NOTE FOR CHESHIRE EAST COUNCIL: TEEP ASSESSMENT

INTRODUCTION

Cheshire East Council (CEC) collects its waste, including co-mingled dry recyclables, through an arrangement whereby collections are delivered through a Teckal arrangement, with the company wholly owned by CEC. The collected materials become the property of UPM; and are subsequently transported and treated through a contract between CEC and UPM, under the terms of which UPM delivers the collected material to UPM's MRF, where UPM is responsible for the treatment of the materials for recycling.

CEC is fully cognisant of the requirements of the EU Waste Framework Directive (WFD) 2008 and the Waste England and Wales Regulations 2011 which flow from it. The Regulations (which were the subject of a judicial review) include Regulation 13 regarding the collection of glass, metal, paper and plastic for recycling.

CEC is fully aware that the requirement of Regulation 13 is that these materials (i.e. glass, metal, paper and plastic for recycling) should be collected separately: but may be collected on a different basis in certain circumstances which are where it can be shown that it is not technically, economically or environmentally practicable (TEEP).

In late April 2014 WRAP published the Waste Regulations Route Map. WYG was asked by CEC to assess its chosen methodology on the basis of this Route Map.

THE SYSTEM DESIGN AND OUTCOMES

The system that CEC uses is designed to maximise the recycling / composting rate at an affordable cost.

The design is as follows:

- Residual waste collected fortnightly from a 240-litre wheeled-bin;
- Dry mixed recyclables (DMR) collected fortnightly, co-mingled including glass, from a 240-litre wheeled-bin; and
- Garden waste collected fortnightly from a 240-litre wheeled-bin, the first bin free and any others on a chargeable basis.

In terms of comparative performance outcomes, in 2012/13 (at the time of writing the most recent data available for all local authorities) CEC had the 39th highest rate for recycling / composting in England out of 352 authorities, just outside the top 10%, with a combined recycling/composting rate of 53.78%.

The resources used for the collection of dry recyclate from the 167,420 properties are 15 rounds, each comprising a driver plus two loaders, plus two rounds each comprising a driver plus one loader, which as stated collect on a fortnightly basis. The productivity, in terms of properties passed, averages over 1,000 per day for the main rounds, which is good productivity; and each typically collects almost two full loads each day (average of over 8.25 tonnes per vehicle per day).

In terms of volumes collected, in 2013/14 these were (from 167,420 households):

- Residual household waste at the kerbside: 64,482.37 tonnes
- Residual household waste collected at HWRCs: 8,301.63 tonnes
- Residual household waste (street cleaning): 9,835.71
- Other residual household waste (Asbestos waste separately collected): 68.46 tonnes
- Dry recyclables at the kerbside: 36,576.25 tonnes (excluding contaminants)
- Dry recycling from bring sites: 890.09 tonnes
- Recycling from HWRCs: 14,345.05 tonnes
- Reuse from HWRCs: 1,043.36 tonnes
- Compostable waste at the kerbside: 33,118.94 tonnes
- Compostable waste from HWRCs: 8,032.14 tonnes

If measured in terms of kg per household for that year, CEC's figures are as follows:

Residual household waste at the kerbside: 385 kg
Dry recycling at the kerbside: 218 kg
Composting at the kerbside: 198 kg

This gives the following outcomes:

- Recycling rate: 29.50%
- Composting rate: 23.43%
- Combined recycling / composting rate: 52.93%

USING THE WRAP ROUTE MAP

The following commentary leads through the various stages of the WRAP Route Map.

Step 1

Here CEC should consider the waste collections covered; and the current waste collection system.

The waste collections being covered are household waste. The current waste collection system does collect the four materials (glass, metal, paper and plastic) for recycling: but these are not collected as separate waste streams.

The published guidance also refers to the collection of food and garden waste: the system collects garden waste on a separate basis.

The published guidance also refers to the collection of bulky waste and the system collects this at the kerbside and applies a waste hierarchy promoting reuse and recycling. Additionally, there is recycling and re-use of various items presented at the HWRC.

Step 2

Here CEC should consider how each waste stream is managed and what waste is recycled.

Residual household waste is not currently recycled: but CEC is seeking solutions whereby there will be recovery from this part of the waste stream.

Dry recyclate collected is all recycled, except for fines and contaminants. The contract between CEC and UPM is based on a contamination rate of 5% or below: and the contract documentation sets out detailed processes that are followed to determine the make-up of the recyclate and managing contamination. In actual fact, the contamination rate in 2013/14 was marginally higher than target at 6.30%.

Garden waste is treated through composting. Bulky waste is also recycled or re-used where it can be.

Step 3

Step 3 relates to the waste hierarchy: which has been applied throughout the decision-making process regarding the selection of recycling methodology.

Step 4

At this stage a number of questions are asked in relation to the four dry streams of glass, metal, paper and plastic. Working through these questions:

- Does CEC collect glass, metal, paper and plastic for recycling? Yes
- Are separate collections in place? No (so necessity and practicability questions to be answered)
- Are separate collections necessary to ensure that waste is recycled? No – waste collected for recycling is (apart from contaminants etc.) recycled
- Is there an approach to collection of the four target materials that is technically, environmentally and economically more practicable than separate collection i.e. separate collection is not TEEP? Yes – as the following tests show.

Necessity test:

Here the quality and quantity of recycling is considered.

In terms of quality, the contract documentation requires that at least 95% of collected material shall be recycled. Further, the MRF contractor (UPM) is required to report details of contamination on a regular basis to CEC: and from October 2015 will comply with Schedule 9A of the permitting regulations (incorporating the drafted MRF Code of Practice) with regard to sampling. UPM's processes include measuring and managing contamination by use of gravimetric testing of delivered loads. This gravimetric testing is carried out independently by CEMS. UPM's process also involves a second sort by a third party of rejects from the Shotton MRF; and some of these materials are then recycled.

The range of materials accepted through the treatment contract is set out very clearly on CEC's website, details shown on the next pages:

What You Can Recycle in The Silver Bin

Image	You Can Recycle	Please Remember...
	Tins and Cans including: • Food tins • Drinks cans • Sweet/biscuit tins • Metal lids	 Rinse tins and cans Tip - labels can be left on and please squash if possible, but don't flatten
	Glass including: • Glass bottles • Glass jars	 Rinse bottles and jars Tip - labels can be left on, all colours accepted, jar lids can be kept on or put in bin separately Ceramics such as mugs, vases and crockery can only be recycled at your local Household Waste Recycling Centre
	All plastic bottles including: • Drinks bottles • Milk/juice bottles • Detergent and fabric conditioner bottles • Cleaning/ bleach bottles and toiletry bottles Plastic containers and trays including: • Yoghurt pots • Margarine/ice cream tubs	 Rinse bottles, trays and containers Tip - To maximise space in your bin, plastic bottles should be squashed and tops replaced, but labels can be left on. Plastics such as polystyrene, plant pots and

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Image	You Can Recycle	Please Remember...
	• Fruit/vegetable punnets • Cream/custard pots • Plastic trays e.g. meat/fish/cake trays • Soup/sauce pots, egg boxes • Plastic cups • All empty plastic bags, carrier bags and film	hard/rigid plastics cannot be recycled Children's plastic toys and CD's can be reused through charity shops
	All paper including: • Newspapers/magazines • Telephone directories Yellow pages • Catalogues/brochures • Junk mail/leaflets • White and coloured office paper • Greetings cards • Envelopes including window type • Wrapping paper and clean paper bags • Shredded paper All cardboard including: • Cereal boxes • Ready meal boxes • Corrugated/Thick Cardboard • Egg boxes, Kitchen/toilet roll tubes • Waxed paper coffee/tea cups	 Remove plastic wrappers off magazines and put in the silver bin separately Shredded paper must be placed in a plastic bag and tied Tip – you can compost your shredded paper at home Greetings cards or wrapping paper that have glitter on cannot be recycled Please flatten all cardboard

Image	You Can Recycle	Please Remember...
	Cartons including: • Milk/juice/smoothie cartons • Fabric conditioner cartons • Soup/chopped tomatoes cartons • Custard cartons	 Rinse cartons Tip - please squash, but no need to flatten, plastic spouts can be left on
	• Clean aluminium foil • Clean foil trays	 Rinse foil - please keep flat
	All empty household steel and aluminium aerosols including: • Hairspray • Deodorant • Shaving foam • Carpet cleaner	 Remove plastic lids if detachable and put in bin separately Aerosols containing hazardous liquids or gases are not accepted e.g. paint sprays

This is a wide range of recyclables: additionally, other materials are collected and recycled using bring sites and the HWRCs.

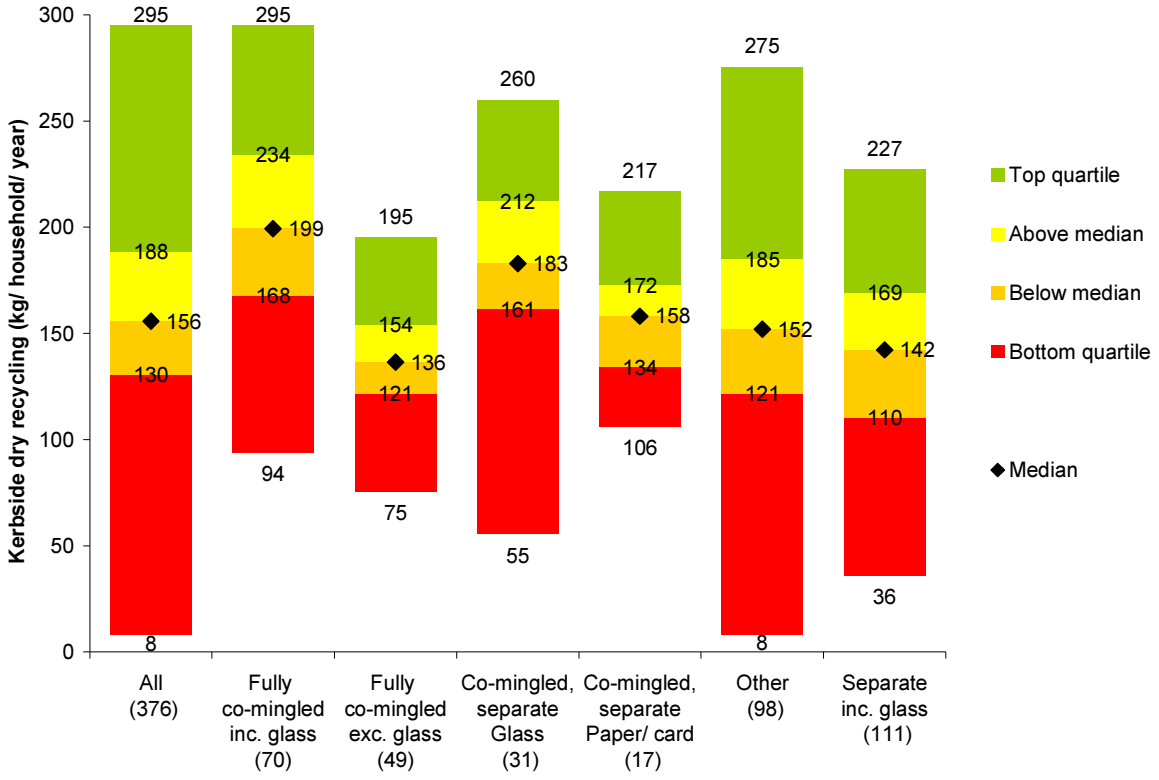
In terms of quality, it is clear from UPM's methodology that good quality recyclables result from the process. As noted, around 94% of all collected materials in 2013/14 were recycled; and around 50% of the recycled materials (the paper component) were recycled in the adjacent UPM mill on the Shotton site without the need for any further handling (in 2013/2014 this was 45.65% of the total).

It is worth noting that over 90% of the recycled materials are recycled by UPM Approved End Users within a 30-mile radius of the Shotton MRF. These Approved End Users are required to comply with prescribed UPM standards: which include (as a minimum) ISO 9000 quality standard and ISO 14000 environment standard; plus compliance in terms of standards for Health & Safety, Sustainability, Corporate Social Responsibility, Continuous Improvement and Equal Opportunities.

There is ample waste industry evidence to show that the chosen methodology recycles a greater amount of materials than could be achieved with separate collections.

Comparing the highest performing authorities nationally, the top performer is for a fully co-mingled service (295 kg per household per annum) followed by a two-stream service collecting glass separately (260 kg per household per annum). This position does not just hold for the highest performers: it is also true at all quartiles, as shown in Figure 1 below (showing 2010/11 figures):

Figure 1



The 2011/12 figures tell a similar story which supports CEC's choice of system. Table 1 overleaf shows that 20 of the top 30 performers collect fully co-mingled dry recyclables, and five collect on a two-stream basis collecting glass separately: whereas only one of this top 30 (North Somerset) collects on a kerbside-sort basis.

Table 1: Collection Details for the Top 30 Kerbside Dry Recycling Authorities in 2011/12

Rank	Authority	WYG client	Kerbside Recycling kg/hh/yr	Type	% Co-mingled	Recycling				Refuse			
						Freq.	Wheeled Bins	Sacks/ Other	Kerbside Boxes	Freq.	Wheeled Bins	Sacks/ Other	Communal
1	South Oxfordshire	·	310	C	100%	F	96%	4%		F	90%	4%	5%
2	Surrey Heath	·	291	C	100%	F	98%	1%		F	89%	2%	8%
3	Vale of White Horse	·	282	C	100%	F	97%	3%		F	91%	3%	7%
4	Windsor and Maidenhead		276	C	76%	W	100%			W	85%	5%	10%
5	Lichfield		267	C	100%	F	100%		0%	F	96%	1%	3%
6	Elmbridge	·	263	C	100%	F	96%		4%	F	88%	4%	8%
7	Mole Valley	·	263	C	100%	F	85%	16%		F	85%	10%	6%
8	Rochford		261	C	99%	F	99%			F	100%		0%
9	South Kesteven		258	C	100%	F	100%			F	100%		
10	North Somerset	·	255	S	0%	W			92%	F	83%	8%	8%
11	Castle Point	·	253	C/g	77%	F		100%	100%	F		100%	
12	Epping Forest	·	253	C/g	78%	F	5%	95%	95%	F	91%	3%	5%
13	Tamworth		252	C	100%	F	100%			F	100%		
14	Cannock Chase		250	C	100%	F	100%			F	100%		0%
15	Rutland		249	C	100%	F	99%	1%		F	96%	1%	3%
16	Stratford-on-Avon		249	C	100%	F	96%		4%	F	94%	4%	2%
17	South Cambridgeshire		249	C/p	66%	F	100%		0%	F	95%	0%	4%
18	West Oxfordshire	·	245	O	26%	W	5%		95%	F	94%	1%	5%
19	Basildon	·	244	C/g	78%	F		93%	98%	W		90%	9%
20	Wychavon		241	C	100%	F	90%	10%	7%	F	90%	7%	3%
21	Huntingdonshire	·	240	C	100%	F	88%	12%		F	92%	4%	5%
22	Woking	·	239	C	100%	F	93%	7%		F	86%	4%	10%
23	North Kesteven	·	238	C	100%	F	99%			F	99%		
24	Mid Sussex		237	C	100%	F	99%			F	99%		
25	South Holland		234	C	100%	W		100%		W		100%	
26	Caerphilly		232	C	100%	W	71%	1%	27%	W	98%	2%	
27	Charnwood		231	C/g	88%	F	98%	2%	98%	F	98%	2%	
28	Guildford	·	231	O	17%	W	8%	9%	83%	F	86%	9%	6%
29	Central Bedfordshire		230	C/g	82%	F	72%	16%	12%	F	91%	5%	4%
30	Spelthorne	·	229	C	100%	F	94%			F	89%	0%	11%

Conversely (as noted in WYG's report available via the WYG website) among the bottom 30 performers the reverse is true – 25 out of 30 practice a form of kerbside-sort. It is worth noting also that a number of these bottom performers have since moved to either a two-stream or fully co-mingled system (e.g. Ashford, LB Brent, Eastbourne, Isle of Wight, Rother and Wealden) have since abandoned kerbside-sort and report significantly higher capture rates.

In terms of volume, then, the argument runs in favour of moving away from kerbside-sort and toward some degree of co-mingling, either as a two-stream service or a fully co-mingled service.

There is a lot of evidence to show that the key factors in determining volumes of dry recyclables collected are:

(a) choice of system for collecting dry recyclables,
(b) type of residual waste service and
(c) the degree of affluence.

Second one can look at wider benchmarks: these are detailed in the modelling which follows.

Kerbside recycling yields for Nearest Neighbours

Table 2 and Figure 2 show the kerbside dry recycling yields in kg/household for Cheshire East and its CIPFA Nearest Neighbours (NN), listed in order of collection system then decreasing yields. Yields are based on tonnages derived from WasteDataFlow data for 2012/13 (the latest year for which audited figures were available on a national basis at the time of analysis). The Nearest Neighbour number is shown in the first column; the lower the number, the more similar it is to Cheshire East. The table also shows the recycling container and frequency of collections.

Estimated yields based on benchmarks

Table 3 and Figure 3 show the kerbside dry recycling yield in kg/household for Cheshire East in 2012/13 and the estimated yields if it changed to the following recycling collection systems:

- Fully co-mingled including glass;
- Two stream: co-mingled with separate glass;
- Two stream: co-mingled with separate paper/card;
- Three+ streams (co-mingled, glass, paper/card);

- Separate streams including glass.

The estimated yields are the average of yields in 2012/13 for benchmark authorities with:

- indices of multiple deprivation (IMD) within +/-5 of that for Cheshire East (13.29);
- fortnightly recycling (including card and plastic bottles as well as paper, cans and glass); and
- fortnightly collections of residual waste from wheeled bins (for at least half of households).

An additional benchmark is also provided for weekly collections of separate materials and fortnightly residual waste.

For each system, textiles and/or batteries may also be collected as additional streams. Authorities collecting mainly separate materials may collect some materials co-mingled, e.g. plastics and cans.

The tonnes per year are shown for Cheshire East for 2012/13 and the benchmark tonnes were obtained by multiplying the number of households in Cheshire East, 166,650 in 2012/13, by the benchmark yields in kg/household, and dividing by 1000.

Table 2: Kerbside Recycling Yields of Nearest Neighbours in 2012/13

NN	Authority	Yield kg/hh	Collection system for dry recyclables	Recycling frequency and container
0	**Cheshire East**	**223**	**Fully co-mingled inc. glass**	**Fortnightly w/bin**
13	Herefordshire	189	Fully co-mingled inc. glass	Fortnightly w/bin
11	Warrington	170		Fortnightly w/bin
12	East Riding of Yorkshire	154		Monthly w/bin
15	Bedford	147	Fully co-mingled exc. glass	Fortnightly w/bin
6	Central Bedfordshire	221	Co-mingled + sep. glass	Fortnightly w/bin
10	Trafford	215	Co-mingled + sep. paper/card	Fortnightly w/bin
5	Stockport	208		Fortnightly w/bin
8	North Somerset	220	Separate streams inc. glass	Weekly box
4	Bath & NE Somerset	180		Weekly box, sack
14	South Gloucestershire	176		Fortnightly box
1	Cheshire West & Chester	189	Three+ streams	Fortnightly box
2	Wiltshire	179		Fortnightly w/bin, box
9	York	170		Fortnightly box
3	Solihull	159		Fortnightly box, sack
7	Shropshire	129		Fortnightly box

Figure 2: Kerbside Recycling Yields in Nearest Neighbours in 2012/13

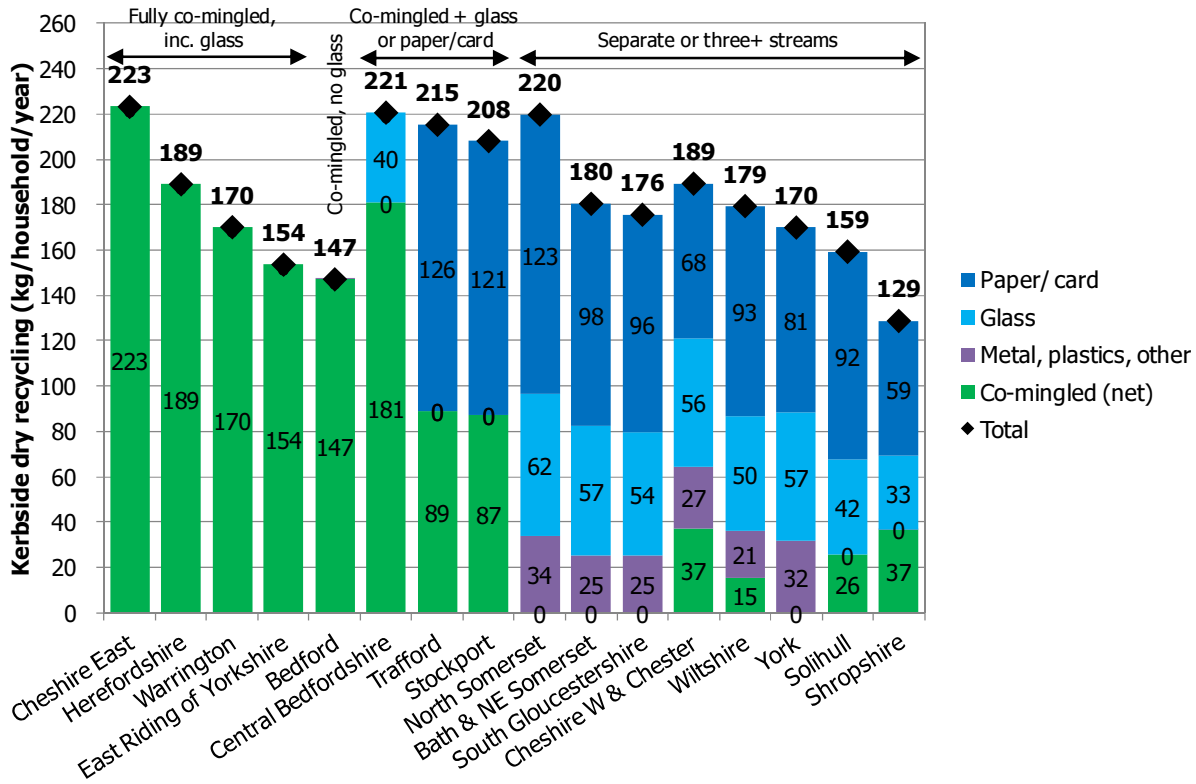
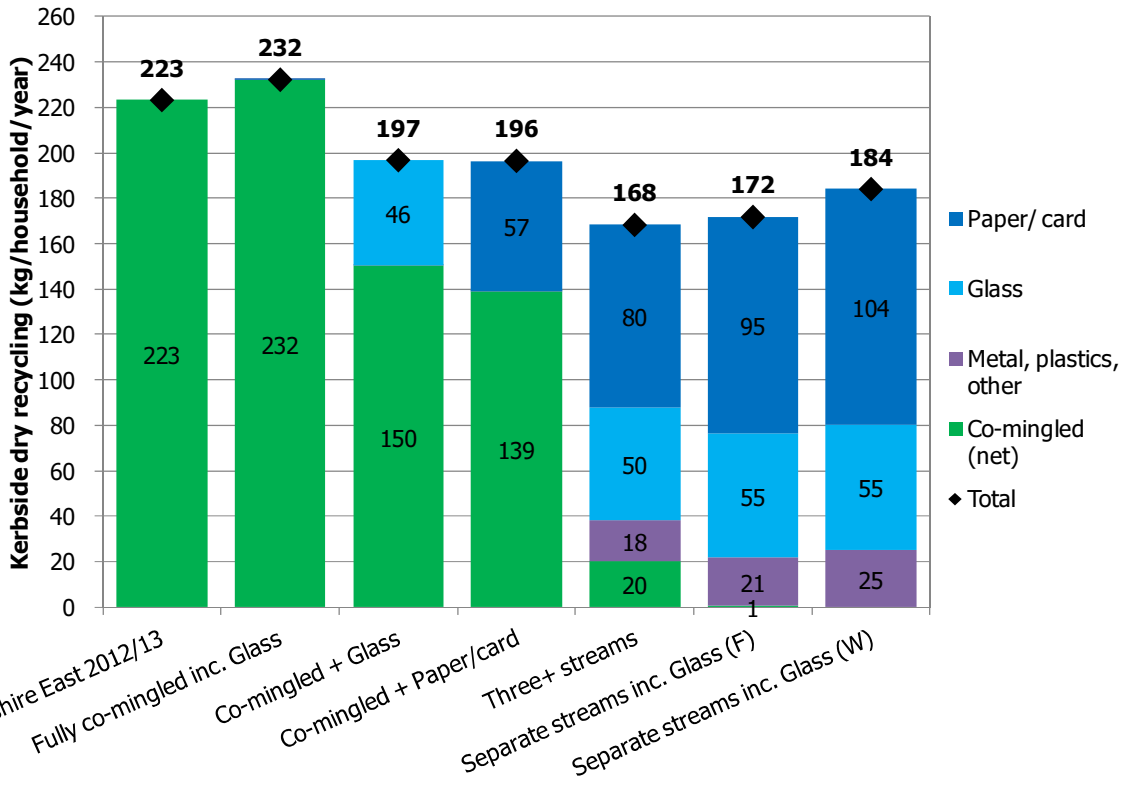


Table 3: Kerbside Recycling Benchmarks

Benchmark	Recycling frequency	Recycling containers	Benchmark yield kg/hh	Change in yield kg/hh	Benchmark tonnes	Change in tonnes
Cheshire East 2012/13	**Fortnightly**	W/bin	**223**	**0**	**37,195**	**0**
Fully co-mingled inc. glass	Fortnightly	W/bin	232	9	38,689	1,494
Co-mingled + sep. glass	Fortnightly	W/bin, box	197	-26	32,787	-4,409
Co-mingled + sep. paper/card	Fortnightly	W/bin, box or sack	196	-27	32,734	-4,461
Three+ streams	Fortnightly	Box	168	-55	28,033	-9,162
Separate streams inc. glass (F)	Fortnightly	Box	172	-51	28,618	-8,578
Separate streams inc. glass (W)	Weekly	Box	184	-39	30,663	-6,533

Figure 3: Kerbside Recycling Benchmarks



What this analysis shows is that, on the basis of benchmark data, if CEC changed to collecting dry recyclables on the basis of separate stream collections and retained fortnightly collections, then the capture rate would fall by ca. 51 kg per household per annum – and with 167,420 households that would mean

that recycling would fall by some 8,538 tonnes per annum. Even if weekly collections were introduced for separate stream collections, the reduction in recycling would be some 6,529 tonnes.

It should be clear that CEC has considered the quality and quantity of recycled material arising most carefully.

Practicability test:

Here the three areas to be addressed are: is the separate collection of each material stream economically, environmentally or technically impracticable?

It should be clear from the analysis above that the chosen system is more environmentally practicable: it recycles significantly more than a system which collects material streams separately by an estimated 8,538 tonnes per annum if fortnightly collections remain.

There is also an economic benefit to recycling at this level: CEC is a unitary authority, i.e. is responsible for both waste collection and waste disposal. The additional costs associated with treating this additional volume of residual waste would be ca. £770,000 per annum.

Further: at present CEC collects dry recyclate from its 167,420 properties on a fortnightly basis using 15 rounds, each comprising a driver plus two loaders, plus two rounds each comprising a driver plus one loader. If this were expressed at current (December 2014) rates, then based upon the cost data that we have been supplied with the cost for collection and MRF treatment could be expressed as:

- 15 rounds of driver plus two loaders plus two rounds of driver plus one loader: £3,178,281
- c67,000 tonnes of dry recyclate (including contamination) at income of c£: £880,232
- Net cost of collection and MRF treatment: £2,298,049

If the recyclate was collected as separate streams, and there were still fortnightly collections, we know that generally speaking such arrangements have a much lower productivity rate because of vehicle capacity, although a lower cost per round; and we would expect the costs to be:

- 20 rounds of driver plus two loaders plus two rounds of driver plus one loader @ £10,000 per round including all overheads: £3,240,000
- Income from sale of recyclables:
    - Paper and card: 14,142 tonnes @ £50 per tonne = £707,100

    - Cans / plastic: 4,440 tonnes @ £35 per tonne = £155,400
    - Glass: 10,036 tonnes at £20 per tonne = £200,720
- Additional costs of disposal: £770,000
- Net cost of collection and treatment: £2,946,780

This increase in cost is stark: an increase in costs of almost £650,000 per annum (ca. 28% increase or almost £4 per household).

It should be clear that the current system has been chosen because it is seen as more technically practicable, environmental and economic than collecting the four materials separately.

Step 5

At this stage sign-off is required.

We recommend that this assessment should be formally approved by the appropriate Council Committee or other authority; and retained as a formal record.

In terms of a review (Step 6 in the Route Map), we believe that this TEEP test is appropriate for the term of the current contractual arrangements (including with UPM): but a review should be undertaken just prior to the end of the contract and before it is re-procured or whenever waste services are generally reviewed, whichever is the earlier. In particular, the review should consider whether glass is removed from the mix (which would fit with Lord de Mauley's letter; but might impact on capture rates and on costs).

LA/WYG/12.14