

Rochdale Kerbside Waste

Composition Analysis

Survey 1 (Combined)

Greater Manchester Combined Authority

Final Report

May 2019



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Project details and acknowledgements

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Background

GMCA’s overarching aim is to increase household recycling across Greater Manchester to 60% by 2020 and reduce household residual waste to 400 kilogrammes/household/year (kg/hh/yr) by 2025. There is therefore a need to establish the composition of the household waste stream, across kerbside and Household Waste Recycling Centre (HWRC) services, to understand how best GMCA can achieve these targets.

The compositional analysis of kerbside collected household waste and recycling covered four waste streams – residual waste, co-mingled (mixed) recycling, pulpables (paper and card) recycling and organics (food and garden) recycling.

The fieldwork was carried out over a twelve-month period covering two seasons; spring/summer and autumn/winter. The results provide an annual representation of kerbside collected waste and recycling for each individual district and GMCA as a whole.

With a greater understanding of the composition of each waste stream, specifically the waste destined for the residual waste container, GMCA will be in a stronger position to identify types and quantities of materials that are not being recycled correctly. This information can then be used to assess the feasibility of GMCA realising their targets.

This report provides the results for the kerbside collection service for Rochdale only. The results for the remaining eight Districts and the HWRC service are provided in separate reports.

Executive Summary

The results in this report represent the average of the two seasonal surveys. All tables are calculated from the fieldwork exercise and apply to households with individual kerbside collected containers and not multiple occupancy dwellings or flats with the use of communal bins. Results show:

* Households in Rochdale are producing 204kg/hh/year of residual waste; this is within the current target rate of 400kg/hh/yr.
* Against the 2020 GMCA target of 60% recycling, figures from this survey show an average recycling rate of 53.4% for Rochdale households. This rate excludes contamination placed within recycling containers.
* The pulpables recycling scheme is currently achieving a diversion rate of 10.8% with 80.9% of all acceptable materials captured. Figures suggest that 80.7% of recyclable paper and 81.2% of recyclable card and cardboard are captured by this collection. Contamination within this recycling stream is 14% which equates to 9kg/hh/yr with 12.5kg/hh/yr remaining in the residual waste stream.
* The co-mingled recycling scheme is currently achieving a diversion rate of 15.4% with 86.3% of all acceptable materials captured. Figures suggest that 85.2% of plastic bottles, 90.8% of glass bottles and jars and 73.1% of recyclable metals are captured by this collection. Contamination within this recycling stream is 19.3% which equates to 18.8kg/hh/yr with 12.1kg/hh/yr of these materials remaining in the residual waste stream.
* The organics recycling scheme is currently achieving a diversion rate of 27.2% with 73.3% of all acceptable materials captured. Figures suggest that 56.9% of food waste, 97.8% of garden vegetation and 42.7% of recyclable pet bedding are captured by this collection. Contamination within this recycling stream is 4.6% which equates to 6.7kg/hh/yr with 48.5kg/hh/yr of these materials remaining in the residual waste stream.
* Food waste forms 22% of waste in residual bins, equating to 45kg/hh/yr, and is responsible for 86% of the recyclable material present. The majority of the food in the residual bins (80%) is avoidable. If households did not dispose of any edible food waste, then the total amount of residual waste would fall to around 159kg/hh/yr and increase diversion to 44.2%.
* 36% of residual waste consists of materials that can be recycled at the kerbside, this equates to 73kg/hh/yr of unrecycled materials. Around 6% of residual waste should be in pulpable recycling bins, 6% should be in co-mingled recycling bins and 24% should be in organic recycling bins.
* If all of these materials were correctly recycled, then the current maximum achievable diversion is 68.3%.
* Textiles are not currently an option for residents to recycle at the kerbside, however they are readily accepted at bring banks, charity shops or local recycling centres. Potentially collectable clothing and fabrics accounted for 10.5kg/hh/yr or 5% of the residual waste. By not placing these materials into residual bins then diversion would increase from 53.4% to 54.5%.
* Disposable nappies and AHP waste are a major component of the residual waste forming 11% or 22kg/hh/yr of the total. If schemes were in place to collect this waste separately or householders’ chose to use washable nappies, then diversion would increase from 53.4% to 55.8%.
* GMCA may choose to expand its mixed recycling collections to include liquid cartons (Tetrapaks) and plastic pots, tubs and trays. The items are present both in the residual waste and also are regularly incorrectly recycled via the current scheme. Rochdale households are generating around 14.6kg/hh/yr of these materials. If these items became recyclable at the kerbside and all were correctly recycled, then potentially the achieved diversion would increase from 53.4% to 56.2%.

Residual (General) waste – 85% of households set out their residual waste bin for collection

Rochdale households dispose of 204kg/hh/yr of residual waste. Collections take place every three weeks. The survey shows that 36% of the waste found in the residual bin is recyclable which equates to 73.1kg/hh/yr. The bulk of the recyclable material is food waste which accounts for 45kg/hh/yr or 22% of the recyclable material that is present. 36% OR 73.1kg/hh/yr of residual waste is recyclable

|  |  |  |
| --- | --- | --- |
| **Recyclable materials** | **KG/HH/YR** | **%** |
| **Recyclable paper** | **6.8** | **3.3%** |
| **Recyclable card & cardboard** | **5.7** | **2.8%** |
| **Plastic bottles** | **2.5** | **1.2%** |
| **Recyclable glass** | **5.0** | **2.4%** |
| **Recyclable metals** | **4.7** | **2.3%** |
| **Recyclable food waste** | **45.0** | **22.0%** |
| **Recyclable garden waste** | **1.6** | **0.8%** |
| **Recyclable pet bedding** | **1.9** | **0.9%** |
| **Total** | **73.1** | **35.8%** |

Pulpables (Paper and card) recycling – 62% of households set out these bins for collection

Rochdale households place 64.5kg/hh/yr of material in their pulpable recycling bins. Collections take place every three weeks. Of the materials households are recycling in this bin, around 14% or 9kg/hh/yr is formed from contaminants which are unacceptable to the scheme. Around 51% of the contamination is due to non-recyclable paper and card such as tissue paper, wallpaper, greaseproof paper and laminated card. Food waste formed 7% of the contamination with co-mingled recyclables contributing 4%. The remaining contamination came from a range of residual waste items most notably bagged waste, metals and plastic film.

|  |  |  |  |
| --- | --- | --- | --- |
| **Recyclable materials** | **KG/HH/YR** | **%** | **Capture rate** |
| **Recyclable paper** | **29.6** | **45.9%** | **80.7%** |
| **Recyclable card & cardboard** | **25.6** | **39.6%** | **81.2%** |
| **Contamination** | **9.3** | **14.4%** | **-** |
| **Total** | **64.5** | **100.0%** | **80.9%** |

Of all the recyclable paper generated by households, just below 81% is correctly captured in the pulpable recycling bin. Similarly, the proportion of card and cardboard successfully captured is around 81%.

Co-mingled (Mixed) recycling – 62% of households set out these bins for collection

Rochdale households place 98kg/hh/yr of material in their co-mingled recycling bins. Collections take place every three weeks. Around 19% (18.8kg/hh/yr) of material in the co-mingled recycling bins is due to waste not recyclable in any of the kerbside collection containers with items such as plastic pots, tubs and trays, plastic film, scrap metal and contained liquids commonly present. An average of 8% (1.6kg/hh/yr) is organic waste (mainly food) and just 3% paper and card – these materials should have been placed into the other recycling bins that are available.

|  |  |  |  |
| --- | --- | --- | --- |
| **Recyclable materials** | **KG/HH/YR** | **%** | **Capture rate** |
| **Plastic bottles** | **15.1** | **15.5%** | **85.2%** |
| **Glass bottles and jars** | **50.6** | **51.9%** | **90.8%** |
| **Tins, cans, aerosols & foil** | **13.0** | **13.3%** | **73.1%** |
| **Contamination** | **18.8** | **19.3%** | **-** |
| **Total** | **97.5** | **100.0%** | **86.3%** |

Of all the recyclable metal set out at the kerbside for collection, over 73% is correctly captured in the co-mingled recycling bin, which means around 27% of potentially recyclable material (tins, cans, aerosols and foil) is not being recycled. The proportion of plastic bottles successfully recycled is 85% with 91% of all glass bottles and jars also captured by the co-mingled recycling bin.

Organics (Food and garden) recycling – 36% of households set out these bins for collection

Rochdale households place 146.1kg/hh/yr of material in their organics recycling bins. Collections take place every week. Of the materials households are recycling in this bin, around 5% or 6.7kg/hh/yr is formed from contaminants which are unacceptable to the scheme. Around 52% of contamination is due to soil and turf.

|  |  |  |  |
| --- | --- | --- | --- |
| **Recyclable materials** | **KG/HH/YR** | **%** | **Capture rate** |
| **Food waste** | **62.3** | **42.7%** | **56.9%** |
| **Garden vegetation** | **75.3** | **51.5%** | **97.8%** |
| **Organic pet bedding** | **1.4** | **1.0%** | **42.7%** |
| **Contamination** | **6.7** | **4.6%** | **-** |
| **Total** | **146.1** | **100.0%** | **73.3%** |

Of all the recyclable food waste generated by households, 57% is correctly captured in the organic recycling bin, which means 43% (83.8kg/hh/yr) of potentially recyclable food is not being recycled. Of the food waste being recycled, 64% is classified as avoidable. Almost all (98%) of garden vegetation is correctly recycled compared with just 43% of hay and straw pet bedding.

Separation of waste

Figures from this analysis suggest Rochdale households currently generate around 512.2kg/hh/yr of waste and recycling for kerbside collection. A total of 273.3kg/hh/yr of this is correctly recycled giving a recycling rate of 53.4%. An additional 14% (73.1kg/hh/yr) is formed from recyclable material placed into the residual bins. Finally, there is 3.2kg/hh/yr or 1% of kerbside waste that is due to recyclable material placed into the incorrect recycling bin. If all of the recyclable material that is disposed of at the kerbside were placed into the correct recycling container then the potential rate for diversion would be 68.3%.

Levels of contamination in the recycling bins were relatively high. In total, of the 512.2kg/hh/yr of total kerbside waste and recycling around 33.8kg/hh/yr is contamination found in the recycling bins (either residual materials or recyclables in the wrong container). This represents around 7% of the total weight set out by householders at the kerbside.

|  |  |  |
| --- | --- | --- |
| **Kerbside waste separation** | **KG/HH/YR** | **% by weight** |
| **Residual waste in residual bin** | **130.9** | **25.6%** |
| **Recycling in residual bin** | **73.1** | **14.3%** |
| **Correctly recycled materials** | **273.3** | **53.4%** |
| **Incorrectly recycled material** | **3.2** | **0.6%** |
| **Residual material in recycling** | **31.6** | **6.2%** |
| **Total kerbside waste** | **512.2** | **100.0%** |

Introduction

The Greater Manchester Combined Authority (GMCA) disposes of the waste collected by its nine member Districts - Bolton MBC, Bury MBC, Manchester CC, Oldham Council, Rochdale MBC, Salford CC, Stockport MBC, Tameside MBC and Trafford MBC. A four-stream kerbside collection service is operated across all Districts covering co-mingled recycling, pulpable recycling (paper and card), organics recycling (combined food waste and garden waste) and residual waste. Districts also offer recycling services for flats and householders using communal bins, in some cases this is a reduced service.

Co-mingled (Mixed) recycling

* Plastic bottles
* Food tins
* Tin foil
* Drinks cans
* Aerosols
* Glass jars and bottles

Pulpables (Paper and card) recycling

* Egg boxes
* Cardboard
* Card packaging
* Newspapers, magazines, brochures, envelopes and junk mail

Organics (Food and garden) recycling

* Tea bags and coffee grounds
* Fruit and vegetables
* Meat and bones (cooked and uncooked)
* Breads and pastries
* Dairy (e.g. cheese) and egg shells
* All cooked and uncooked food, grass, flowers, hedge and plant cuttings
* Hay and straw

In addition to these regular kerbside collections there is the provision of twenty Household Waste Recycling Centres (HWRCs) for the use of Greater Manchester residents.

Materials accepted (varies between sites):

* Batteries
* Car batteries
* Co-mingled recycling (glass bottles and jars, plastic bottles, aerosols, foil, food and drink cans)
* Cooking oil
* Engine oil
* Fluorescent tubes
* Fridges and freezers
* Garden waste
* Gas bottles
* General waste
* Hardcore and rubble
* Household chemicals
* Large and small electrical appliances
* Media
* Paper and card
* Print cartridges
* Scrap metal
* Textiles
* Timber and wood
* TV and monitors
* Tyres

As part of a continuing drive to reduce the levels of waste being generated, and to identify possibilities for increasing the efficiency with which recyclables are separated, GMCA commissioned M·E·L Research to undertake a series of waste surveys that would determine:

Survey 1 - The composition of all kerbside collected waste and recycling streams;

Survey 2 - The composition of materials taken by householders to the HWRCs; and

Survey 3 - Why residents are bringing waste to the HWRCs, what materials they are disposing of, site satisfaction and catchment areas.

The findings for each of the surveys listed above are contained in separate reports. This report covers the results of the composition of household waste and recycling collected directly from the kerbside (Survey 1) and relates specifically to households within the Rochdale Council area.

Since 2011 there have been a number of changes to kerbside collection services. These include changing the frequency of residual waste collections to three weekly from two weekly or reducing residual bin capacity from 240L to 140L. The frequency of some recycling collections has also been changed. GMCA has set clear targets to increase household recycling across Greater Manchester to 60% by 2020 and reduce household residual waste to 400kg/hh/yr by 2025. Findings from the surveys being undertaken will help to gauge progression towards these targets. The results will show whether the targets are achievable and, if that is the case, where attention should be focused in order to achieve or surpass them.

Sampling

The aim of Survey 1 was to sample representative households from within Rochdale to gain the best overall picture of the waste and recycling being disposed of by its residents at the kerbside. In order to obtain this objective, all households within Rochdale were classified using socio-demographic profiling. M·E·L Research uses licenced software, supplied by CACI ltd, which segments postcodes into various subsets called Acorns (A Classification Of Residential Neighbourhoods)**[[1]](#footnote-2)**. Acorn segments postcodes into 6 Categories, 18 Groups and 62 types, three of which are not private households. By analysing significant social factors and population behaviour, it provides detailed information and in-depth understanding of the different types of people within an area.

Eight dominant Acorn groups were selected to represent the dominant types of householders in Rochdale. These were spread throughout the main five private household Acorn categories and represented 78.8% of the householder types present throughout the District (minimum target 75%). These selected groups are highlighted in yellow in Table 1. A selection of households from the selected Acorn groups were sent a letter to make them aware of the waste survey and to give them an opportunity to opt out.

Table 1: Acorn household profile for Rochdale

|  |  |  |
| --- | --- | --- |
| **Affluent Achievers** | | |
| **1.A** | **Lavish Lifestyles** | **0.2** |
| **1.B** | **Executive Wealth** | **7.6** |
| **1.C** | **Mature Money** | **6.0** |
| **Rising Prosperity** | | |
| **2.D** | **City Sophisticates** | **0.0** |
| **2.E** | **Career Climbers** | **1.5** |
| **Comfortable Communities** | | |
| **3.F** | **Countryside Communities** | **0.8** |
| **3.G** | **Successful Suburbs** | **5.9** |
| **3.H** | **Steady Neighbourhoods** | **8.6** |
| **3.I** | **Comfortable Seniors** | **2.1** |
| **3.J** | **Starting Out** | **4.0** |
| **Financially Stretched** | | |
| **4.K** | **Student Life** | **0.0** |
| **4.L** | **Modest Means** | **18.4** |
| **4.M** | **Striving Families** | **7.7** |
| **4.N** | **Poorer Pensioners** | **6.5** |
| **Urban Adversity** | | |
| **5.O** | **Young Hardship** | **9.3** |
| **5.P** | **Struggling Estates** | **9.2** |
| **5.Q** | **Difficult Circumstances** | **11.9** |
| **Not Private Households** | | |
| **6.R** | **Not Private Households** | **0.2** |

Highlighted Acorn groups were selected for analysis throughout Rochdale.

The analysis provides the following outputs:

* An understanding (using socio-demographic profiling) of which types of householders are producing which types of waste and which types of householders are using the recycling provision most effectively
* Total amounts of presented material for each of the four kerbside collection schemes
* Information on the levels of recyclable materials found in the residual waste container
* Amount and types of contamination found in the recycling containers
* Capture rates for individual materials included in each recycling stream
* The amount of overall waste diverted by each recycling scheme and overall

Table 2 shows the kerbside collection system currently available for Rochdale households.

Table 2: Kerbside waste and recycling collections for Rochdale householders

|  |  |  |
| --- | --- | --- |
| **Waste stream** | **Containers** | **Collection frequency** |
| Mixed recycling (Commingled) | 140L / 240L | Every 3 weeks |
| Paper and card (Pulpable) | 140L / 240L | Every 3 weeks |
| General waste (Residual) | 140L / 240L | Every 3 weeks |
| Food and garden | 140L / 240L / Street caddy / Kitchen caddy | Every week |

Table 3 provides reference for the total recorded annual tonnages for the main waste and recycling streams collected throughout Rochdale. The appendix section applies these tonnage figures to the percentage composition data from this survey.

Table 3: 2017/18 waste tonnages

|  |  |
| --- | --- |
| **Waste stream** | **Tonnes per annum (tpa)** |
| Co-mingled (mixed dry recyclables excl. pulpables) | 8,866.78 |
| Organics (Food and Garden) | 19,023.22 |
| Pulpables (Paper & Card) | 6,774.67 |
| Residual (General Waste) | 34,713.66 |
| Trade Waste | 0.00 |
| **Grand Total** | **69,378.33** |

Methodology and Analysis

Households were selected for inclusion in the survey on the basis that they had not opted out and were part of one of the eight nominated Acorn groups shown in Table 1. These selected households were initially sampled during the spring and summer of 2018.

The same range of households was then re-visited during survey 2 (autumn/winter) with the same waste containers again surveyed.

The number of households setting out each waste/recycling was recorded, with the aim of collecting all presented waste and recycling. In some instances, it was not possible to collect all presented waste/recycling (resident refuses, bins too heavy to manhandle or contain hazardous materials or total weight of waste exceeds vehicle capacity). The collected residual waste from each household was bulked together for sorting as a single sample as were the samples of recycling from each household.

The manual hand sorting of the collected waste/recycling gave concentration by weight figures for each of the main categories of waste, as well as the more detailed sub-categories. This gives an indication as to the proportion of each waste category and is expressed as a percentage (by weight). This percentage can be translated into a figure relating to the average waste generation expected for each waste category. This is calculated in kilograms per household per week (kg/hh/wk) and then converted to kilograms per household per year (kg/hh/yr). As this is the unit the GMCA has used to for waste targets.

The amount of waste kg/hh/yr is calculated from the total number of households surveyed and not just those that are participating. This is most representative of the amount of waste that will be collected by regular crews.

For example; where 50 bins of waste are collected from **75** households the set-out rate is 67%.

The total amount of collected waste from the presented bins is **1,250kg**.

Bins are collected on a **three-weekly** basis.

Waste generation = **1,250kg** / **75** households = **16.7kg**

**16.7kg** / **3 weeks** = **5.6kg/hh/wk** or **290kg/hh/yr**

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 across Rochdale as a whole. Figures expressed as an average for Rochdale are weighted from the results for each sample. This accounts for their relative prominence across the District as per their proportion in Table 1.

Statistical Accuracy

In the compositional analysis data tables contained within this report, we have presented figures for the average kg/hh/yr and percentage of waste that falls into each of the compositional categories. To get an indication of the reliability of these figures (given that they are based on analysing just a sample of all the waste being generated) we use a standard statistical technique to generate a ‘confidence interval’, which is a way of representing the possible range of error resulting from using a sample rather than analysing it all.

To do this we have applied validated error tests, which have been standardised for the sampling and analysis technique we use at M·E·L Research, based on controlled testing of both sampling error (caused by taking a sample of the waste and not all of it), and also what is termed instrument (observational) error, which reflects the accuracy of the hand sorting technique used by our analysts. These can be combined statistically to produce an estimate of the accuracy of compositional statistics for this phase.

Based on this standard method, the percentages quoted 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 (note that these accuracies are based on assuming a ‘normal statistical distribution’ in the way waste is being disposed of by the households in the selected samples). This means that, for any of the main compositional category headings, we are 95% confident that the figure we quote based on analysing the sample, is within +/- 10% of the true figure you would get if you analysed all the waste that arrives during a typical collection week.

Results – Residual Waste

Set out rates

Households throughout Rochdale have access to a three-weekly collection of residual waste. At the time of survey, it was seen that an average of 85.1% of households presented residual bins for collections. Ranges were from 76.1% for Acorn 5Q (difficult circumstances) up to 93.8% for Acorn 4L (Modest Means).

Figure 1: Set out rates for residual waste (%)

**Waste generation levels**

On average, results from this survey suggested 204kg/hh/yr of residual waste was generated by Rochdale households. Less than 153kg/hh/yr of residual waste was generated by Acorn 1C (mature money) households, compared with Acorn 5P (struggling estates) households who generated 351.2kg/hh/yr. Solely considering presented bins; the average amount of waste generated is 239.7kg/hh/yr.

Table 4: Kerbside residual waste

|  |  |  |  |
| --- | --- | --- | --- |
| **Sample** | **% Set out rate** | **OVERALL KG/HH/YR\*** | **KG/HH/YR per presented bin\*\*** |
| 1B | 82.2% | 234.4 | 285.2 |
| 1C | 85.6% | 152.9 | 178.6 |
| 3H | 89.5% | 221.6 | 247.5 |
| 4L | 93.8% | 188.9 | 201.4 |
| 4M | 84.2% | 234.3 | 278.3 |
| 5O | 85.7% | 177.7 | 207.3 |
| 5P | 77.7% | 251.2 | 323.2 |
| 5Q | 76.1% | 185.4 | 243.7 |
| Average | 85.1% | 204.0 | 239.7 |

\* The overall kg/hh/yr refers to the total amount of waste generated by all of the households surveyed at the time waste was collected. This includes households that did not present a bin for collection. This figure is the most realistic estimate for the waste generation for a given area as there are always a proportion of households that will not present a bin for every collection.

\*\*Kg/hh/yr for presented bins is used for comparative purposes and is always higher as it only apples to the collected bins and does not account for households not setting out waste. In effect this is the level of waste that would be generated were there a 100% set out rate.

Figure 2: Kg/hh/yr for residual waste

**Compositional analysis of residual waste**

This section looks at the average composition of the household residual waste collected across Rochdale. It provides information on the main materials present and highlights any differences between the various Acorn group samples and the proportion of recyclable material that each contains. Detailed data sheets are displayed in a separate data appendix.

Figure 3 shows that by far the greatest concentration of material (by weight) was putrescible material, accounting for over a quarter of the residual waste (26% or 52.1kg/hh/yr). This category includes food waste, garden waste, consumable liquids and biodegradable pet bedding. Food waste was the most prevalent material forming 93% of the putrescibles present in residual waste bins. 20% (40.7kg/hh/yr) of the material in the residual waste was miscellaneous combustibles. This category includes a broad range of items such as nappies, wood, animal waste and general bric-a-brac. Over half of this type of waste was due to disposable nappies, which alone, accounted for 11% (22kg/hh/yr) of residual waste.

Figure 3: Main materials in the residual waste (Kg/hh/yr and % by weight)

\*all unsortable fragments <10mm in size

**Pulpables (Paper and card)**

Overall, 13.5% or 27.4kg/hh/yr of the total weight of residual waste surveyed across Rochdale was due to paper and card. Of this, over 46% was suitable for recycling at the kerbside in the form of recyclable paper (newspapers, magazines, envelopes, brochures, junk mail and copy paper etc.) and recyclable card and cardboard (corrugated cardboard, packaging card and greetings cards). Householders are therefore estimated to be placing 12.5kg/hh/yr of recyclable pulpables (paper and card) in their residual bins.

The majority (53.4%) of paper and card in the residual waste is, however, classed as non-recyclable for the pulpable recycling collections and includes items such as used wallpaper, tissue paper, waxed or greaseproof paper, laminated or mixed material card.

**Figure 4: Average paper and card content of the residual waste (kg/hh/yr)**

From individual samples it was seen that Acorn 5O (Young Hardship) households disposed of just 8.1kg/hh/yr of recyclable paper and card in their residual bins compared with 13.3kg/hh/yr for Acorn 4M (Striving Families) households.

Whereas just 30% of the paper and card in the residual bins from Acorn 5O (Young Hardship) was of a recyclable type, this ratio was 63% for Acorn 4L households (modest means).

**Co-mingled** **(Plastic, metal and glass)**

Overall, 23.1% or 47.2kg/hh/yr of the total weight of residual waste surveyed across Rochdale was due to plastic, metal and glass waste. Of this, 26% was suitable for recycling at the kerbside via co-mingled recycling bins (plastic bottles, glass bottles and jars, tins, cans foil and aerosols). Householders are therefore estimated to be placing 12.1kg/hh/yr of recyclable co-mingled items (recyclable plastic, metal and glass) in their residual bins.

The majority (74%) of plastic, metal and glass in the residual waste is, however, classed as non-recyclable for the co-mingled recycling collections and includes items such as plastic film, plastic pots, tubs and trays, polystyrene, non-packaging glass and scrap metal.

**Figure 5: Average plastic, metal and glass content of the residual waste (kg/hh/yr)**

From individual samples it was seen that Acorn 1C households (mature money) disposed of just over 6kg/hh/yr of recyclable plastic, metal and glass in their residual bins compared with 23kg/hh/yr for Acorn 5P (struggling estates) households.

Additionally, whereas just 17% of the plastic, metal and glass in the residual bins from Acorns 1C households was of a recyclable type, this ratio was 38% for Acorn 5P (struggling estates) households.

**Organics (Food and garden)**

Figure 3 shows that by far the greatest concentration of material in the residual waste for all samples was putrescible waste. This category is made up of food waste, consumable liquids garden waste and organic pet bedding. Overall, 25.6% or 52.1kg/hh/yr of residual waste surveyed across Rochdale was deemed to be putrescible in nature. Over 86% of the putrescible material was due to recyclable food waste and this accounted for 22% or 45kg/hh/yr of all residual waste. Combined, garden vegetation and organic pet bedding amounted to just 3.5kg/hh/yr in the residual waste. Therefore, a total of 48.5kg/hh/yr or 23.8% of all residual waste is of a type that could have been recycled via the organic collection bins. Around 93% of the organic material within residual bins is deemed to be recyclable with just 7% formed from soil, turf and contained consumable fats and liquids.

**Figure 6: Putrescible content of the residual waste (kg/hh/yr)**

Food waste in this report is shown using WRAPs food and drink categorisations:

1. **Avoidable** – food thrown away that was, at some point prior to disposal, edible (e.g. slice of bread, apples, meat). This includes unused fully packaged food waste; part used food waste in packaging and loose food waste;
2. **Possibly avoidable** – food that some people eat, and others do not (e.g. bread crusts), or that can be eaten when a food is prepared in one way but not in another (e.g. potato skins and vegetable peelings); and
3. **Unavoidable** – waste arising from food preparation that is not, and has not been, edible under normal circumstances (e.g. meat bones, egg shells, pineapple skin, tea bags).

Figure 7: Recyclable food content of the residual waste

On average 22% of all residual waste consisted of food waste, equating to 45kg/hh/yr. Of all the food waste being placed into residual bins, 80% was avoidable with a further 8% potentially avoidable. Therefore, each household places an average of 40kg/hh/yr of avoidable food in their residual bins.

From individual samples it was seen that Acorn 4L (Modest Means) households disposed of the least food waste in their residual bins at around 31.3kg/hh/yr. This compares with levels of 74.5kg/hh/yr for Acorn 4M. Of all the food in the residual bins, between 53% for Acorn 5Q (difficult circumstances) and 64% for Acorn 5O (Young Hardship) was packaged – 57% for Rochdale.

Across the samples the proportion of all food waste that was avoidable ranged between 68% for Acorn 5P (struggling estates) households up to 87% for Acorn 3H (Steady Neighbourhoods). An average of 80%.

Of the avoidable food, almost three quarters (71%) was disposed of packaged. This is food waste either totally unopened or part used and still within its original packaging.

**Potential recyclability of the residual waste**

Overall, 35.8% or 73kg/hh/yr of residual waste is deemed to be acceptable to either the pulpable, co-mingled or organic recycling collections.

**Figure 8: Proportion of waste placed in residual bins that is accepted in current schemes (%)**

**Figure 9: Recyclable waste placed in residual bins that is accepted in current schemes (kg/hh/yr)**

**Results - Pulpable recycling (Paper and card)**

**Set out rates and amount of recycling**

Households throughout Rochdale have access to a three-weekly collection of Pulpables (paper and card) recycling. On average, 62% of households set out their paper and card recycling bins for collection. Set out rates ranged from 53% for Acorn 5P (struggling estates) and 5O (Young Hardship) households up to 78% for Acorn 1B (executive wealth) households. Households generate an average of 64.5kg/hh/yr of pulpable recycling. This equates to around 103.4kg/hh/yr when solely considering presented bins. Acorn 5P (struggling estates) households had the lowest set out rate and generated the least recycling (both on average and per presented bin). This suggests that the service is not being used effectively by residents for the disposal of recyclable paper and card.

**Table 5: Pulpable recycling**

|  |  |  |  |
| --- | --- | --- | --- |
| **Sample** | **% Set out rate** | **Overall KG/HH/YR** | **KG/HH/YR per presented bin** |
| 1B | 77.6% | 86.6 | 111.5 |
| 1C | 73.8% | 89.1 | 120.6 |
| 3H | 59.8% | 62.8 | 104.9 |
| 4L | 66.7% | 58.3 | 87.3 |
| 4M | 63.6% | 73.3 | 115.2 |
| 5O | 53.2% | 57.4 | 107.9 |
| 5P | 53.2% | 42.1 | 79.2 |
| 5Q | 55.5% | 66.0 | 118.9 |
| Average | 62.4% | 64.5 | 103.4 |

The overall kg/hh/yr refers to the total amount of recycling generated by all of the households surveyed. This includes households that did not present a container for collection. This figure is the most accurate estimate for the recycling generation for a given area as there are always a proportion of households that will not present a container for every collection.

Kg/hh/yr for presented containers is used for comparative purposes and is always higher as it only applies to the containers collected and does not account for households not setting out waste. In effect this is the level of recycling that would be generated were there a 100% set out rate

**Figure 10: Set out rates for pulpable recycling (%)**

**Figure 11: Kg/hh/yr for pulpable recycling**

**Compositional analysis**

This section looks at average amounts and composition of the paper and card recycling presented by households sampled throughout Rochdale. Results are again expressed in terms of percentage concentration and kg/hh/yr for individual areas surveyed. Table 6 and Figure 12 show recycling data in terms of percentage composition with Table 7 and Figure 13 showing generation rates for major materials in kg/hh/yr across all households in each sample area.

In previous sections it has been shown that a proportion of the material disposed of in residual bins is classified as recyclable. Collected recycling will also contain a certain amount of material that is deemed to be contamination. That is to say, material that is not compatible with the specific recycling container it is placed into.

On average 45.9% (29.6kg/hh/yr) of recycling is recyclable paper and 39.6% (25.6kg/hh/yr) is recyclable card and cardboard. Therefore 85.6% (55.2kg/hh/yr) of the pulpable recycling bin consists of the correct materials and 14.4% is contamination.

Around 9% (5.8kg/hh/yr) of the presented recycling is non-recyclable paper and card. 1% is organic waste (mainly food) and less than 1% is co-mingled recyclables – these materials should have been placed into the other recycling bins that are available. The remaining contamination is made up of residual bin materials such as scrap metal, bagged waste and plastic film.

**Table 6: Pulpable recycling (% composition)**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sample** | **1B** | **1C** | **3H** | **4L** | **4M** | **5O** | **5P** | **5Q** | **Average** |
| Recyclable paper | 43.3% | 57.5% | 59.2% | 43.4% | 56.2% | 55.2% | 21.5% | 33.3% | 45.9% |
| Recyclable card & cardboard | 43.4% | 32.9% | 31.2% | 43.2% | 32.1% | 27.2% | 55.6% | 47.7% | 39.6% |
| Non-recyclable paper & card | 8.8% | 7.9% | 8.5% | 10.1% | 9.2% | 8.8% | 13.1% | 6.9% | 9.0% |
| Co-mingled recyclables | 0.4% | 0.1% | 0.2% | 0.9% | 0.1% | 1.9% | 0.3% | 0.5% | 0.6% |
| Food & garden waste | 1.0% | 0.5% | 0.1% | 0.4% | 0.6% | 1.9% | 4.2% | 0.6% | 1.0% |
| Residual waste | 3.1% | 1.1% | 0.9% | 2.0% | 1.8% | 5.0% | 5.2% | 10.9% | 3.9% |
| Total recyclable | 86.6% | 90.4% | 90.4% | 86.7% | 88.3% | 82.4% | 77.1% | 81.0% | 85.6% |
| Total contamination | 13.4% | 9.6% | 9.6% | 13.3% | 11.7% | 17.6% | 22.9% | 19.0% | 14.4% |

**Figure 12: Pulpable recycling (% composition)**

**Table 7: Pulpable recycling (kg/hh/yr)**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sample** | **1B** | **1C** | **3H** | **4L** | **4M** | **5O** | **5P** | **5Q** | **Average** |
| Recyclable paper | 37.5 | 51.2 | 37.2 | 25.3 | 41.2 | 31.7 | 9.0 | 22.0 | 29.6 |
| Recyclable card & cardboard | 37.6 | 29.3 | 19.6 | 25.2 | 23.5 | 15.6 | 23.4 | 31.5 | 25.6 |
| Non-recyclable paper & card | 7.6 | 7.0 | 5.4 | 5.9 | 6.7 | 5.1 | 5.5 | 4.6 | 5.8 |
| Co-mingled recyclables | 0.4 | 0.1 | 0.1 | 0.5 | 0.1 | 1.1 | 0.1 | 0.4 | 0.4 |
| Food & garden waste | 0.9 | 0.4 | 0.0 | 0.2 | 0.4 | 1.1 | 1.8 | 0.4 | 0.6 |
| Residual waste | 2.7 | 1.0 | 0.5 | 1.2 | 1.3 | 2.9 | 2.2 | 7.2 | 2.5 |
| Total recyclable | 75.0 | 80.5 | 56.8 | 50.5 | 64.7 | 47.4 | 32.5 | 53.5 | 55.2 |
| Total contamination | 11.6 | 8.6 | 6.0 | 7.8 | 8.5 | 10.1 | 9.7 | 12.6 | 9.3 |

**Figure 13: Pulpable recycling (kg/hh/yr)**

Figure 14 below summarises the average composition of material disposed of in the pulpable recycling. An average of 14.4% of the paper and card recycling bin contents are due to items not acceptable to the collection and therefore deemed to be contamination. Annually this equates to 9.3kg/hh/yr of waste.

**Figure 14: Materials in pulpable recycling bins.**

**Pulpable recycling contamination**

This section looks to breakdown the 9.3kg/hh/yr of contamination being placed into the recycling across Rochdale.

Some forms of contamination may be due to residents’ lack of knowledge in relation to the recycling scheme. For example, a householder may believe napkins and tissue are acceptable forms of paper. Other contamination will be formed from waste that is totally unrelated to the materials collected (i.e. disposable nappies, wood or food waste).

**Table 8: Contamination in pulpable recycling bins (%)**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sample** | **1B** | **1C** | **3H** | **4L** | **4M** | **5O** | **5P** | **5Q** | **Average** |
| Liquid cartons\* | 2.21% | 1.63% | 1.06% | 2.16% | 1.63% | 1.08% | 3.50% | 0.89% | 1.73% |
| Other non-recyclable paper & card | 6.62% | 6.28% | 7.49% | 7.91% | 7.52% | 7.74% | 9.62% | 6.05% | 7.31% |
| Food waste | 1.02% | 0.47% | 0.06% | 0.38% | 0.57% | 1.87% | 4.19% | 0.64% | 0.95% |
| Co-mingled recyclables | 0.41% | 0.11% | 0.15% | 0.88% | 0.13% | 1.87% | 0.34% | 0.54% | 0.59% |
| Other residual waste | 3.11% | 1.12% | 0.86% | 2.02% | 1.80% | 5.00% | 5.28% | 10.91% | 3.86% |
| Total contamination | 13.36% | 9.61% | 9.62% | 13.35% | 11.66% | 17.55% | 22.93% | 19.02% | 14.43% |

**Table 9: Contamination in pulpable recycling bins (kg/hh/yr)**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sample** | **1B** | **1C** | **3H** | **4L** | **4M** | **5O** | **5P** | **5Q** | **Average** |
| Liquid cartons\* | 1.9 | 1.5 | 0.7 | 1.3 | 1.2 | 0.6 | 1.5 | 0.6 | 1.1 |
| Other non-recyclable paper & card | 5.7 | 5.6 | 4.7 | 4.6 | 5.5 | 4.4 | 4.1 | 4.0 | 4.7 |
| Food waste | 0.9 | 0.4 | 0.0 | 0.2 | 0.4 | 1.1 | 1.8 | 0.4 | 0.6 |
| Co-mingled recyclables | 0.4 | 0.1 | 0.1 | 0.5 | 0.1 | 1.1 | 0.1 | 0.4 | 0.4 |
| Other residual waste | 2.7 | 1.0 | 0.5 | 1.2 | 1.3 | 2.9 | 2.2 | 7.2 | 2.5 |
| Total contamination | 11.6 | 8.6 | 6.0 | 7.8 | 8.5 | 10.1 | 9.7 | 12.6 | 9.3 |

\*Residents are told to place liquid cartons in their residual bins, however recent changes to the cardboard market now means this material has become acceptable to the pulpable collection scheme.

On average 14.4% or 9.3kg/hh/yr of paper and card recycling collected throughout Rochdale was deemed to be contamination. Acorn 3H (steady neighbourhoods) and 1C (mature money) recycling were the least contaminated at 9.6%. In comparison just under a quarter (22.9%) of Acorn 5P (struggling estates) recycling was due to contamination. Annually, Acorn 5Q (difficult circumstances) placed the greatest amount of contamination in their recycling bins at 12.6kg/hh/yr.

Around 63% (9% of recycling) of the contamination was due to non-recyclable paper and card along with liquids cartons. General residual waste (including materials such as plastic and plastic film, rubble and disposable nappies) made up 3.9% of the recycling or 27% of the contamination. Food waste made up 7% of the contamination present with less than 1% of material in the paper and card recycling bin due to co-mingled recyclables.

**Recyclable paper and card within residual bins**

Figures show that an average of 35.8% (73kg/hh/yr) of the residual waste collected throughout Rochdale could have been recycled at the kerbside. Recyclable paper and card accounts for 6.1% (12.5kg/hh/yr) of the residual waste. Therefore, it can be said that 17% of the recyclable content of the residual waste is due to paper and card.

The residual waste from Acorn 5Q (difficult circumstances) and 5O (young hardship) contained less than 9kg/hh/yr of recyclable paper and card. Acorn 4L (modest means) households disposed of over 19kg/hh/r of recyclable paper and card in their residual bins where it accounted for around 10% of the total.

**Table 10: Recyclable pulpables placed in residual bins (kg/hh/yr)**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sample** | **1B** | **1C** | **3H** | **4L** | **4M** | **5O** | **5P** | **5Q** | **Average** |
| Recyclable paper (KG/HH/YR) | 5.0 | 4.3 | 6.5 | 14.8 | 5.5 | 2.8 | 5.3 | 2.3 | 6.8 |
| Recyclable card & cardboard (KG/HH/YR) | 6.2 | 6.4 | 3.9 | 4.7 | 7.7 | 5.3 | 7.2 | 5.5 | 5.7 |
| Total recyclable pulpables (KG/HH/YR) | 11.2 | 10.7 | 10.4 | 19.5 | 13.2 | 8.1 | 12.5 | 7.8 | 12.5 |
| Total recyclable pulpables (% of residual) | 4.8% | 7.0% | 4.7% | 10.3% | 5.7% | 4.6% | 5.0% | 4.2% | 6.1% |

**Capture rates for pulpable recycling**

This section looks in more detail at the pulpable recycling collections and highlights the effectiveness with they are capturing these items. Capture rates determine how much of a material that should be recycled actually is being recycled. Looking at the relationship between the residual and recycling waste streams presented will additionally give indications as to the overall diversion being achieved via the pulpable recycling bin.

Across Rochdale it is estimated that 68.2kg/hh/yr of recyclable paper and card is disposed of at the kerbside with around 80.9% or 55.2kg/hh/yr being correctly recycled (captured). Acorn 5P (struggling estates) created just 45.1kg/hh/yr of these pulpable recyclables. In contrast, residents from Acorn 1B (executive wealth) generated around 88.8kg/hh/yr of recyclable paper and card.

With the exception of Acorn 5P (struggling estates) and 4L (modest means) households (72%); all samples captured well over three quarters of their recyclable paper and card at between 84.4% (Acorn 3H – Steady Neighbourhoods) and 88.1% (Acorn 1C – mature money).

**Table 11: Distribution of recyclable pulpables in kerbside containers (kg/hh/yr)**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Recyclable pulpables** | **1B** | **1C** | **3H** | **4L** | **4M** | **5O** | **5P** | **5Q** | **Average** |
| Recyclable paper & card in residual bins (KG/HH/YR) | 11.2 | 10.7 | 10.4 | 19.5 | 13.2 | 8.1 | 12.5 | 7.8 | 12.5 |
| Recyclable paper & card recycled (KG/HH/YR) | 75.0 | 80.5 | 56.8 | 50.5 | 64.7 | 47.4 | 32.5 | 53.5 | 55.2 |
| Recyclable paper & card in co-mingledl bins (KG/HH/YR) | 2.5 | 0.1 | 0.1 | 0.4 | 0.5 | 0.4 | 0.1 | 0.3 | 0.5 |
| Recyclable paper & card in organics bins (KG/HH/YR) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 |
| Total recyclable paper & card disposed of (KG/HH/YR) | 88.8 | 91.3 | 67.3 | 70.4 | 78.5 | 55.8 | 45.1 | 61.7 | 68.2 |
| % Capture of recyclable paper & card | 84.5% | 88.1% | 84.4% | 71.7% | 82.5% | 84.8% | 72.0% | 86.7% | 80.9% |

**Figure 15: Distribution of recyclable pulpables in kerbside containers (kg/hh/yr) by Acorn group and overall**

There are many different forms of paper and card and therefore decisions have to be made by residents as to whether a particular piece is to go into the recycling or residual waste. There is, however, over 13kg/hh/yr of potentially recyclable paper and card not disposed of in recycling bins. Almost all of this is in the residual bins.

Capture rates for card and cardboard were slightly higher (81.2%) than for recyclable paper (80.7%). It was especially the case that bulkier corrugated cardboard was well recycled with 92% placed into pulpable recycling bins. In contrast around 72% of thinner card was captured.

**Diversion via pulpable recycling collections**

The pulpable recycling bin service is responsible for diverting 10.8% of all the kerbside waste presented. This proportion excludes all of the contamination materials that are present within these bins. Acorn 1C (mature money) households are estimated to be diverting over 15% of their kerbside waste via pulpable recycling bins. The rate for households in the Acorn 5O (Young Hardship) area is just under 7%.

**Table 12: Diversion via pulpable recycling bins (%)**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Diversion rates** | **1B** | **1C** | **3H** | **4L** | **4M** | **5O** | **5P** | **5Q** | **Average** |
| Pulpables recycling bin | 12.0% | 15.5% | 10.2% | 11.5% | 11.3% | 9.7% | 6.8% | 10.2% | 10.8% |

**Results - Co-mingled Recycling (Glass, metal and plastic)**

**Set out rates and amount of recycling**

Households throughout Rochdale have access to a three-weekly collection of co-mingled recycling consisting of plastic bottles, glass bottles and jars, tins, cans and foil. On average, 62.3% of households presented co-mingled recycling bins for collection. Ranges seen were 50% for Acorn 5O (Young Hardship) up to 77% for Acorn 1C (mature money) households. It was seen that an average of 97.5kg/hh/yr of co-mingled recycling was being generated. This equates to around 156.4kg/hh/yr when solely considering presented bins.

Acorn 5P (struggling estates) households had the second lowest set out rate and generated the least recycling (both on average and per presented bin). This suggests that the service is not being used effectively by residents for the disposal of recyclable paper and card.

**Table 13: Co-mingled recycling**

|  |  |  |  |
| --- | --- | --- | --- |
| **Sample** | **% Set out rate** | **Overall KG/HH/YR** | **KG/HH/YR per presented bin** |
| 1B | 75.0% | 149.2 | 198.9 |
| 1C | 77.2% | 118.6 | 153.6 |
| 3H | 64.3% | 99.1 | 154.1 |
| 4L | 58.2% | 83.4 | 143.2 |
| 4M | 69.4% | 94.7 | 136.5 |
| 5O | 50.0% | 74.2 | 148.4 |
| 5P | 58.1% | 73.5 | 126.5 |
| 5Q | 60.1% | 113.1 | 188.3 |
| Average | 62.3% | 97.5 | 156.4 |

**Figure 16: Set out rates for co-mingled recycling (%)**

**Figure 17: Kg/hh/yr for co-mingled recycling**

**Compositional analysis of co-mingled recycling**

This section looks at average amounts and composition of the co-mingled recycling presented by households sampled throughout Rochdale. Results can again be expressed in terms of percentage concentration and kg/hh/yr for individual samples surveyed. Table 14 and Figure 18 show recycling data in terms of percentage composition with Table 15 and Figure 19 showing generation rates for major materials in kg/hh/yr across all households in each sample area.

As residual waste will contain a proportion that is classified as recyclable; then recycling waste will contain a faction 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.

On average around 52% (50.6kg/hh/yr) of recycling is due to recyclable glass bottles and jars with 15.5% (15.1kg/hh/yr) being plastic bottles and 13.3% (13kg/hh/yr) recyclable metals. Therefore 80.7% (78.7kg/hh/yr) of recycling bin content consists of the correct materials.

Around 19.3% (18.8kg/hh/yr) of material in the co-mingled recycling bins is due to waste not recyclable in any of the kerbside collection containers with items such as plastic pots, tubs and trays, plastic film, ceramics and contained liquids commonly present. An average of 1.7% (1.7kg/hh/yr) is organic waste (mainly food) and less than 1% paper and card – these materials should have been placed into the other recycling bin that are available.

**Table 14: Co-mingled recycling (% composition)**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sample** | **1B** | **1C** | **3H** | **4L** | **4M** | **5O** | **5P** | **5Q** | **Average** |
| Plastic bottles | 18.7% | 11.5% | 17.9% | 13.4% | 13.8% | 15.6% | 19.6% | 14.5% | 15.5% |
| Glass bottles and jars | 51.8% | 69.9% | 52.7% | 58.4% | 56.1% | 26.3% | 47.6% | 47.2% | 51.9% |
| Tins, cans & foil | 11.1% | 9.9% | 11.2% | 12.7% | 15.9% | 11.9% | 13.9% | 18.1% | 13.3% |
| Paper & card recyclables | 1.7% | 0.1% | 0.1% | 0.5% | 0.6% | 0.5% | 0.1% | 0.3% | 0.5% |
| Food & garden waste | 3.8% | 0.2% | 3.3% | 1.7% | 0.8% | 1.5% | 1.1% | 0.7% | 1.7% |
| Residual waste | 12.9% | 8.4% | 14.7% | 13.3% | 12.8% | 44.1% | 17.7% | 19.2% | 17.1% |
| Total recyclable | 81.6% | 91.3% | 81.8% | 84.6% | 85.9% | 53.9% | 81.1% | 79.8% | 80.7% |
| Total contamination | 18.4% | 8.7% | 18.2% | 15.4% | 14.1% | 46.1% | 18.9% | 20.2% | 19.3% |

**Figure 18: Co-mingled recycling (% composition)**

**Table 15: Co-mingled recycling (kg/hh/yr)**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sample** | **1B** | **1C** | **3H** | **4L** | **4M** | **5O** | **5P** | **5Q** | **Average** |
| Plastic bottles | 27.9 | 13.7 | 17.8 | 11.2 | 13.1 | 11.6 | 14.4 | 16.5 | 15.1 |
| Glass bottles and jars | 77.3 | 83.0 | 52.2 | 48.7 | 53.2 | 19.5 | 35.0 | 53.4 | 50.6 |
| Tins, cans & foil | 16.5 | 11.7 | 11.1 | 10.6 | 15.1 | 8.9 | 10.2 | 20.4 | 13.0 |
| Paper & card recyclables | 2.5 | 0.1 | 0.1 | 0.4 | 0.5 | 0.4 | 0.1 | 0.3 | 0.5 |
| Food & garden waste | 5.7 | 0.2 | 3.3 | 1.4 | 0.7 | 1.1 | 0.8 | 0.8 | 1.7 |
| Residual waste | 19.3 | 9.9 | 14.6 | 11.1 | 12.1 | 32.7 | 13.0 | 21.7 | 16.7 |
| Total recyclable | 121.7 | 108.3 | 81.1 | 70.5 | 81.4 | 40.0 | 59.6 | 90.3 | 78.7 |
| Total contamination | 27.5 | 10.3 | 18.0 | 12.9 | 13.3 | 34.2 | 13.9 | 22.9 | 18.8 |

**Figure 19: Co-mingled recycling (kg/hh/yr)**

Figure 20 summarises the average composition of material disposed of in the co-mingled recycling. Glass bottles and jars form around 52% of the collected co-mingled recycling resulting in an annual collection of 50.6kg/hh/yr. Plastic bottles form 15% of bin contents resulting in 15.1kg/hh/yr being recycled. Tins, cans and foils form 13% of bin contents resulting in 13kg/hh/yr being recycled. An average of 19.3% or 18.8kg/hh/yr of the co-mingled recycling bin contents are due to items not acceptable to the collection and therefore deemed to be contamination.

**Figure 20: Materials in co-mingled recycling bins (kg/hh/yr)**

**Recycling contamination**

This section looks to breakdown the amounts and concentrations of various contaminants being placed into the co-mingled recycling across Rochdale.

Some forms of contamination may be due to residents’ lack of knowledge in relation to the recycling scheme. For example, a householder may believe plastic pots, tubs and trays are acceptable forms of plastic. Other contamination will be formed from waste that is totally unrelated to the materials collected (i.e. disposable nappies, wood or food waste).

**Table 16: Contamination in co-mingled recycling bins (%)**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Co-mingled recycling** | **1B** | **1C** | **3H** | **4L** | **4M** | **5O** | **5P** | **5Q** | **Average** |
| Plastic tubs, pots & trays | 4.7% | 3.4% | 3.6% | 3.1% | 3.5% | 3.4% | 3.7% | 3.8% | 3.7% |
| Other non-recyclable plastics | 1.7% | 1.4% | 1.8% | 3.4% | 2.1% | 3.1% | 2.5% | 2.4% | 2.4% |
| Non-recyclable glass | 1.3% | 0.5% | 0.7% | 1.9% | 0.9% | 28.4% | 1.0% | 0.5% | 3.5% |
| Non-recyclable metals | 0.5% | 0.1% | 1.1% | 0.7% | 0.9% | 0.1% | 1.2% | 1.0% | 0.7% |
| Paper & card recyclables | 1.7% | 0.1% | 0.1% | 0.5% | 0.6% | 0.5% | 0.1% | 0.3% | 0.5% |
| Food waste | 3.3% | 0.2% | 3.3% | 1.7% | 0.8% | 1.5% | 1.1% | 0.7% | 1.6% |
| Contained liquids | 2.6% | 2.0% | 3.2% | 0.4% | 2.8% | 4.8% | 3.6% | 8.2% | 3.5% |
| Other residual waste | 2.6% | 0.9% | 4.4% | 3.8% | 2.6% | 4.3% | 5.8% | 3.3% | 3.4% |
| Total contamination | 18.4% | 8.7% | 18.2% | 15.4% | 14.1% | 46.1% | 18.9% | 20.2% | 19.3% |

**Table 17: Contamination in co-mingled recycling bins (kg/hh/yr)**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Co-mingled recycling** | **1B** | **1C** | **3H** | **4L** | **4M** | **5O** | **5P** | **5Q** | **Average** |
| Plastic tubs, pots & trays | 7.1 | 4.1 | 3.6 | 2.5 | 3.3 | 2.5 | 2.7 | 4.3 | 3.6 |
| Other non-recyclable plastics | 2.5 | 1.7 | 1.7 | 2.9 | 2.0 | 2.3 | 1.8 | 2.7 | 2.3 |
| Non-recyclable glass | 1.9 | 0.6 | 0.7 | 1.6 | 0.8 | 21.1 | 0.7 | 0.6 | 3.4 |
| Non-recyclable metals | 0.8 | 0.1 | 1.1 | 0.6 | 0.8 | 0.1 | 0.9 | 1.1 | 0.7 |
| Paper & card recyclables | 2.5 | 0.1 | 0.1 | 0.4 | 0.5 | 0.4 | 0.1 | 0.3 | 0.5 |
| Food waste | 5.0 | 0.2 | 3.3 | 1.4 | 0.7 | 1.1 | 0.8 | 0.8 | 1.6 |
| Contained liquids | 3.9 | 2.4 | 3.1 | 0.3 | 2.7 | 3.6 | 2.6 | 9.3 | 3.4 |
| Other residual waste | 3.9 | 1.0 | 4.4 | 3.2 | 2.5 | 3.2 | 4.2 | 3.7 | 3.3 |
| Total contamination | 27.5 | 10.3 | 18.0 | 12.9 | 13.3 | 34.2 | 13.9 | 22.9 | 18.8 |

On average 19.3% or 18.8kg/hh/yr of co-mingled recycling collected throughout Rochdale was deemed to be contamination. Acorn 1C (mature money) recycling was the least contaminated at 8.7% or just 10.3kg/hh/r. In comparison over 46% of Acorn 5O (young hardship) recycling was due to contamination; this equated to 34.2kg/hh/yr.

Around 18% (3.4% of recycling) of the contamination was due to general mixed residual waste (including materials such as WEEE, Hazardous waste, ceramics and bagged waste). Non-recyclable plastics made up 6% of the recycling or 31% of the contamination. Almost two thirds of this was due to pots, tubs and trays which formed 3.7% of the collected recycling. The remainder was due to plastic film and mixed dense plastics. Contained liquids (mainly inside plastic bottles) made up 18% of the contamination and formed around 3.5% of the collected recycling. Food waste made up 8% of the contamination present with 18% being non-recyclable glass and 4% non-recyclable metals. Just 0.5% (3% of contamination) was due to recyclable paper and card.**Co-mingled recyclables within residual bins**

Figures show that an average of 35.8% (73kg/hh/yr) of the residual waste collected throughout Rochdale could have been recycled at the kerbside. Recyclable plastics, metals and glass account for 5.9% (12.1kg/hh/yr) of the residual waste. Therefore, it can be said that 16.6% of the recyclable content of the residual waste is due to co-mingled recyclables.

The residual waste from Acorn 1B (executive wealth), 3H (steady neighbourhoods) and 5Q (difficult circumstances) contained around 9kg/hh/yr of co-mingled recyclables. Acorn 5P (struggling estates) households disposed of around 23kg/hh/r of recyclable plastic, metal and glass in their residual bins where it accounted for 9.1% of the total.

**Table 18: Co-mingled recyclables placed in residual bins (kg/hh/yr)**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sample** | **1B** | **1C** | **3H** | **4L** | **4M** | **5O** | **5P** | **5Q** | **Average** |
| Plastic bottles (KG/HH/YR) | 1.7 | 1.4 | 1.7 | 2.4 | 3.6 | 2.4 | 4.8 | 1.6 | 2.5 |
| Glass bottles & jars (KG/HH/YR) | 2.5 | 2.2 | 3.4 | 6.3 | 5.5 | 4.9 | 9.0 | 3.8 | 5.0 |
| Tins, cans & aerosols (KG/HH/YR) | 5.3 | 2.8 | 3.9 | 3.7 | 4.7 | 4.1 | 9.2 | 4.1 | 4.7 |
| Total co-mingled recyclables (KG/HH/YR) | 9.6 | 6.4 | 9.0 | 12.4 | 13.7 | 11.4 | 22.9 | 9.5 | 12.1 |
| Total co-mingled recyclables (% of residual) | 4.1% | 4.2% | 4.1% | 6.5% | 5.9% | 6.4% | 9.1% | 5.1% | 5.9% |

**Capture rates for co-mingled (mixed) recycling**

Rochdale households are disposing of around 91.2kg/hh/yr of recyclable plastic bottles, tins, cans, aerosols, foil and glass bottles and jars at the kerbside. Of these, over 86% or 78.7kg/hh/yr are correctly captured in the co-mingled recycling bins. Acorn 5O (young hardship) households disposed of the smallest amount of co-mingled recyclables at 52.5kg/hh/yr with Acorn 1C (mature money) disposing of as much as 131.7kg/hh/yr.

Acorn 5O (young hardship) and 5P (struggling estates) households were the only ones to capture less than 85% of the available co-mingled recyclables, capturing 76% and 72% respectively. Acorn 1C (mature money) households managed to capture over 94%.

**Table 19: Distribution of co-mingled recyclables in kerbside containers (kg/hh/yr)**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Co-mingled recyclables** | **1B** | **1C** | **3H** | **4L** | **4M** | **5O** | **5P** | **5Q** | **Average** |
| Co-mingled recyclables in residual bins (KG/HH/YR) | 9.6 | 6.4 | 9.0 | 12.4 | 13.7 | 11.4 | 22.9 | 9.5 | 12.1 |
| Co-mingled recyclables in co-mingled bins (KG/HH/YR) | 121.7 | 108.3 | 81.1 | 70.5 | 81.4 | 40.0 | 59.6 | 90.3 | 78.7 |
| Co-mingled recyclables in pulpable recycling bins (KG/HH/YR) | 0.4 | 0.1 | 0.1 | 0.5 | 0.1 | 1.1 | 0.1 | 0.4 | 0.4 |
| Co-mingled recyclables in organics bins (KG/HH/YR) | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 |
| Total co-mingled recyclables disposed of (KG/HH/YR) | 131.7 | 114.9 | 90.2 | 83.4 | 95.3 | 52.5 | 82.7 | 100.2 | 91.2 |
| % Capture of all co-mingled recyclables | 92.4% | 94.3% | 89.9% | 84.5% | 85.4% | 76.2% | 72.1% | 90.1% | 86.3% |

**Figure 21: Distribution of co-mingled recyclables in kerbside containers (kg/hh/yr) by Acorn group**

Plastic Bottles

In all sample areas, the majority of all recyclable plastic bottles are being correctly diverted. There is, however, around 2.7kg/hh/yr of potentially recyclable bottles not disposed of in recycling bins. Acorn 1B (executive wealth) residents captured the highest proportion of their recyclable plastic bottles with 93.5% correctly being recycled, whilst also disposing of the most at 27.9kg/hh/yr. Acorn 5P (struggling estates) were seen to capture the smallest proportion (74.8%). Across Rochdale it is estimated that 20.9kg/hh/yr of recyclable plastic bottles are disposed of at the kerbside with around 84.3% or 17.6kg/hh/yr being correctly recycled.

Plastic pots, tubs and trays are currently not part of the recycling collections available in Rochdale. Despite this over a quarter (28%) of all the plastic pots, tubs and trays disposed of at the kerbside are placed into the co-mingled recycling bins. In all sample areas over a fifth of pots, tubs and trays are recycled peaking at 48% for the Acorn 5Q (difficult circumstances) sample.

**Table 20: Distribution of recyclable plastic bottles in kerbside containers (kg/hh/yr)**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Plastic bottles** | **1B** | **1C** | **3H** | **4L** | **4M** | **5O** | **5P** | **5Q** | **Average** |
| Plastic bottles disposed of(KG/HH/YR) | 29.8 | 15.1 | 19.5 | 13.9 | 16.7 | 14.3 | 19.2 | 18.3 | 17.8 |
| Plastic bottles recycled (KG/HH/YR) | 27.9 | 13.7 | 17.8 | 11.2 | 13.1 | 11.6 | 14.4 | 16.5 | 15.1 |
| % Capture of plastic bottles | 93.5% | 90.8% | 91.1% | 80.7% | 78.4% | 81.1% | 74.8% | 89.9% | 85.2% |

Glass bottles and jars

Across Rochdale it is estimated that 55.7kg/hh/yr of recyclable bottles and jars are disposed of at the kerbside with around 90.8% or 50.6kg/hh/yr being correctly recycled.

Around 5.1kg/hh/yr of potentially recyclable glass is not disposed of in recycling bins. Acorn 1C (mature money) residents captured the highest proportion of their recyclable glass bottles and jars with 97% correctly being recycled, whilst also generating the most recyclable glass. With the exception of Acorn 4L (88.4), 5O (42.6%) and 5P (54.9%), all samples were seen to capture over 90% of the glass bottles and jars they disposed of with Acorn 5O (young hardship) generating the least of this waste at 19.5kg/hh/yr.

Table 21 shows the distribution of recyclable bottles and jars throughout the residual and recycling waste by Acorn group and overall.

**Table 21: Distribution of recyclable glass in kerbside containers (kg/hh/yr)**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Glass bottles & jars** | **1B** | **1C** | **3H** | **4L** | **4M** | **5O** | **5P** | **5Q** | **Average** |
| Glass bottles & jars disposed of (KG/HH/YR) | 80.0 | 85.3 | 55.6 | 55.1 | 58.7 | 25.0 | 44.0 | 57.2 | 55.7 |
| Glass bottles & jars recycled (KG/HH/YR) | 77.3 | 83.0 | 52.2 | 48.7 | 53.2 | 19.5 | 35.0 | 53.4 | 50.6 |
| % Capture of glass bottles & jars (KG/HH/YR) | 96.7% | 97.3% | 93.8% | 88.4% | 90.6% | 78.0% | 79.5% | 93.3% | 90.8% |

Metals

Across Rochdale it is estimated that 17.8kg/hh/yr of recyclable metals compatible are disposed of at the kerbside with around 73.1% or 13kg/hh/yr being correctly recycled. Acorn 5Q (difficult circumstances) residents captured the highest proportion of their recyclable tins, cans and foils with 82.6% correctly being recycled. Acorn 5O (Young Hardship) generated the lowest levels of recyclable metal at 8.9kg/hh/yr. The majority of samples were seen to capture over 70% of the recyclable metals they disposed of with the exception of Acorn 5O (67.5%) and 5P (52.4%). Around 4.8kg/hh/yr of potentially recyclable metal is not disposed of in recycling bins.

**Table 22: Distribution of recyclable metal in kerbside containers (kg/hh/yr)**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Tins, cans, aerosols & foil** | **1B** | **1C** | **3H** | **4L** | **4M** | **5O** | **5P** | **5Q** | **Average** |
| Recyclable metals generated (KG/HH/YR) | 21.9 | 14.6 | 15.0 | 14.4 | 19.9 | 13.1 | 19.5 | 24.7 | 17.8 |
| Recyclable metals recycled (KG/HH/YR) | 16.5 | 11.7 | 11.1 | 10.6 | 15.1 | 8.9 | 10.2 | 20.4 | 13.0 |
| % Capture of recyclable metals (KG/HH/YR) | 75.4% | 80.1% | 74.0% | 73.3% | 76.0% | 67.5% | 52.4% | 82.6% | 73.1% |

**Diversion via co-mingled recycling collections**

The co-mingled recycling bin service is responsible for diverting 15.4% of all the kerbside waste presented. This proportion excludes all of the contamination materials that are present within these bins. Acorn 5O (Young Hardship) households are estimated to be diverting over 8.2% of their kerbside waste via co-mingled recycling bins, whilst Acorn 1C (mature money) are diverting almost 20.9% via this collection.

**Table 23: Diversion via co-mingled recycling bins (%)**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Diversion rates** | **1B** | **1C** | **3H** | **4L** | **4M** | **5O** | **5P** | **5Q** | **Average** |
| Co-mingled recycling bin | 19.5% | 20.9% | 14.5% | 16.1% | 14.2% | 8.2% | 12.5% | 17.2% | 15.4% |

Results – Organic Recycling (Food and garden)

**Set out rates and waste generation levels**

Households throughout Rochdale have access to a weekly collection of organic recycling consisting of food waste, garden vegetation and organic pet bedding. At the time of survey, it was seen that an average of 35.6% of households presented organic recycling bins for collection. Ranges seen were 22.4% for Acorn 5Q (difficult circumstances) up to 63.5% for Acorn 1C (mature money). It was seen that an average of 146.1kg/hh/yr of organic recycling was being generated. Just 107.6kg/hh/yr of this recycling was generated by Acorn 4L (modest means) households compared with Acorn 5O (Young Hardship) households generating almost 179.4kg/hh/yr. Solely considering presented bins; the average amount of organic recycling generated is 410kg/hh/yr.

The low set out rates for organic recycling compared with high individual bin weights suggests households are not using the service regularly. Some households may have little or no garden space and therefore do not use their bins solely for the disposal of food waste. Other households may wait until bins are full before placing out for collection or only recycle food waste when there is garden waste it can be mixed with. Residents should be encouraged to use this service more frequently even if volumes of waste are low or made up purely of food waste.

**Table 24: Organic recycling**

|  |  |  |  |
| --- | --- | --- | --- |
| **Sample** | **% set out rate** | **Overall KG/HH/YR** | **KG/HH/YR per presented bin** |
| 1B | 47.9% | 155.1 | 323.7 |
| 1C | 63.5% | 157.9 | 248.5 |
| 3H | 50.0% | 174.7 | 349.1 |
| 4L | 26.7% | 107.6 | 403.1 |
| 4M | 41.5% | 169.2 | 407.8 |
| 5O | 28.4% | 179.4 | 632.4 |
| 5P | 31.3% | 109.7 | 350.3 |
| 5Q | 22.4% | 161.0 | 717.3 |
| Average | 35.6% | 146.1 | 410.0 |

**Figure 22: Set out rates for organic recycling (%)**

**Figure 23: Kg/hh/yr for organic recycling**

**Compositional analysis of organic recycling**

This section looks at average amounts and composition of the organic recycling presented by households sampled throughout Rochdale. Results can again be expressed in terms of percentage concentration and kg/hh/yr for individual samples surveyed. Table 25 and Figure 24 show recycling data in terms of percentage composition with Table 26 and Figure 25 showing generation rates for major materials in kg/hh/yr across all households in each sample area.

As residual waste will contain a proportion that is classified as recyclable; then recycling waste will contain a faction 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.

On average around 52% (75.3kg/hh/yr) of organic recycling is due to garden vegetation with 43% (62.3kg/hh/yr) being food waste. There are trace levels of biodegradable pet bedding and compostable liners. Therefore 95.4% (205.5kg/hh/yr) of organic recycling bin content consists of the correct materials. Around 2.4% (3.5kg/hh/yr) of material in the organic recycling bins is soil and turf; 2.2% is other waste materials including plastics and bagged household waste which formed 3.2kg/hh/yr of the recycling collected.

**Table 25: Organic recycling (% composition)**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sample** | **1B** | **1C** | **3H** | **4L** | **4M** | **5O** | **5P** | **5Q** | **Average** |
| All food waste | 57.5% | 54.7% | 29.9% | 43.8% | 32.4% | 52.3% | 51.1% | 30.4% | 42.7% |
| Garden vegetation | 39.2% | 36.5% | 61.9% | 55.4% | 65.5% | 45.7% | 42.2% | 55.2% | 51.5% |
| Pet bedding | 1.8% | 0.0% | 2.0% | 0.0% | 0.5% | 0.7% | 0.0% | 2.1% | 1.0% |
| Compostable liners | 0.7% | 0.2% | 0.0% | 0.1% | 0.0% | 0.6% | 0.1% | 0.3% | 0.2% |
| Soil & turf | 0.0% | 6.6% | 6.0% | 0.1% | 1.0% | 0.7% | 2.6% | 3.7% | 2.4% |
| All other waste | 0.8% | 2.0% | 0.2% | 0.7% | 0.7% | 0.0% | 4.0% | 8.3% | 2.2% |
| Total recyclable | 99.2% | 91.3% | 93.8% | 99.3% | 98.3% | 99.3% | 93.4% | 88.1% | 95.4% |
| Total contamination | 0.8% | 8.7% | 6.2% | 0.7% | 1.7% | 0.7% | 6.6% | 11.9% | 4.6% |

**Figure 24: Organic recycling (% composition)**

**Table 26: Organic recycling (kg/hh/yr)**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Organic recycling bins** | **1B** | **1C** | **3H** | **4L** | **4M** | **5O** | **5P** | **5Q** | **Average** |
| All food waste | 89.2 | 86.4 | 52.3 | 47.2 | 54.8 | 93.8 | 56.0 | 49.0 | 62.3 |
| Garden vegetation | 60.7 | 57.6 | 108.1 | 59.6 | 110.8 | 81.9 | 46.3 | 88.9 | 75.3 |
| Pet bedding | 2.8 | 0.0 | 3.5 | 0.0 | 0.8 | 1.2 | 0.0 | 3.4 | 1.4 |
| Compostable liners | 1.1 | 0.3 | 0.0 | 0.1 | 0.0 | 1.0 | 0.2 | 0.5 | 0.4 |
| Soil & turf | 0.0 | 10.4 | 10.4 | 0.1 | 1.7 | 1.3 | 2.8 | 5.9 | 3.5 |
| All other waste | 1.2 | 3.2 | 0.4 | 0.7 | 1.1 | 0.1 | 4.4 | 13.3 | 3.2 |
| Total recyclable | 153.9 | 144.2 | 163.9 | 106.8 | 166.4 | 178.0 | 102.5 | 141.8 | 139.4 |
| Total contamination | 1.2 | 13.7 | 10.8 | 0.8 | 2.8 | 1.3 | 7.2 | 19.2 | 6.7 |

**Figure 25: Organic recycling (kg/hh/yr)**

Figure 26 below summarises the average composition of material disposed of in the organic recycling. Garden vegetation formed 52% of the collected organic recycling resulting in an annual collection of 75.3kg/hh/yr. Food formed 43% of bin contents resulting in 62.3kg/hh/yr being recycled.

An average of 4.6% or 6.7kg/hh/yr of recycling bin contents are due to items not acceptable to the collection and therefore deemed to be contamination.

**Figure 26: Materials in organic recycling bins (kg/hh/yr and %)**

***\*Levels of garden waste fluctuate greatly depending on the season. Figures represent an annual average of data obtained during spring/summer and autumn/winter seasons.***

**Food content of the organic recycling**

In the organic recycling 43% of material is due to food waste, of which, 64% is avoidable. Around 4.8% of the avoidable food waste in the organics recycling is still contained within its packaging.

Over 74% of food recycled in Acorn 5O (young hardship) was avoidable. On average just 3% of all recycled food waste was still packaged. Levels of packaged food were low for all samples, peaking at 8.2% for Acorn 5O (young hardship).

**Table 27: Food waste placed into organic recycling bins (kg/hh/yr).**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sample** | **1B** | **1C** | **3H** | **4L** | **4M** | **5O** | **5P** | **5Q** | **Average** |
| Avoidable food waste - unused fully packaged | 0.0 | 1.4 | 0.1 | 0.2 | 0.2 | 0.9 | 1.8 | 0.2 | 0.5 |
| Avoidable food waste - part used in packaging | 0.8 | 0.4 | 1.2 | 0.1 | 0.9 | 6.8 | 1.3 | 0.7 | 1.4 |
| Avoidable food waste loose | 57.6 | 47.1 | 28.0 | 32.4 | 38.7 | 61.9 | 26.4 | 27.0 | 38.1 |
| Potentially avoidable food waste | 6.1 | 11.9 | 2.3 | 2.9 | 6.0 | 3.6 | 7.3 | 9.5 | 5.7 |
| Unavoidable food wase | 24.7 | 25.6 | 20.7 | 11.5 | 9.0 | 20.6 | 19.2 | 11.6 | 16.6 |
| Total food waste | 89.2 | 86.4 | 52.3 | 47.2 | 54.8 | 93.8 | 56.0 | 49.0 | 62.3 |
| % Avoidable | 65.5% | 56.5% | 56.0% | 69.4% | 72.7% | 74.2% | 52.7% | 56.8% | 64.1% |
| % Possibly avoidable | 6.8% | 13.8% | 4.5% | 6.2% | 10.9% | 3.8% | 13.1% | 19.4% | 9.2% |
| % Of avoidable packaged | 1.3% | 3.6% | 4.2% | 1.0% | 2.8% | 11.0% | 10.5% | 3.0% | 4.8% |

**Organic recycling contamination**

On average 6.7kg/hh/yr or 4.6% of organic recycling consists of contamination. This section looks to breakdown the amounts and concentrations of various contaminants present.

Some forms of contamination may be due to residents’ lack of knowledge in relation to the recycling scheme. For example, a householder may believe soil and turf, or wood are acceptable. Other contamination will be formed from waste that is totally unrelated to the materials collected (i.e. plastics).

**Table 28: Contamination in organic recycling bins (%)**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sample** | **1B** | **1C** | **3H** | **4L** | **4M** | **5O** | **5P** | **5Q** | **Average** |
| Soil & turf | 0.0% | 6.6% | 6.0% | 0.1% | 1.0% | 0.7% | 2.6% | 3.7% | 2.4% |
| Scrap wood | 0.2% | 1.8% | 0.0% | 0.1% | 0.0% | 0.0% | 0.8% | 0.7% | 0.4% |
| Other residual waste | 0.6% | 0.2% | 0.2% | 0.5% | 0.7% | 0.0% | 3.3% | 7.5% | 1.8% |
| Total contamination | 0.8% | 8.7% | 6.2% | 0.7% | 1.7% | 0.7% | 6.6% | 11.9% | 4.6% |

**Table 29: Contamination in organic recycling bins (kg/hh/yr)**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sample** | **1B** | **1C** | **3H** | **4L** | **4M** | **5O** | **5P** | **5Q** | **Average** |
| Soil & turf | 0.0 | 10.4 | 10.4 | 0.1 | 1.7 | 1.3 | 2.8 | 5.9 | 3.5 |
| Scrap wood | 0.3 | 2.8 | 0.0 | 0.1 | 0.0 | 0.0 | 0.8 | 1.2 | 0.6 |
| All other contamination | 0.9 | 0.4 | 0.4 | 0.6 | 1.1 | 0.1 | 3.6 | 12.1 | 2.7 |
| Total contamination | 1.2 | 13.7 | 10.8 | 0.8 | 2.8 | 1.3 | 7.2 | 19.2 | 6.7 |

Three of the eight samples of organic recycling were less than 1% contamination. In the other four samples contamination levels of 1.7% - 11.9% were observed. Generally, levels of contamination were related to the amount of soil and turf that was present within the collected bins. On average soil and turf formed 2.4% of the organic recycling or 52% of the contamination present. Scrap wood made up 0.4% of the collected recycling and was responsible for 8% of the contamination. Other contamination made up just 1.8% of the organic recycling (40% of the contamination) with half of this due to plastic packaging film.

**Capture rates for organic recyclables**

This section looks in more detail at the individual materials placed out for organic recycling collections and highlights the effectiveness with which recycling collections throughout Rochdale are capturing these items. Capture rates determine how much of a material that should be recycled actually is being recycled. Looking at the relationship between the residual and recycling waste streams presented will additionally give indications as to the overall diversion being achieved via this service.

Around 190kg/hh/yr of recyclable organic material is generated by households across Rochdale. Of this, 73.3% or 139.4kg/hh/yr is captured by the organics recycling bins. Acorn 4M (Striving Families) households disposed of the most organic material at 243.3kg/hh/yr. This compares with levels of 150.3kg/hh/yr for Acorn 4L (modest means) households. Acorn 5P (struggling estates) households captured the lowest proportion of organic waste at 65.1%, whilst Acorn 5O (young hardship) captured over 83%.

**Table 30: Distribution of organic recyclables in kerbside containers (kg/hh/yr)**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Organic recyclables** | **1B** | **1C** | **3H** | **4L** | **4M** | **5O** | **5P** | **5Q** | **Average** |
| Organic recyclables in residual bins (KG/HH/YR) | 60.6 | 35.3 | 53.2 | 41.9 | 75.8 | 33.8 | 52.5 | 44.8 | 48.5 |
| Organic recyclables in organics bins (KG/HH/YR) | 153.9 | 144.2 | 163.9 | 106.8 | 166.4 | 178.0 | 102.5 | 141.8 | 139.4 |
| Co-mingled recyclables in pulpable recycling bins (KG/HH/YR) | 0.9 | 0.4 | 0.0 | 0.2 | 0.4 | 1.1 | 1.8 | 0.4 | 0.6 |
| Co-mingled recyclables in co-mingled s bins (KG/HH/YR) | 5.7 | 0.2 | 3.3 | 1.4 | 0.7 | 1.1 | 0.8 | 0.8 | 1.7 |
| Total organic recyclables disposed of (KG/HH/YR) | 221.0 | 180.2 | 220.4 | 150.3 | 243.3 | 214.1 | 157.5 | 187.8 | 190.2 |
| % Capture of all organic recyclables | 69.6% | 80.0% | 74.4% | 71.1% | 68.4% | 83.2% | 65.1% | 75.5% | 73.3% |

Levels of organic waste tend to fluctuate over the course of a year largely due to the levels of garden waste being disposed of. During a spring / summer survey, levels of garden waste will be higher than one performed during winter months. Figures in this report provide the best annual estimates as they represent an average of the results from both seasons. Variations in the levels of food waste being disposed of are less pronounced, however it is generally the case that households recycle garden waste far more effectively than food waste. Residents will also have the option to remove garden waste and fruit / vegetable matter from their kerbside waste by using home composters.

Food waste

Across Rochdale it is estimated that 77kg/hh/yr of recyclable food is disposed of at the kerbside with around 97.8% or 75.3kg/hh/yr being correctly recycled (Table 31). A total of 47.2kg/hh/yr of potentially recyclable food is not disposed of in organic recycling bins. Whilst the majority of sample areas capture more than half of their food waste, Acorn 4M (Striving Families) capture just 42%. Acorn 5O (Young Hardship) captured the highest proportion with 72.6%. The most food waste is generated by Acorn 1B (153.5kg/hh/yr) and the least is generated by Acorn 4L (80.1kg/hh/yr).

**Table 31: Distribution of recyclable food waste in kerbside containers (kg/hh/yr)**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Food waste** | **1B** | **1C** | **3H** | **4L** | **4M** | **5O** | **5P** | **5Q** | **Average** |
| Recyclable food disposed of (KG/HH/YR) | 153.5 | 121.8 | 105.3 | 80.1 | 130.5 | 129.2 | 110.2 | 94.4 | 109.5 |
| Recyclable food recycled (KG/HH/YR) | 89.2 | 86.4 | 52.3 | 47.2 | 54.8 | 93.8 | 56.0 | 49.0 | 62.3 |
| % Capture of recyclable food (KG/HH/YR) | 58.1% | 70.9% | 49.6% | 58.9% | 42.0% | 72.6% | 50.8% | 51.9% | 56.9% |

Figure 27 shows the distribution of recyclable food throughout the residual and recycling waste by Acorn group and overall.

**Figure 27: Distribution of food waste in kerbside containers (kg/hh/yr) by Acorn group and overall**

Garden waste

Almost all samples disposed of their garden waste correctly in the organics recycling stream although there were differences in the amount generated. On average Rochdale households disposed of 77kg/hh/yr of garden waste with 97.8% correctly recycled. Whereas Acorn 5P (struggling estates) households generated just 46.3kg/hh/yr of garden vegetation, this amount was 112kg/hh/yr in Acorn 4M (striving families).

**Table 32: Distribution of recyclable garden waste in kerbside containers (kg/hh/yr)**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Garden waste** | **1B** | **1C** | **3H** | **4L** | **4M** | **5O** | **5P** | **5Q** | **Average** |
| Recyclable garden waste disposed of (KG/HH/YR) | 61.9 | 57.8 | 108.4 | 64.8 | 112.0 | 82.6 | 46.3 | 89.5 | 77.0 |
| Recyclable garden waste recycled (KG/HH/YR) | 60.7 | 57.6 | 108.1 | 59.6 | 110.8 | 81.9 | 46.3 | 88.9 | 75.3 |
| % Capture of recyclable garden waste (KG/HH/YR) | 98.1% | 99.6% | 99.7% | 92.0% | 98.9% | 99.2% | 99.9% | 99.3% | 97.8% |

**Figure 28: Distribution of recyclable garden waste in kerbside containers (kg/hh/yr)**

**Diversion via organic recycling collections**

The organic recycling bin service is responsible for diverting 27.2% of all the kerbside waste presented. This proportion excludes all of the contamination materials that are present within these bins. Acorn 5O (young hardship) divert over a third of their kerbside waste via their organic recycling bins, at 36.4%. In contrast, Acorn 5P (struggling estates) areas divert 21.5% via organic recycling bins.

**Table 33: Diversion via organic recycling bins (%)**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Diversion rates** | **1B** | **1C** | **3H** | **4L** | **4M** | **5O** | **5P** | **5Q** | **Average** |
| Organic recycling bin | 24.6% | 27.8% | 29.4% | 24.4% | 29.1% | 36.4% | 21.5% | 27.0% | 27.2% |

**Results – Total amount of kerbside waste and recycling generated**

This section looks as the total amount of waste and recycling that is generated by each of the samples and as an average for Rochdale. Diversion rates show the percentage of total generated waste produced from an area that is being ‘diverted’ via the available recycling stream(s).

On average Rochdale households are disposing of 512.2kg/hh/yr of total waste and recycling at the kerbside. Acorn 1B (executive wealth) households created the highest levels of total waste at 625.3kg/hh/yr compared with 438.1kg/hh/yr for Acorn 4L (modest means).

**Table 34: Total amount of kerbside waste and recycling (kg/hh/yr)**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Kerbside waste stream** | **1B** | **1C** | **3H** | **4L** | **4M** | **5O** | **5P** | **5Q** | **Average** |
| Residual | 234.4 | 152.9 | 221.6 | 188.9 | 234.3 | 177.7 | 251.2 | 185.4 | 204.0 |
| Paper & card | 86.6 | 89.1 | 62.8 | 58.3 | 73.3 | 57.4 | 42.1 | 66.0 | 64.5 |
| Co-mingled | 149.2 | 118.6 | 99.1 | 83.4 | 94.7 | 74.2 | 73.5 | 113.1 | 97.5 |
| Organics | 155.1 | 157.9 | 174.7 | 107.6 | 169.2 | 179.4 | 109.7 | 161.0 | 146.1 |
| Total kerbside | 625.3 | 518.5 | 558.1 | 438.1 | 571.5 | 488.6 | 476.6 | 525.5 | 512.2 |

**Figure 29: Total amount of kerbside waste and recycling (kg/hh/yr)**

On average it has been seen that Rochdale households generate around 512.2kg/hh/yr of kerbside waste. Of this a total of 54% or 270kg/hh/yr is diverted via the available recycling containers. Organics recycling bins are diverting the majority of kerbside waste at 27.2% (138.3kg/hh/yr) compared with 15.4% (76.8kg/hh/yr) for co-mingled recycling bins and 10.8% (55kg/hh/yr) for pulpable recycling bins.

Different household samples varied as to how effectively they diverted their kerbside waste. With the exception of Acorn 5P (struggling estates), all samples diverted over half of their kerbside waste through the supplied recycling bins. Acorns 1C (mature money) diverted over 60%.

**Figure 30: Total diversion rates for Rochdale samples (%)**

**Maximum achievable diversion**

GMCA has an ambition to reach a 60% recycling rate across Greater Manchester by 2020. The current estimated diversion rate for Rochdale from this survey is 53.4%. Table 36 illustrates the maximum amount of diversion that could be obtained if all of the recyclable material that is not placed into the correct recycling container is captured.

Figures from this survey show that Rochdale households are diverting 273.3kg/hh/yr of their 512.2kg/hh/yr of total kerbside waste. This is a diversion rate of 53.4%, which is 4.6% below the target of 60%. In order to achieve 60% diversion an additional 34kg/hh/yr of recyclable material would need to be diverted bringing the total to 307.3kg/hh/yr (this assumes no changes in the amount of overall kerbside waste generated).

Were all recyclables placed into the correct recycling container then the maximum achievable diversion would be 68.3% across Rochdale. Across the samples the maximum diversion ranged between 59.9% for Acorn 5P (struggling estates) and 74.5% for Acorn 1C (mature money).

Overall a total of 76.3kg/hh/yr of recyclable material is not being placed into the correct recycling bin. By far the greatest potential for increasing diversion lies with food waste. This food waste forms 62% (47.2g/hh/yr) of the material that is not recycled. Recyclable paper and card account for 17% (13kg/hh/yr) of the unrecycled items with co-mingled plastic, metal and glass accounting for 16% (12.5kg/hh/yr)

**Table 35: Recyclables currently diverted**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Current diversion** | **1B** | **1C** | **3H** | **4L** | **4M** | **5O** | **5P** | **5Q** | **Average** |
| Recyclables currently diverted (KG/HH/YR) | 350.6 | 333.0 | 301.7 | 227.8 | 312.5 | 265.4 | 194.6 | 285.5 | 273.3 |
| Current diversion | 56.1% | 64.2% | 54.1% | 52.0% | 54.7% | 54.3% | 40.8% | 54.3% | 53.4% |

**Table 36: Maximum potential diversion by capturing all recyclables**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Diversion potential KG/HH/YR and %** | **1B** | **1C** | **3H** | **4L** | **4M** | **5O** | **5P** | **5Q** | **Average** |
| Unrecycled paper | 6.6 | 4.4 | 6.5 | 15.0 | 5.9 | 2.9 | 5.3 | 2.4 | 7.1 |
| 1.1% | 0.8% | 1.2% | 3.4% | 1.0% | 0.6% | 1.1% | 0.5% | 1.4% |
| Unrecycled card & cardboard | 7.1 | 6.4 | 4.0 | 4.9 | 7.9 | 5.6 | 7.3 | 5.8 | 5.9 |
| 1.1% | 1.2% | 0.7% | 1.1% | 1.4% | 1.1% | 1.5% | 1.1% | 1.2% |
| Unrecycled plastic bottles | 1.9 | 1.4 | 1.7 | 2.7 | 3.6 | 2.7 | 4.8 | 1.8 | 2.6 |
| 0.3% | 0.3% | 0.3% | 0.6% | 0.6% | 0.6% | 1.0% | 0.4% | 0.5% |
| Unrecycled glass | 2.7 | 2.3 | 3.5 | 6.4 | 5.5 | 5.5 | 9.0 | 3.8 | 5.1 |
| 0.4% | 0.4% | 0.6% | 1.5% | 1.0% | 1.1% | 1.9% | 0.7% | 1.0% |
| Unrecycled metals | 5.4 | 2.9 | 3.9 | 3.8 | 4.8 | 4.3 | 9.3 | 4.3 | 4.8 |
| 0.9% | 0.6% | 0.7% | 0.9% | 0.8% | 0.9% | 1.9% | 0.8% | 0.9% |
| Unrecycled food | 64.3 | 35.4 | 53.0 | 32.9 | 75.7 | 35.4 | 54.2 | 45.4 | 47.2 |
| 10.3% | 6.8% | 9.5% | 7.5% | 13.2% | 7.2% | 11.4% | 8.6% | 9.2% |
| Unrecycled garden waste | 1.2 | 0.2 | 0.3 | 5.2 | 1.2 | 0.7 | 0.0 | 0.6 | 1.7 |
| 0.2% | 0.0% | 0.1% | 1.2% | 0.2% | 0.1% | 0.0% | 0.1% | 0.3% |
| Unrecycled pet bedding | 1.7 | 0.3 | 3.2 | 5.4 | 0.0 | 0.0 | 0.8 | 0.0 | 1.9 |
| 0.3% | 0.1% | 0.6% | 1.2% | 0.0% | 0.0% | 0.2% | 0.0% | 0.4% |
| Total unrecycled | 90.9 | 53.4 | 76.2 | 76.3 | 104.6 | 57.0 | 90.8 | 64.2 | 76.3 |
| 14.5% | 10.3% | 13.6% | 17.4% | 18.3% | 11.7% | 19.0% | 12.2% | 14.9% |
| Recyclables potentially divertible | 441.5 | 386.4 | 377.8 | 304.0 | 417.1 | 322.4 | 285.3 | 349.7 | 349.6 |
| Potential maximum diversion | 70.6% | 74.5% | 67.7% | 69.4% | 73.0% | 66.0% | 59.9% | 66.5% | 68.3% |

**Figure 31: Recyclable material available for diversion (kg/hh/yr)**

**Figure 32: Maximum diversion potential (%)**

**Potential for increasing pulpables recycling**

Were recyclable pulpables (paper and card) targeted then potentially an additional 13kg/hh/yr or 2.5% of waste could be diverted. This would raise overall diversion to 55.9%. Acorns 4L (modest means) holds the greatest potential for raising diversion by capturing all of their recyclable paper; increasing total diversion by 4.5%.

**Table 37: Targeting pulpables (paper and card) recyclables**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Pulpable recyclables** | **1B** | **1C** | **3H** | **4L** | **4M** | **5O** | **5P** | **5Q** | **Average** |
| KG/HH/YR Available | 13.7 | 10.8 | 10.5 | 19.9 | 13.8 | 8.5 | 12.6 | 8.2 | 13.0 |
| % Increase in diversion | 2.2% | 2.1% | 1.9% | 4.5% | 2.4% | 1.7% | 2.6% | 1.6% | 2.5% |
| Achieved diversion | 58.3% | 66.3% | 55.9% | 56.5% | 57.1% | 56.0% | 43.5% | 55.9% | 55.9% |

**Potential for increasing co-mingled recycling**

Were materials suitable for co-mingled recycling targeted then potentially 12.5kg/hh/yr or 2.4% of waste could be diverted. This would raise overall diversion to 55.8%. Acorn 5P holds the greatest potential for raising diversion by capturing all of their recyclable paper, with an increase of 4.9%. Expanding the mixed recycling collections to include either Tetrapak cartons and/or plastic pots, tubs and trays would also act to increase the amount recycled. The potential increase in diversion achieved by introducing these materials is shown in table 43 at the end of this document.

**Table 38: Targeting co-mingled recyclables**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Co-mingled recycling** | **1B** | **1C** | **3H** | **4L** | **4M** | **5O** | **5P** | **5Q** | **Average** |
| KG/HH/YR available | 10.0 | 6.6 | 9.1 | 12.9 | 13.9 | 12.5 | 23.1 | 10.0 | 12.5 |
| % Increase in diversion | 1.6% | 1.3% | 1.6% | 2.9% | 2.4% | 2.6% | 4.9% | 1.9% | 2.4% |
| Achieved diversion | 57.7% | 65.5% | 55.7% | 54.9% | 57.1% | 56.9% | 45.7% | 56.2% | 55.8% |

The targeting of pulpables (paper and card) as well as co-mingled recycling has the potential to divert an additional 25.5kg/hh/yr of material. This would boost the overall diversion rate by 4.9% up to 58.3%.

**Potential for increasing organics recycling**

**Table 39: Targeting organics (food and garden) recycling**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Food & garden recycling** | **1B** | **1C** | **3H** | **4L** | **4M** | **5O** | **5P** | **5Q** | **Average** |
| KG/HH/YR Available | 67.2 | 36.0 | 56.5 | 43.5 | 76.9 | 36.0 | 55.0 | 46.0 | 50.7 |
| % Increase in diversion | 10.7% | 6.9% | 10.1% | 9.9% | 13.5% | 7.4% | 11.5% | 8.8% | 9.9% |
| Achieved diversion | 66.8% | 71.2% | 64.2% | 61.9% | 68.2% | 61.7% | 52.4% | 63.1% | 63.3% |

Were materials suitable for food and garden recycling targeted then potentially 50.7kg/hh/yr or 9.9% of waste could be diverted. This would raise overall diversion to 63.3%, hitting the required target. With the exception of Acorn 5P (struggling estates), each of the demographic samples would exceed the 60% target. Four Acorn samples would show above average potential increases for diversion for the successful capture of their organic recyclables; Acorn 1B (10.7%), Acorn 3H (10.1%), Acorn 4M (13.5%) and Acorn 5P (11.5%).

Almost all of this diversion potential is in the form of food waste rather than garden waste and biodegradable pet bedding. Table 36 shows that of the 57.3kg/hh/yr of potentially divertible organics, 96% are due to food waste. If all food waste was diverted, then an additional 9% diversion could be achieved.

An average of 76.3kg/hh/yr or 14.9% of kerbside waste is not being diverted. The maximum achievable diversion is therefore around 68.3%. Of the eight sample areas, all but one (Acorn 5P – struggling estates) would hit 60% diversion if all of their recyclable materials were correctly recycled – although Acorn 5P only falling marginally short (59.9%).

Acorns 5P (+19%), 4M (+18.3%) and 4L (+17.4%) would show the greatest increase in diversion by successfully recycling accepted materials at the kerbside.

**Waste minimisation**

Around 131kg/hh/yr of residual bins waste is of a type that cannot be diverted into a kerbside recycling scheme. This includes materials such as textiles, and WEEE that could have been taken to one of the HWRC’s and also disposable nappies that are possible to collect separately from the kerbside.

**Textiles**

On average, 6.4% or 13kg/hh/yr of residual waste consisted of different types of textiles. Over 80% of the weight of items in this category were classified as linen, clothing and shoes. These items account for 5.2% or 10.5kg/hh/yr of residual waste and depending on the condition of these items much of this could potentially be diverted to HWRCs, bring banks or charity shops. 8.4% of Acorn 4L (modest means) residual waste residual waste was due to textiles.

If all of the potentially recyclable textiles were removed from residual bins and diverted to HWRCs or elsewhere then 13kg/hh/yr of residual waste reduction would be possible. This in turn would raise diversion by 1.1% to 54.5%

**Table 40: Textile content of the residual waste**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sample** | **1B** | **1C** | **3H** | **4L** | **4M** | **5O** | **5P** | **5Q** | **Average** |
| Total textiles (%) | 5.3% | 4.0% | 6.3% | 8.2% | 5.6% | 4.7% | 8.4% | 5.2% | 6.4% |
| Total textiles (KG/HH/YR) | 12.4 | 6.2 | 13.9 | 15.5 | 13.1 | 8.3 | 21.2 | 9.6 | 13.0 |
| Linen, clothing & shoes (%) | 4.0% | 3.5% | 5.3% | 6.5% | 5.2% | 4.0% | 6.7% | 3.7% | 5.2% |
| Linen, clothing & shoes (KG/HH/YR) | 9.4 | 5.4 | 11.8 | 12.3 | 12.3 | 7.1 | 16.8 | 6.9 | 10.5 |
| % of textiles from linen, clothing & shoes | 76.1% | 86.9% | 84.4% | 79.3% | 93.7% | 85.2% | 79.1% | 72.5% | 80.9% |

**Disposable nappies**

Disposable nappy levels within the residual waste of households with babies can be extremely high. In this survey, the concentrations of disposable nappies and AHP (absorbent hygiene products) waste ranged between 5.7% in Acorns 4M (Striving Families) and up to 27.7% in Acorn 5P (struggling estates). The average Rochdale householders’ residual waste bin contained 10.8% or 22kg/hh/yr of disposable nappies and AHP waste.

Were a separate collection of these products made available or households switched to reusable nappies then this would represent a sizeable reduction in residual waste. As a result, diversion could potentially rise from 53.4% to 55.8%

**Table 41: Disposable nappy and AHP content of the residual waste**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sample** | **1B** | **1C** | **3H** | **4L** | **4M** | **5O** | **5P** | **5Q** | **Average** |
| Total disposable nappies & AHP (%) | 14.9% | 9.4% | 10.4% | 9.1% | 5.7% | 8.8% | 17.7% | 9.4% | 10.8% |
| Total disposable nappies & AHP (KG/HH/YR) | 35.0 | 14.4 | 22.9 | 17.1 | 13.3 | 15.7 | 44.3 | 17.4 | 22.0 |

**WEEE**

Waste electrical and electronic equipment (WEEE) formed an average of 1.5% or 3.1kg/hh/yr of collected residual waste. These items should not be in residual bins and should be disposed of at recycling centres. Common items include small kitchen appliances, cables, plugs and leads, adaptors, hairdryers, lamps etc. The Acorn 5Q (difficult circumstances) sample had the highest amount of this type of waste at around 3% (5.3kg/hh/yr) of the total. Removal of these items from the residual waste would have only a small effect on diversion by increasing it from 53.4% to 53.7%.

**Table 42: WEEE content of the residual waste**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sample** | **1B** | **1C** | **3H** | **4L** | **4M** | **5O** | **5P** | **5Q** | **Average** |
| Total WEEE (%) | 1.1% | 2.5% | 0.8% | 1.7% | 0.9% | 0.6% | 1.3% | 2.9% | 1.5% |
| Total WEEE (KG/HH/YR) | 2.7 | 3.8 | 1.9 | 3.3 | 2.1 | 1.1 | 3.4 | 5.3 | 3.1 |

Were it possible for households to remove the recyclable textile, disposable nappy and WEEE items from their residual waste then this would represent a minimisation of around 35.6kg/hh/yr or 17.4% of the total residual waste. As a result, diversion could increase from 53.4% to 57.3% with no additional changes in the amount of recycling collected.

**Tetrapak and plastic pots, tubs, trays (PTTs)**

Tetrapak cartons and plastic pots, tubs and trays (PTT) form around 14.6kg/hh/yr of kerbside waste from Rochdale households. These items are not currently part of the recycling scheme operated by GMCA. Should they be introduced the effect on diversion would be an increase from 53.4% to 56.2%. It was seen that two thirds of these items were correctly placed into residual bins with around a third incorrectly recycled in kerbside recycling bins. More potential is available for PTT which could increase diversion by 2.5% as opposed to 0.4% for Tetrapaks.

**Table 43: Tetrapak and PTT disposed of at the kerbside**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sample** | **1B** | **1C** | **3H** | **4L** | **4M** | **5O** | **5P** | **5Q** | **Average** |
| Total Tetrapak & PPT (%) | 3.9% | 2.6% | 3.2% | 3.2% | 3.1% | 2.4% | 2.6% | 1.9% | 2.9% |
| Total Tetrapak & PPT (KG/HH/YR) | 24.6 | 13.4 | 17.9 | 13.8 | 17.6 | 11.8 | 12.2 | 10.0 | 14.6 |

Were it possible for households to remove the recyclable textile, disposable nappy and WEEE items from their residual waste then this would represent a minimisation of around 35.6kg/hh/yr or 17.4% of the total residual waste. As a result, diversion could increase from 53.4% to 57.3% with no additional changes in the amount of recycling collected. Additionally, diverting Tetrapaks and PTT into the recycling scheme could raise this amount further to 60.2%, above the 60% target.

**Appendix**

Annual collected tonnage data for the kerbside waste and recycling collections is shown in table 3. These tonnages can be applied to the percentage composition of hand sorted waste obtained from this survey. Caution needs to be taken when applying these waste proportions to annual tonnages as the composition relates to the waste collected at the time of the survey only – and this may differ seasonally. For example, garden waste volumes will be drastically higher during certain months, therefore applying the percentage by weight figure for this (or any other) single phase survey to Rochdale annual tonnages will not accurately model what would be expected over a twelve month period.

**Tonnage composition – residual waste**

|  |  |  |
| --- | --- | --- |
| **Recyclable materials** | **% Composition** | **Projected annual tonnage** |
| Recyclable paper | 3.3% | 1,158 |
| Recyclable card & cardboard | 2.8% | 967 |
| Plastic bottles | 1.2% | 417 |
| Recyclable glass | 2.4% | 849 |
| Recyclable metals | 2.3% | 793 |
| Recyclable food waste | 22.0% | 7,654 |
| Recyclable garden waste | 0.8% | 272 |
| Recyclable pet bedding | 0.9% | 320 |
| Non kerbside recyclable | 64.2% | 22,282 |
| Total | 100.0% | 34,714 |
| **Recyclables by bin** | **% composition** | **Projected annual tonnage** |
| Pulpable recyclables | 6.1% | 2,125 |
| Co-mingled recyclables | 5.9% | 2,060 |
| Organic recyclables | 23.8% | 8,247 |
| Total recyclable | 35.8% | 12,432 |

**Tonnage composition – pulpable recycling**

|  |  |  |
| --- | --- | --- |
| **Recyclable materials** | **% composition** | **Projected annual tonnage** |
| Recyclable paper | 45.9% | 3,113 |
| Recyclable card & cardboard | 39.6% | 2,685 |
| Plastic bottles | 0.3% | 18 |
| Recyclable glass | 0.2% | 13 |
| Recyclable metals | 0.1% | 9 |
| Recyclable food waste | 0.9% | 64 |
| Recyclable garden waste | 0.0% | 1 |
| Recyclable pet bedding | 0.0% | 0 |
| All other waste | 12.9% | 873 |
| Total | 100.0% | 6,775 |
| **Recyclables by bin** | **% composition** | **Projected annual tonnage** |
| Pulpable recyclables | 85.6% | 5,797 |
| Co-mingled recyclables | 0.6% | 40 |
| Organic recyclables | 1.0% | 65 |
| Total contamination | 12.9% | 873 |
| Total | 100.0% | 6,775 |

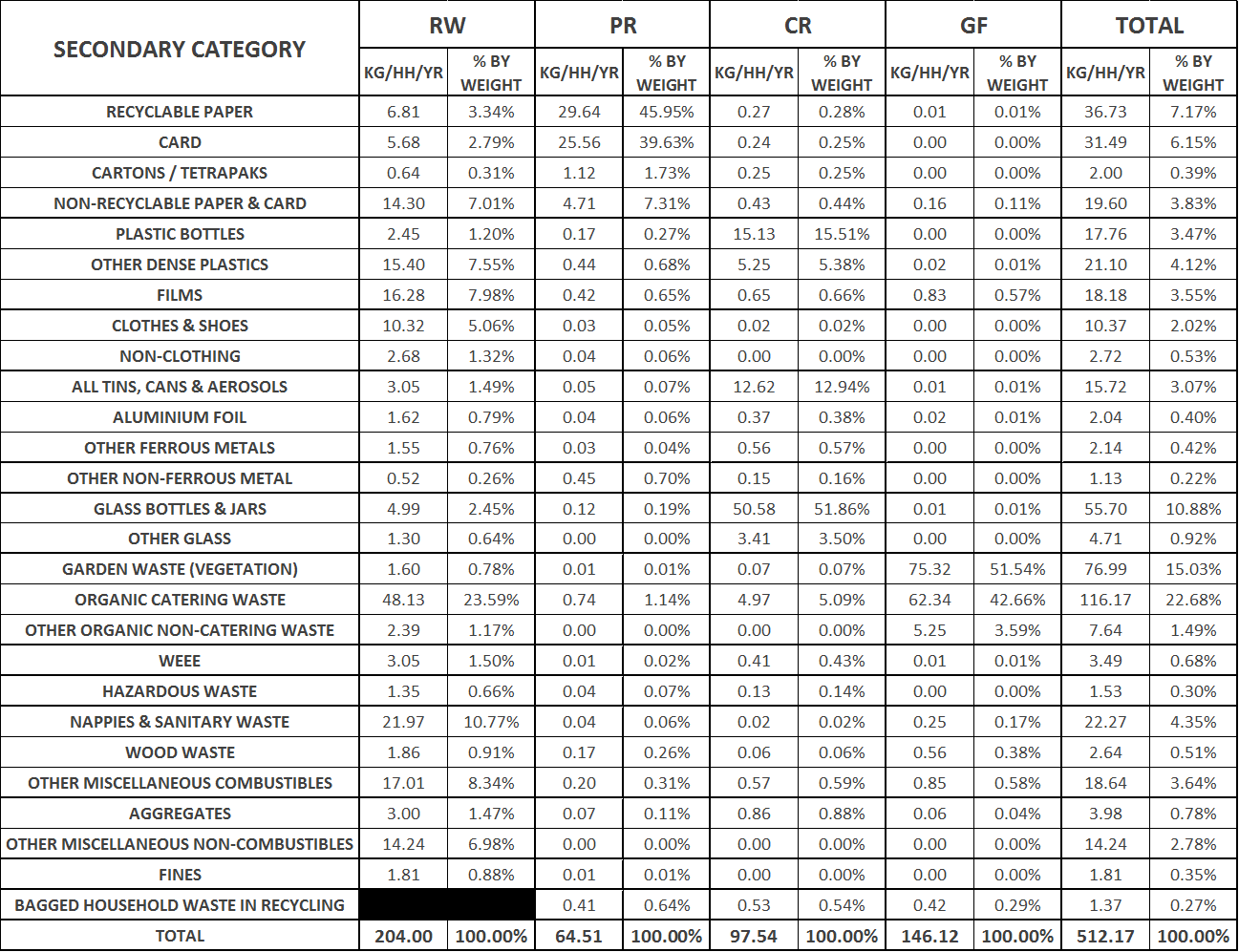
**Tonnage composition – co-mingled recycling**

|  |  |  |
| --- | --- | --- |
| **Recyclable materials** | **% Composition** | **Projected annual tonnage** |
| Recyclable paper | 0.3% | 25 |
| Recyclable card & cardboard | 0.2% | 22 |
| Plastic bottles | 15.5% | 1,375 |
| Recyclable glass | 51.9% | 4,598 |
| Recyclable metals | 13.3% | 1,180 |
| Recyclable food waste | 1.6% | 145 |
| Recyclable garden waste | 0.1% | 6 |
| Recyclable pet bedding | 0.0% | 0 |
| All other waste | 17.1% | 1,515 |
| Total | 100.0% | 8,867 |
| **Recyclables by bin** | **% Composition** | **Projected annual tonnage** |
| Pulpable recyclables | 0.5% | 47 |
| Co-mingled recyclables | 80.7% | 7,154 |
| Organic recyclables | 1.7% | 152 |
| Total contamination | 17.1% | 1,515 |
| Total | 100.0% | 8,867 |

**Tonnage composition – organic recycling**

|  |  |  |
| --- | --- | --- |
| **Recyclable materials** | **% Composition** | **Projected annual tonnage** |
| Recyclable paper | 0.0% | 8 |
| Recyclable card & cardboard | 0.0% | 0 |
| Plastic bottles | 0.0% | 0 |
| Recyclable glass | 0.0% | 0 |
| Recyclable metals | 0.1% | 12 |
| Recyclable food waste | 30.4% | 5,789 |
| Recyclable garden waste | 55.2% | 10,505 |
| Recyclable pet bedding | 2.1% | 408 |
| Liners | 0.3% | 54 |
| All other waste | 11.8% | 2,247 |
| Total | 100.0% | 19,023 |
| **Recyclables by bin** | **% Composition** | **Projected annual tonnage** |
| Pulpable recyclables | 0.0% | 8 |
| Co-mingled recyclables | 0.1% | 12 |
| Organic recyclables | 88.1% | 16,756 |
| Total contamination | 11.8% | 2,247 |
| Total | 100.0% | 19,023 |

**Kerbside collected Waste Arisings (kg/hh/yr) and Assays (% by wt)**



1. *https://acorn.caci.co.uk/what-is-acorn* [↑](#footnote-ref-2)