

Cambridge City Council - Executive Summary and Strategic Overview, Kerbside Performance

Cambridge City Council currently has a combined recycling and composting rate of 43.2% (2011/12). The Authority wished to study the composition of domestic kerbside collected residual and recycling waste streams and look at barriers to increased recycling. This would provide baseline qualitative and quantitative data to help inform future developments of the service and support cost effective communication campaigns. The Council hopes to achieve its target of recycling or composting 46% of waste by 2015-16.

In 2012 M-E-L Research carried out a study to assess kerbside waste and recycling activity from households in Cambridge City and to gather information relating to specific low performing areas. Analysis of data from the following three different methodologies was carried out and the main findings are included in this report. Further details are available in the full reports with the data tables available on request. The methodologies were:

- ◆ Tonnage data/participation monitoring to identify low performance
- ◆ Waste compositional analysis of all three kerbside collected streams to assess scheme performance by material type and by ACORN data (socio demographics) over two seasonal phases
- ◆ Survey to understand attitudes and behaviours

Please see the end of the document for definitions.

Black bin- Residual Rubbish

Residual rubbish is predominantly collected fortnightly in 240 litre bins, with larger communal bins being provided for flats. Fortnightly collections of rubbish and recycling have been operating in the city since 2005.

- ◆ The participation rate for the black bin collection was 94%.
- ◆ One area of the city in particular, used more second black bins and had their bin lids up showing the bins were especially full. This round has the highest proportion of ACORN 5 “hard pressed” residents who are more likely to have larger families.
- ◆ The amount of black bin waste collected was highest in ACORN 5 areas at 8.72 kg/hh/wk, which supports the participation findings above. The lowest was 3.93 kg/hh/wk for ACORN 1 “wealthy achievers”
- ◆ The kg/hh/wk average for the city was 5.67. This is low in comparison with other authorities with the same service. (7.74 and 6.85 kg/hh/wk).
- ◆ The largest recyclable fraction in the black bin was food waste (29%); which is similar to other authorities offering the same service. 40% of this food waste is food that could be composted at home
- ◆ ACORN 5 residents placed the most food waste into their black bins (31.75% of their waste or 2.77kg/hh/week) ACORN 1 is the lowest at 0.88kg/hh/wk
- ◆ The public consultation indicated that around one third of residents admitted to placing food waste in the black bin. The main reason stated for not using the green bin for food waste was hygiene concerns (18%). Also 12% of residents stated that they produced no food waste. This suggests that residents do not categorise certain waste like tea bags as food waste and therefore do not realise such food waste can go in the green bin. Residents may be unaware that caddy and liners are available to collect and wrap food waste. This is also supported by 11% of residents stating they did not understand information about the collection.
- ◆ Another significant material in the black bin was paper. The amount in the black bins that could have been **recycled** in the blue bins is 6.6%(0.37kg.hh/wk).
- ◆ ACORN 1 residents were shown to throw away the most recyclable paper. 81% or 0.49 kg/hh/wk of all the paper they placed in the black bin could have been recycled. This was closely followed by

ACORN 5 and Acorn 2 (urban prosperity), who could have recycled 55% and 50% of the paper in their black bins respectively.

- ◆ The public consultation showed that only 7% said they dispose of paper in the black bin but the results above show this is probably more prevalent than is claimed. This indicates that residents may be unsure of the range of paper that can be recycled or are aware that paper should be recycled but are not doing so for some reason.
- ◆ Plastics made up 14% of the black bin waste. 3.7% (0.21 kg/hh/wk) of this was plastic bottles or tubs pots and trays that could have been added to the blue bin. The remainder is made up of plastic film and other dense plastic and packaging not suitable for recycling in the blue bin.
- ◆ The communal bins that were sampled contained the most recyclable plastic at 0.31kg/hh/wk followed by ACORN 3 residents at 0.27kg/hh/wk
- ◆ The public consultation showed that 13% admitted putting plastic bottles, tubs, pots and trays in the black bin. The most common reason cited was being unsure if it could be recycled and also because of contamination with food.
- ◆ Nearly 13% of the residual waste was made up of disposable nappies
- ◆ Overall 16.7% of black bin waste could have been placed into the blue recycling containers
- ◆ 31.4% of black bin waste could have been placed into the green recycling containers
- ◆ Therefore, in total, just over 48% of black bin waste could have been recycled through blue or green bin collections

Material not collected for recycling at kerbside

The council has a network of public recycling points made up of recycling banks at supermarket car parks and community areas around the city. These sites were initially installed before kerbside recycling collections were introduced. Over the years the council has expanded the range of materials collected at these sites to cover materials not collected through the kerbside recycling scheme. Some of the bullet points below relate to materials that could be recycled at these sites.

- ◆ Over 6% of black bin waste was textiles (0.34 kg/hh/wk); 44% of these items consisted of reusable clothing and shoes (0.15kg/hh/week) and a further 29% could have been sent for recycling (0.10kg/hh/week).
- ◆ ACORN 5 residents had the most textiles in their black bins (0.24kg/hh/wk) and had the greatest amount of reusable clothing.
- ◆ During the doorstep survey 9% claimed to dispose of textiles in the black bin. 65% of respondents stated they would be willing to use a council kerbside collection of textiles
- ◆ The composition of household residual bins showed that 1% consisted of waste electrical and electronic equipment (WEEE), which equates to 0.06kg/hh/wk. During the doorstep survey 13% claimed to dispose of WEEE in the black bin; these were more likely to be struggling families (ACORN 5).
- ◆ The composition of the residual bin showed that 3% consisted of DIY waste. During the doorstep survey 17% of residents claimed to dispose of DIY waste in the residual collection. This was more prevalent within struggling families and may be linked to ACORN 5 households being less likely to have access to a vehicle for taking waste to the Household Waste Recycling Centre.

Blue bin – Mixed Dry Recycling

- ◆ Overall participation rates for the service were high at 91%. The highest rate was 94% in an ACORN 2 area and the lowest was in an ACORN 1 area at 88%.
- ◆ The average amount of recycling collected was 2.84kg/hh/wk. The highest was 2.98kg/hh/wk from ACORN 5 residents and the lowest 1.99 kg/hh/wk from ACORN 4 (moderate means).
- ◆ The most common materials in the bin were: paper (36%), glass (31%) and card and cardboard (15%). Only 1.3% of the bin was tubs pots and trays, being such a lightweight material.

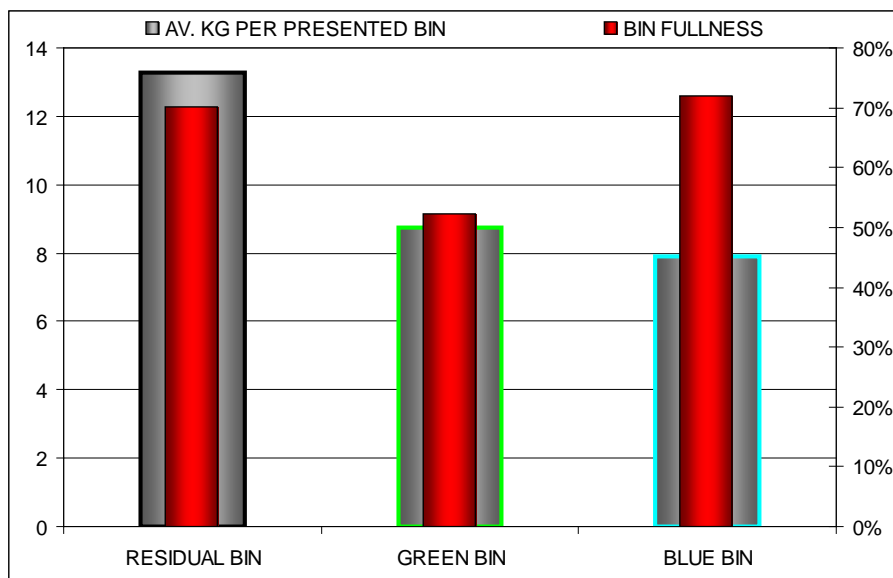
- ◆ Around 89% of glass, 76% of plastic bottles 74% of paper, 72% of card, 57% of the metals and 30% of plastic containers (tubs, pots and trays) that were being thrown away were captured in the blue bins.
- ◆ Communal recycling bins had lower capture rates for glass at 57% and metal at 40%.
- ◆ ACORN 5 captured the least amount of recyclable paper at 64%, ACORN 3 (comfortably off) captured the least amount of card at 63% and plastic tubs pots and trays at 9%. ACORN 1 areas captured the least amount of plastic bottles at 60%.
- ◆ The public consultation showed that there was confusion over whether or not plastic packaging, aerosols and metals could be recycled.
- ◆ 55% claim their blue bin is full/overflowing, being predominately large households and younger age groups. With no side waste collections in place this may mean that recyclables could be put into the residual waste
- ◆ Overall 6.9% of blue bin materials collected from all properties was classified as contamination. ACORN 5 residents and communal bins had the highest levels of the wrong items (0.40kg/hh/wk). The lowest was ACORN 2 at 0.12kg/hh/wk
- ◆ The materials causing the greatest contribution to the contamination levels were non-recyclable paper and card such as tissue paper (36%), non-recyclable plastics (15%) and food (12%)

Green bin - Organic Recycling

- ◆ Overall participation rates for the service were 80%. The lowest participation observed was in an ACORN 2 area of 75%
- ◆ On average the amount of organic waste collected in the green bins is 2.5kg/hh/wk. The highest is seen in ACORN 1 areas at 7.01kg/hh/wk and the lowest at 1.65kg/hh/wk in ACORN 2.
- ◆ Overall 80% of the green bin comprised of garden material, 12% of food waste and 8% pet bedding.
- ◆ Of the food waste collected, the majority (8%) was “home compostable” and 4% “non-home compostable”. There were marked differences between the types of food and the ACORN categories.
- ◆ On average nearly 15% of food waste and 96% of garden waste being thrown away was correctly captured through households using green bin service.
- ◆ Green bins of ACORN 1 residents captured the most amount of food waste at 22.9% and ACORN 5 the least at 10.3%
- ◆ Overall there was relatively low contamination of the green bins at just over 2%
- ◆ The most common cause of contamination in green bins from houses was black bin rubbish (58% of all the contamination).
- ◆ Green bins collected from households on a communal service had a remarkably different composition. 38% of the material in the green bins was contamination. Again the most common contaminant was general rubbish.
- ◆ The next most common contaminant was textiles (21%). This was especially noticeable in ACORN 1 and 5 areas.
- ◆ In addition “non-recyclable paper and card” was significant at 6.65%, noticeable with ACORN 1 and 5.

Bin Usage

Figure 1 below shows the average fullness (%) of each bin against the amount (kg) in each bin presented. Residual waste bins are on average 70% full when they are presented. The set out rate for the service shows that 18% of residents **do not** put their bin out each collection day. Commingled recycling bins are on average 72% full, **with 20% not setting out every collection**. On average each green bin is just over half full (52%) when presented. **60% do not** present the bin every collection day. Bin fullness and participation analysis shows that there is excess capacity in most bins both by the average set out frequency and how full the bin is when presented.



Communications – Broad Messages

The survey was used to gain information about how residents obtain information about recycling services:

- ◆ The calendar leaflet was the means of communication most commonly used across all age groups (57%).
- ◆ The council website was the second most commonly used way of obtaining information about kerbside services (37%), and was more common with the younger age group and larger family households
- ◆ Just over one third of respondents use facebook (38%). This is especially popular with the younger age groups 18-24 and 25-34 however about two thirds did not know that council was communicating in this way.

Recommendations

From the results of the research it is apparent that there is scope for increasing the recycling rate in Cambridge. The question is how can the maximum increase be achieved with limited resources.

Research carried out by WRAP¹ shows that separate and more frequent collections of food waste increase the proportion of food waste diverted from residual waste (black bins). If this is not feasible then more work needs to be done to encourage greater use of the existing scheme and ensure residents understand how to use it and why they should. This work could include providing more detailed information about what constitutes food waste and therefore can be recycled in the green bin, plus promotions on how to make recycling food waste easier i.e through increased take up and use of kitchen caddies (that the authority provides free of charge) and paper liners.

There is the capability to divert material from the black bin to the blue bin. Once the data was weighted and annualized the waste analysis work demonstrates that overall there is 16.7% of material in the black bin that could be recycled in the blue bin. This figure includes residencies who dispose of their waste in communal bins. The council can use the information contained in the report to target certain materials and certain groups within the population. There is scope for targeting specific materials that were in the black bin in significant amounts i.e. paper and card, plastic bottles and pots, tubs and trays. For example increasing the amount of paper and card residents recycle by 25% of the available material would generate an extra 0.15kg/hh/wk of recycling which is equivalent to a 1.27% increase in recycling for the city as whole. Increasing the amount of plastic packaging residents recycle by 50% of the available material would result in an extra 0.10kg/hh/wk or a 0.96% increase in recycling for the city as whole.

The resident survey also showed that some residents are uncertain of the recyclability of specific materials. Targeted communications on the specifics of recycling materials and what can and cannot be recycled, for example, could help overcome this problem. There are also significant differences in the amounts and types of materials recycled by different groups within Cambridge. This demonstrates that it would also be worth targeting lower performing areas by providing more relevant information. Cambridge City Council is already doing some work targeting students but this research shows that the council may need to refine this slightly. The provision of

¹ http://www.wrap.org.uk/sites/files/wrap/Food_Garden_Waste_Report_Final.pdf

additional containers to larger households and the younger age groups could help reduce the proportion of recyclable materials being disposed of in the black bin. Alternatively asking residents to crush/squash materials to create more space in their blue bin might help address this problem.

Other ways the council could increase recycling is to target materials that cannot be recycled in the blue or green bins, such as textiles. However, it should be recognised that this is potentially harder to instill as it requires more effort from some residents as they do not have a kerbside bag collection and would have to visit a bring site or take textiles to a charity shop. The council is also planning to install more banks for textiles in an effort to make textile recycling more convenient for residents.

Cambridge City Council has a very positive recycling rate for an urban area which is just above the published 43% national figure² for 2011/12 particularly as it is widely acknowledged that rural areas have higher diversion rates than urban areas. Although the City has high levels of transience it is hoped that this research signposts the council in the right direction to enable greater recycling based on knowing what is currently taking place and therefore what should be focused on for the future.

Definitions:

ACORN category profile of sample surveyed for the public consultation activity and Cambridge City

	Profile of Cambridge City		Profile of sample surveyed	
	Count	%	Count	%
1 - Wealthy Achievers	3,630	7%	28	3%
2 - Urban Prosperity	22,776	46%	330	30%
3 - Comfortably Off	10,214	21%	340	31%
4 - Moderate Means	1,977	4%	20	2%
5 - Hard-Pressed	10,085	21%	389	35%
Unclassified	471	1%	0	0%
Total	49,153	100%	1,107	100%

ACORN: A Classification of Residential Neighbourhoods.

This software is a socio demographic profiling tool

Set out rate:

The percentage of households that put their container out in any one collection

Participation rate

The percentage of households that put their container out at least once in the monitoring period (usually three consecutive collections)

Home compostable food

Includes uncooked food eg vegetable, fruit, peelings, pips, stones & cores, coffee grounds, tea bags etc

Non Home compostable food

Includes cooked and raw meat and fish, bones, dairy fats and oils

Bring banks/sites

Recycling banks which can be used by residents to deposit a variety of dry recycling, small WEEE, textiles etc. These banks are often located in public car parks

² http://www.resource.uk.com/article/Latest/Recycling_overtakes_landfilling_England-2410