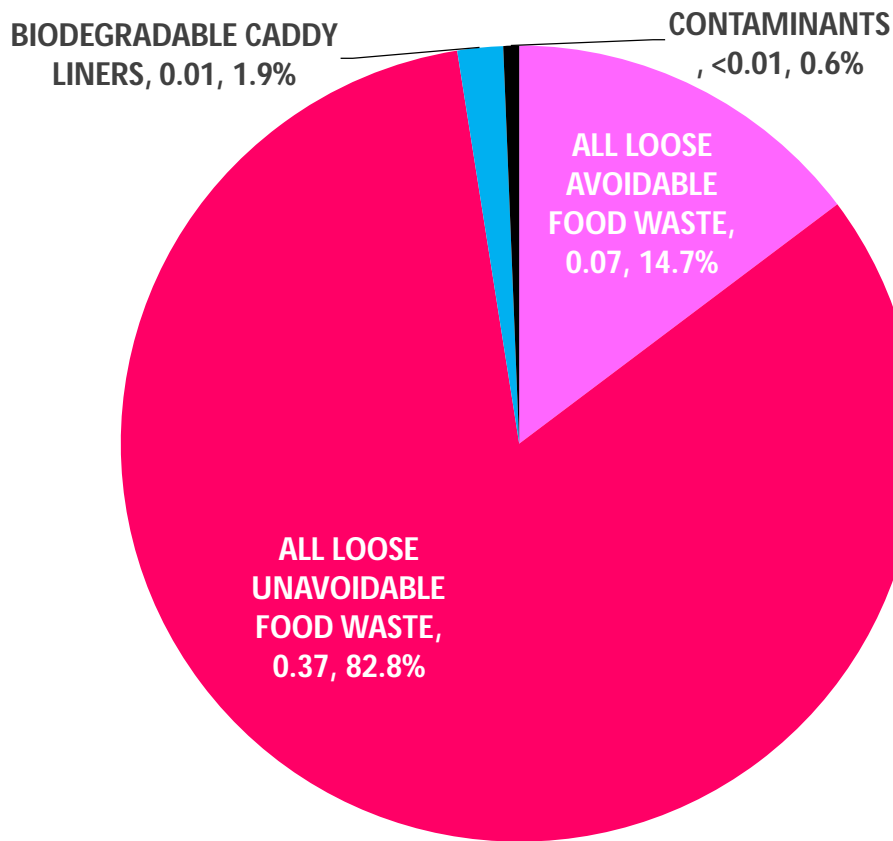
This section looks at average amounts and composition of the food recycling waste presented by the households sampled. Hand sorting of the recycling waste gives concentration by weight figures for the fifteen main categories of waste as well as the more detailed sub-categories. Results can again be expressed in terms of percentage concentration and kg/hh/wk. Table 11 shows food recycling composition.

As residual waste will contain a proportion that is classified as potentially recyclable; then food 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 containers it is placed into.

Table 11: Composition of food recycling (kg/hh/wk and %)

FOOD RECYCLING (%)	% COMPOSITION	KG/HH/WK
ALL LOOSE AVOIDABLE FOOD WASTE	14.74%	0.07
ALL LOOSE UNAVOIDABLE FOOD WASTE	82.77%	0.37
BIODEGRADABLE CADDY LINERS	1.85%	0.01
CONTAMINANTS	0.65%	0.00
TOTAL	100.00%	0.45

Figure 11: Composition of food recycling (kg/hh/wk and %)



Materials placed in food recycling bins

This chapter looks in more detail at the individual materials placed out for food recycling collections and highlights the effectiveness with which the 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 Hackney samples.

Table 12 summarises the capture and diversion rates seen for the food waste. These figures are calculated by determining the distribution of recyclables across all waste streams for all of the households selected for survey within each sample. Across Hackney, just 3.1% of all acceptable food is being correctly recycled at the kerbside.

Table 12: Summary table for material capture rates (%) for food recycling

FOOD CAPTURE RATES (%)	CORRECTLY RECYCLED (KG/HH/WK)	UNRECYCLED (KG/HH/WK)	TOTAL (KG/HH/WK)	% CAPTURED
AVOIDABLE FOOD WASTE	0.07	8.69	8.76	0.75%
UNAVOIDABLE FOOD WASTE	0.37	5.28	5.65	6.54%
ALL FOOD WASTE*	0.44	13.97	14.42	3.08%

*includes acceptable liners

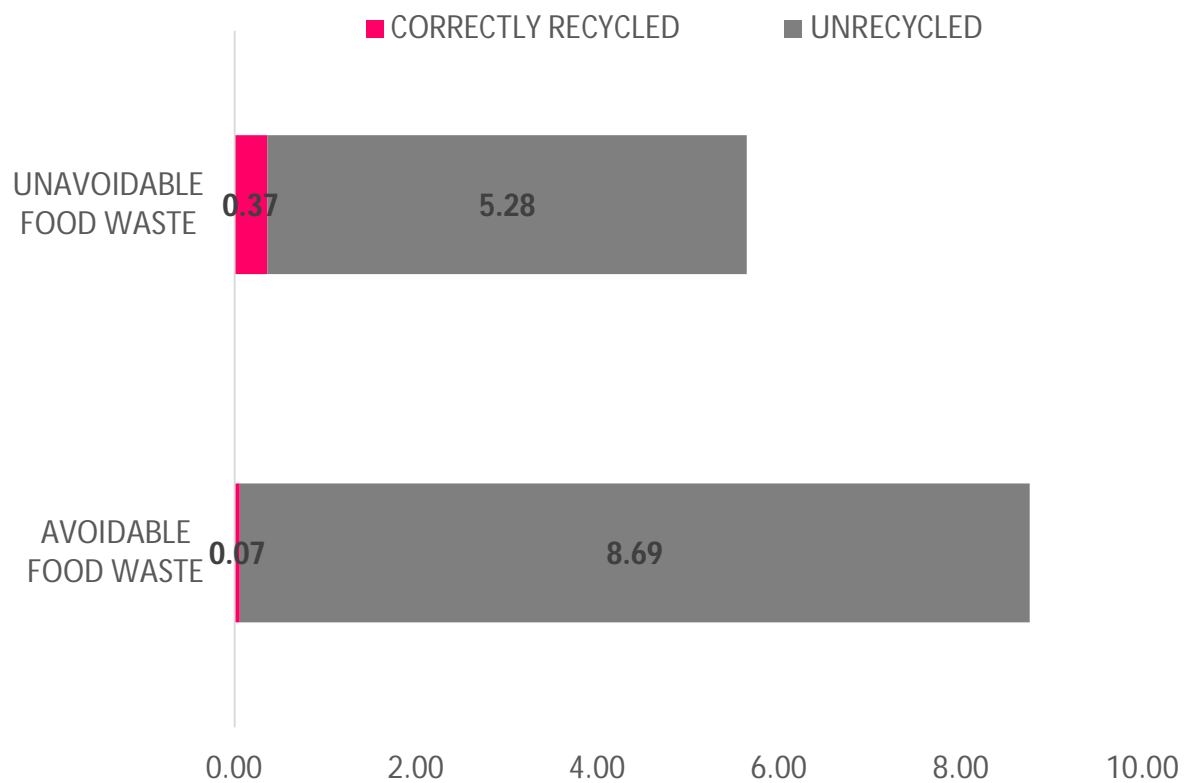
Food Waste Capture

Overall residents from the surveyed households are generating a total of 14.4kg/hh/wk of food waste. This is the equivalent of 752kg per annum. Of all the food waste disposed of just 3.1% is correctly recycled in blue bins. This is the equivalent of 0.44kg/hh/wk or just 23kg per annum.

Capture rates for unavoidable food waste such as skin, peel, shells and bone were seen to be higher (.5%) than those seen for avoidable (i.e. uneaten) food waste (<0.8%). Of all the food recycled, 83% is unavoidable. In contrast the food in the residual bins that is not recycled is 38% unavoidable. This suggests inedible food preparation by-products are being recycled by a few households with practically no wasted edible foods – such as plate scrapings.

No packaged food was observed in the collected recycling.

Figure 12: Distribution of recyclable food (kg/hh/wk)



Food Recycling Contamination

From the results we can see that overall contamination within the food containers was fairly low averaging very low at <0.01kg/hh/wk or 0.7%. All of the contamination was seen to be either plastic food wrap or carrier bags used instead of the acceptable bin liners.

Overall Waste Generation & Diversion

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). Table 13 and Figure 13 show the total waste generation (residual, dry recycling and food recycling). Table 14 and Figure 13 show the overall proportion of material that is being correctly diverted.

In total the households surveyed are placing 38.6kg/hh/wk of waste and recycling out for kerbside collections. This amount excludes Any garden waste which was not part of this survey. This equates to 2.02tonnes per annum per household. Around 86% of the material disposed of is contained within residual bins (33.1kg/hh/wk or 1.72 tonners per annum).

Table 13: Average waste generation levels (kg/hh/wk)

TOTAL WASTE KG/HH/WK	KG/HH/WK	TONNES PER ANNUM
RESIDUAL WASTE	33.06	1.72
MIXED RECYCLING	5.12	0.27
FOOD RECYCLING	0.45	0.02
TOTAL	38.62	2.02

When combining the diversion achieved from all recycling streams it is estimated that households are diverting around 12.8% of their kerbside waste. This represents around 4.95kg/hh/wk of the 38.6kg/hh/wk being generated. Around 11.7% of is diverted via green recycling sacks with just 1.2% via food collections. Were all of the recyclable materials disposed of in the desired recycling container the maximum achievable diversion would be 69.1% and the majority of this would be via food recycling bins.

Table 14: Overall % diversion

DIVERSION RATES	CURRENT % DIVERSION	MAXIMUM ACHIEVABLE
MIXED RECYCLING	11.66%	31.79%
FOOD RECYCLING	1.15%	37.33%
TOTAL	12.81%	69.12%

Figure 13: Total waste generation and diverted proportion (kg/hh/wk)

