



Waste Regulations Compliance

Report for London Borough of Barnet

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9th March 2015

Report for Nicola Cross, London Borough of Barnet

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Acknowledgements

We are grateful to staff at London Borough of Barnet for supplying the information needed to prepare this report.

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Executive Summary

E.1.0 Approach

Eunomia Research & Consulting has prepared this report for London Borough of Barnet ('the Council') to provide a review of its compliance with the Waste England and Wales Regulations 2011 (as amended) ('The Regulations'). This piece of work focuses on the requirements regarding the separate collection of recycling under Regulation 13.

A good deal remains uncertain regarding how the Waste Regulations should be interpreted or how they will be enforced. There is no English statutory guidance on how to determine whether separate collection is "necessary" or "practicable". The Environment Agency is beginning to make clear its approach to enforcement of the legislation, but it remains to be seen how active it proposes to be in its role; and as yet no third parties have disclosed any intention to seek to clarify the requirements of the law by pursuing legal action against authorities.

However a "Route-map" has been prepared by WRAP and others to assist authorities in interpreting the law, and this document has been followed in preparing the subsequent analysis. This report presents the findings of an options appraisal using Eunomia's waste collection modelling tool developed specifically to carry out assessments under this legislation, to examine whether separate collections of four streams of dry recycling (glass, metal, paper and plastic) are necessary and practicable in the sense prescribed by the law.

Eunomia has interpreted the results and provided advice on a course of action that we believe represents the Council's best option to demonstrate compliance without precipitately making changes to its established collection system.

E.2.0 Separate Collections

From 1st January 2015, all waste collectors in England and Wales will be required to collect glass, metal, paper, and plastic ('the four materials') in separate streams where doing so is both necessary and technically, economically and environmentally practicable (TEEP). Effectively, "necessity" and "practicability" are two tests that, if met, mean that separate collection is required.

The Council currently collects the four materials in one stream. The Council therefore needs to consider whether it is necessary and practicable to collect any or all of these materials separately.

E.2.1 Necessity Test

The analysis carried out indicates that separate collection of the four materials:

- is unlikely to increase the quantity of recycling collected and, so in the terms set out in the law, is not necessary in order to *facilitate* recovery; and
- is likely to lead to an improvement in the purity of most materials compared with current MRF outputs, although there are definitions of “high quality recycling” that would be met by the material. In the terms set out in the law, there is an argument that separate collection may not be necessary in order to *improve* recovery.

Based on typical yields for different recycling systems, separate collection is not predicted to result in more recycling being collected in Barnet than under the current collection system, although the difference in performance between systems is perhaps smaller than the Council may have expected given their previous experience of a separate collection system. However, our previous benchmarking work does not support the view that a change from a co-mingled system to a kerbside sort system is likely to result in a significant drop in recycling captures. A kerbside sort system would normally be expected to yield higher quality recycling than one in which some materials are collected comingled. The Council has received data regarding the level of output contamination from the MRF it uses, which indicate that the material, while above average for MRF outputs, are less pure than separately collected material. It appears likely that separate collection would improve recovery of all materials that are collected co-mingled, with the exception of card. However, there is scope to interpret the definition of “high quality” in a number of different ways, and it is clear that there are interpretations that the MRF outputs would satisfy. If the material is deemed “high quality”, it is arguable that it is not necessary to improve it through the adoption of separate collection.

Based on these findings, it can be argued that separate collection is not “necessary” in the terms set out in the Regulations.

E.2.2 Practicability Test

The analysis carried out indicates that separate collection of the four materials is:

- technically practicable for most households, with the exception of certain flats with very limited communal bin storage space, since it has been implemented and operated by authorities in many ways similar to Barnet;
- potentially environmentally practicable, since the options appraisal indicates that kerbside sort would save more CO₂ than is emitted in the collection process. It would deliver a 4.2% increase in carbon savings compared with co-mingled collection, but less than a two stream alternative; and
- potentially economically practicable, since the options appraisal indicates that kerbside sort would be 1.3% cheaper than the current comingled system. However, it would entail the Council accepting the economic risk of greater dependency on material incomes. A two stream option may have the potential to

deliver slightly greater savings with less income risk, while increasing the amount of material that is collected separately.

The test of economic practicability focuses on the comparative operational net cost of different collection methods. However, in considering the timing of any change of collection system, other economic factors should also be taken into account. While the modelling suggests separate collection may be economically practicable, the report raises significant doubts regarding whether it is financially feasible in the short term based on the findings that:

- the Council operates an in-house service and the introduction of a new collection service would necessitate the purchase of new vehicles and containers. Although some value could be realised from existing assets, the transition to separate collection would mean disposing of vehicles outside the currently planned timescale would mean incurring greater vehicle capital costs, and doing so sooner than currently planned, which might be problematic for the Council. Without capital finance, a transition to separate collection would have to be delayed; and
- the cost or difficulty of terminating its MRF arrangements with NLWA and the challenges associated with setting up a competitively priced brokerage contract for material sales make it impossible for the Council to implement separate collections, whether of one material or all, in the short term.

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1.0 Introduction

Eunomia Research & Consulting (Eunomia) has prepared this report for London Borough of Barnet ('the Council') to provide a review of its compliance with the Waste England and Wales Regulations 2011 (as amended) ('the Regulations').^{1,2}

This report provides the results of an options appraisal to examine whether separate collection of one or more additional waste streams is necessary or practicable.

1.1 Regulatory Background

Regulation 13 states that from 1st January 2015, all waste collectors in England and Wales will be required to collect glass, metal, paper, and plastic ('the four materials') in separate streams where doing so is both necessary and technically, economically and environmentally practicable (TEEP).

Effectively, "necessity" and "practicability" are two tests that, if met, mean that separate collection is required. There is no statutory guidance on how to determine whether separate collection is "necessary" or "practicable". However, WRAP, the London Waste and Recycling Board, and Waste Network Chairs commissioned Eunomia to prepare a "Route-map" to assist authorities in interpreting the law.³ The Environment Agency has signalled that it will take account of the Route-map as part of its regulatory approach.⁴ The advice in this report is therefore closely based on the approach set out in the Route-map.

1.2 Waste Collections in Barnet

The Council's current kerbside collection system for households is delivered in house and comprises:

- a weekly residual waste collection from 240L black wheeled bins;
- a weekly co-mingled recycling collection from 240L blue wheeled bins;
- a weekly food waste collection from 23L brown caddies; and
- a fortnightly opt-in garden waste collection from 240L green wheeled bins.

The Council also provides an adapted service to households with communal bins:

- a weekly residual waste collection from 240L black wheeled bins; and
- a weekly co-mingled recycling collection from 240L blue wheeled bins.

¹ UK Government (2011) *The Waste (England and Wales) Regulations 2011*, 28th March 2011

² UK Government (2014) *The Waste (England and Wales) (Amendment) Regulations 2012*, 1st October 2012

³ WRAP, and LWARB (2014) *Waste Regulations Route-map*, April 2014

⁴ Environment Agency (2014) *Separate Collection of Recyclables: Briefing Note*, June 2014

The Council also provides a refuse only collection service from a number of communal bin sites for flats where there is limited space for bin storage.

The Council also provides the following waste services:

- a charged household bulky waste collection service;
- a network of bring sites;
- a civic amenity and recycling centre;
- a clinical waste collection; and
- litter and street cleansing services.

Each of these forms of collection potentially falls under the requirements of the Regulations. However, this report focuses on the regular kerbside and communal collections that account for the great majority of the waste the Council collects.

1.3 About This Report

This report comprises:

- an explanation of the modelling methodology used in this report (Section 2.0 **Error! Reference source not found.**);
- an examination of whether separate collection of the four recyclable materials specified in the law (glass, metal, paper, plastics) is necessary in Barnet (Section 3.0);
- an examination of whether separate collection of the four recyclable materials specified in the law (glass, metal, paper, plastics) is practicable in Barnet (Section 4.0); and
- recommendations regarding the Council's way forward (Section 5.0).

2.0 Options Appraisal Methodology

The Waste Regulations Route Map indicates that in order to carry out the necessity and practicability tests, an options appraisal may be required in order to determine the likely costs and outputs of a separate collection system. Eunomia has followed this suggested approach in order to examine the implications of the tests.

2.1 Our Approach to Collection Options Appraisal

Eunomia's 'Practicability and Necessity' model (PAN) has been used to calculate the performance and costs associated with different kerbside waste collection scheme configurations for the Council. This model has been developed specifically to cost-effectively compare collection systems in relation to the requirements of the Regulations. Whilst it is a relatively simple model, it relies heavily on assumptions and an approach that is common to other such options appraisal tools.

Because Barnet operates different collection systems for its kerbside properties and flats, three separate models were constructed and the results combined to produce the final figures. In each model, a 'baseline' was created to represent the Council's starting point for evaluation. Because the Council is considering rolling out a co-mingled collection service to flats that currently receive residual waste collections only, we have assumed that this service is implemented, and included the estimated collection costs and recycling benefits in the baseline.

The aim of the baseline is to reflect the resources and logistics of the current system as accurately as possible, so that it serves as a reliable foundation for testing various alternative collection options. Authority-specific inputs to the baseline include information regarding the Council's number and type of households, current services and service performance, resources, and waste composition. Known inputs (from the perspective of the model these include; tonnages of each material type collected, numbers and types of households offered the service) are calibrated to known outputs (which in modelling terms includes the numbers of crew and vehicles used to deliver the collection services).

Put simply, the baseline model should accurately reflect the Council's:

- recycling composition and tonnages;
- demographic characteristics (household numbers, population, housing types);
- travel logistics (distance, pass rate); and
- current vehicle and container types and costs.

This creates a sensible basis from which to establish the change in resource requirements for different potential future service configurations, ensuring that the Council's specific constraints are properly reflected.

The likely performance of new schemes is then driven by comparing the authority's collection pass rate with an expected value based on data available from other authorities operating similar schemes, and factoring in the extent of urban and rural collections within the authority. This pass rate factor is then used to generate expected pass rates for alternate collection approaches. This dictates the expected level of resources needed to undertake collections.

The model automatically builds up the costs associated with the baseline and future schemes based on unit cost data extracted from a database. The numbers of vehicles, containers, and crew required are multiplied by the unit costs to derive an overall cost for the baseline and each future scheme option in turn.

Alongside this, separate standard assumptions are made regarding recycling compositions and yields and within different collection systems and frequencies. These are combined with material, vehicle and crew financial information, using the Council's own data wherever possible, in order to calculate expected net system costs. The market for secondary materials is variable. Although it has displayed a generally upward trend for many years, it is at present lower than it has been for some while. In our model we provide figures that aim to present a conservative estimate of average material prices

over the lifetime of a new vehicle fleet – perhaps 8 years. Given that the market is currently low, our estimates are a little higher than current prices.

In order to compare each option on a like for like basis, it is assumed that capital costs (e.g. vehicles, containers, depot investments) are amortised over their expected lifetime with an interest rate of 2.5%, regardless of whether in practice the Council adopts this approach to accounting for these items. The model therefore includes the annualised costs of these items, but does not focus on the initial capital outlay that the Council might need to incur to put the service in place; or the remaining value of assets the Council may already hold, treating costs incurred in the past as sunk. The model for the Council does not include costs such as spare vehicles, supervisors, depot costs, overheads, and internal recharges.

2.2 Options Modelled

Since the law concerns separate collection, the current service system is modelled in comparison with a weekly kerbside sort system. The options are defined in Table 2-1.

Table 2-1: Options Modelled: Kerbside Collections

Option	Dry Recycling	Food Waste	Garden Waste	Residual Waste
Baseline – Fully Co-mingled	Weekly 240L wheeled bin	Weekly caddy (23L external, 7L internal)	Fortnightly 240L wheeled bin (opt-in service)	Weekly 240L wheeled bin
Option 1 – Kerbside Sort (Weekly)	2 x 55L box	Same as baseline	Same as baseline	Same as baseline
Option 3 – Two-Stream with Glass Separate (Weekly)	240L wheeled bin and 55L box	Same as baseline	Same as baseline	Same as baseline
Option 4 – Two Stream, Fibres/ Containers (Weekly)	240L wheeled bin and 55L box	Same as baseline	Same as baseline	Same as baseline

It should be noted that the stillage vehicles modelled in the separate collection option is assumed to collect plastic and cans in a single compartment. It is in principle possible to obtain a vehicle with separate compartments for these two materials; however, in practice this is rarely done, since plastic and cans are able to be separated without unduly complex equipment and to a standard that is acceptable to end markets.

In addition to the kerbside collections, options have been developed to reflect different approaches that are possible for residents living in flats, who at present receive a commingled collection service.

Table 2-2: Options Modelled: Flats with Current Recycling Service

Option	Dry Recycling	Food Waste	Garden Waste	Residual Waste
Baseline (Weekly)	Communal bins (mixed recycling)	N/A	N/a	Communal bins
Option 1 – Separate Collection (Weekly)	Communal bins (separate 240L bins for paper/card, glass, and plastic/cans)	Same as baseline	Same as baseline	Same as baseline
Option 2 – Two-Stream with Glass Separate (Weekly)	Communal bins (mixed recycling excluding glass, separate glass)	Same as baseline	Same as baseline	Same as baseline
Option 3 – Two Stream, Fibres/ Containers (Weekly)	Communal bins (mixed recycling excluding paper/card, separate paper/card)	Same as baseline	Same as baseline	Same as baseline

As with the kerbside collections, the communal separate collection system proposed is effectively three streams. This has the advantage of requiring fewer containers and fewer separate chambers in the vehicles used. A separate fleet of three-chambered toploaders is envisaged to undertake this service.

For the flats that currently have no recycling collection service, and for a small proportion of flats with the current co-mingled collections, it is assumed that due to space constraints limiting the number of containers that can be provided, weekly co-mingled collections are the only practicable approach. This assumption has been included in the baseline and added into the total cost of the three alternative options.

2.3 Environmental Model

The PAN model also contains assumptions derived from the Environment Agency’s WRATE model regarding the CO₂ emitted and saved through

- the collection and reprocessing of recycling; and
- the benefit derived from avoiding the need for virgin materials

to provide a proxy for the overall environmental impact of different collection systems. This enables the environmental practicability of different collection options to be considered. Again, the carbon impacts of each option combines the results for all three models.

3.0 Necessity Test

This section addresses the ‘necessity test’, and seeks to establish whether separate collection of waste streams is, in the words of the Waste Regulations, “is necessary to ensure that waste undergoes recovery operations in accordance with Articles 4 and 13 of the Waste Framework Directive and to facilitate or improve recovery”. If separate collection is not necessary, the law does not require it.

There is no definition of “facilitate” or “improve” given in the Waste Framework Directive, the Regulations or any guidance document. However, the Waste Regulations Route Map advises that:

- “Facilitate” means to make possible or easier. If a measure “facilitates” recovery, it might be expected to result in the amount of material recovered rather than sent for disposal being increased.
- Recovery is “improved” if it achieves better results. Recovery may therefore be “improved” if:
 - more waste is recycled rather than subject to other recovery; and/or
 - more of the recycling is “high quality”.

The current system in Barnet features fully co-mingled collections of the four materials (glass, metal, paper and plastic) and does not therefore directly comply with the Waste Regulations’ default requirement that the Council collects the four materials separately from all other materials from January 2015.

3.1 Facilitating Recovery

If a separate collection system *facilitates* recovery, the *quantity* of material expected to be recycled should increase when it is implemented. The Council has not undertaken any estimate of the quantity of recycling which a kerbside sort system might collect. There is little evidence based on the experience of other authorities to believe that separate collection would deliver a greater quantity of the four materials collected co-mingled at the kerbside. The expected tonnages of recycling collected as a result of each option in PAN are set out in Table 3-1.

Table 3-1: Dry Recycling Collected in Each Option (tonnes/year)

Material	Baseline – Co-mingled (Weekly)	Option 1 – Kerbside Sort (Weekly)	Option 3 – Two-Stream with Glass Separate (Weekly)	Option 4 – Two-Stream Fibres/ Containers (Weekly)
Co-mingled	28,175	1,224	1,224	1,224
Co-mingled (ex Glass)			17,637	
Mixed Containers				11,371
Mixed Paper and Card		517		14,232
Paper		9,255		
Card		2,883		
Glass		6,274	6,619	
Plastic		1,718		
Steel		1,145		
Aluminium		402		
Total Recycling Collected	28,175	23,419	25,480	26,828
Contamination and Process Losses	2,395	104	1,603	2,280
Total Recycled	25,780	23,315	23,877	24,548

Weekly kerbside sort would be anticipated to yield around 2,460 tonnes/year less than the current baseline, net of rejects and process losses. These results indicate that the current system is likely to generate the greatest amount of recycling. The Council has previous experience of operating a kerbside sort collection system, for the last year this was in operation the Council collected 19,536 tonnes of dry recyclate. Since implementing a co-mingled collection service they have seen a 29% increase in the total amount of recycling collected. The estimated total tonnage for 2014/15 is 25,244, and 12,729 had already been collected between April and September 2014.

The Council has expressed an understandable concern that if they were to revert to kerbside sort collection service the volume of recycling collected within the Borough

would decrease to its former levels, which were significantly lower than those predicted for kerbside sort in Table 3-1, especially if residents perceived the change as ‘reverting’ to the old system.

However, part of the increase in recycling when the new co-mingled system was introduced was due to an expansion in the range of plastics being collected, and we have assumed that this could be continued under a kerbside sort system. Further, it is often the case that the publicity surrounding changes to the collection service boosts recycling rates. Therefore it is difficult to say with confidence that reverting to kerbside sort would result in recycling rates returning to previous levels.

The Regulations state that separate collection is required if it is necessary in order to *facilitate* recovery. The Route Map explains that this can be understood to mean that separate collection is required if it could be expected to yield an increase in the volume of material collected. Our findings indicate that separate collection would lead to a reduction in recycling and therefore is not necessary to *facilitate* recovery.

3.2 Quality of Material

If a separate collection system *improves* recovery, the *quality* of material expected to be recycled should increase when it is implemented. In common with many other authorities, the Council has not previously made a detailed assessment of the quality of the recyclate that would result from different collection systems. The Council currently collects all materials co-mingled which may reduce the quality of the material from the MRF.

The Waste Framework Directive makes it clear that the aim of separate collection is to deliver high quality recycling; however, it is less clear regarding what constitutes ‘high quality’.

There are several possible definitions of ‘high quality recycling’ that the Council might consider:

- 1) Article 11 of the Directive appears to define ‘high quality’ in terms of “the necessary quality standards for the relevant recycling sectors”. This can be understood in three main ways:
 - a. Some have argued that any recyclable material for which an off-taker can be found must of necessity meet the standards of some part or other of the recycling sector. Therefore, all recycling is high quality – only if recyclate is so poor that it cannot be recycled at all would it fail to qualify.
 - b. If the Council’s material attracts premium prices, this might be indicative of it being high quality.

- c. Alternatively, the Council could compare the purity of its MRF outputs with the input specifications of UK reprocessors.⁵ Materials that meet the reprocessors' standards could be deemed to be high quality. This is a lower-risk approach, but sets a standard that many MRFs seem likely to find it difficult to meet.
- 2) Section 4.3.4 of the Commission's guidance on the Waste Framework Directive relates "high quality" to the standards achieved through separate collection. It gives two somewhat different statements, advising that separate collection is not necessary if:
- a. "the aim of high-quality recycling can be achieved just as well with a form of co-mingled collection". This suggests that co-mingled collection can be used only if the resulting material can be recycled in just the same way as separately collected material, i.e. there is no use to which it cannot be put that separately collected material could be; and
 - b. "subsequent separation can achieve high-quality recycling similar to that achieved with separate collection". This suggests that some minor differences in the recycling achieved may be permissible.

One of the key determinants of quality is the end use to which the end material is put. While the Council hold details on where each material stream is sent, there is no data available on the end uses of the recycled material and whether it goes into high-grade, closed loop uses or lower grade 'soft mix' end uses, resulting in lower value materials rather than fully closed loop recycling. If the Council is able to establish that a large proportion of material enters closed loop processes this would be a strong indication that definitions 2)a and 2)b.

The Council has analysed the composition of its dried mixed recycling and calculated a contamination rate of 6% in their materials prior to delivery to the MRF. Under recent amendments to the Environmental Permitting Regulations (the so-called 'MRF Regs'), larger MRFs are required to undertake regular sampling of their output streams.⁶ The Council has received data on MRF reject rates and output contamination for January 2015. Since the MRF serves a number of contracts, this data does not relate exclusively Council, but it represents the best available information on the quality of material ultimately resulting from the Council's household recycling.

The MRF output data obtained by the Council has been used in the model and is detailed in Table 3-2 **Error! Reference source not found.** The table also contains two quality criteria – the typical performance of separate collection and the reprocessor quality standards specified by the Resource Association. It also provides information on typical MRF output quality for comparison. Where the Council's MRF output meets or exceeds a

⁵Resource Association *Recycling Quality Specifications*, accessed 5 August 2014, <http://www.resourceassociation.com/recycling-quality-specifications/>

⁶ HM Government (2014) *The Environmental Permitting (England and Wales) (Amendment) Regulations 2014*, 10th February 2014, http://www.legislation.gov.uk/uksi/2014/255/pdfs/uksi_20140255_en.pdf

standard, the standard is highlighted in green; where it contains more contamination than the standard, this is highlighted in red.

Table 3-2: Contamination Rates Used in Model

Material	Specified MRF Outputs	Typical MRF ⁷	Quality Criterion: Separate Collection ⁸	Quality Criterion: Reprocessor Specification ⁹
Paper	4.5%	15.8%	0.9%	3.0%
Card	2.7%	12.0%	4.1%	3.0%
Glass	9.6%	10.4%	0.4%	1.0%
Mixed Plastic	14.7%	15.8%	2.9%	6.0%
Aluminium	7.3%	2.5%	1.0%	3.0%
Steel	7.5%	6.2%	3.0%	N/a

Although better in many cases than typical MRF outputs, the current outputs seem to fall below both the quality of for separately collected material and the Resource Association input specifications for all materials other than card. Therefore, the Council could only use this data to conclude that separate collection would not *improve* recovery if it were to rely on a definition of “high quality” such as 1) a or b above.

The Council may wish to monitor the reject and contamination data supplied from the MRF closely in the future, as improvements in quality could help evidence that a more challenging definition of “high quality” is achieved for additional materials. It could also seek out information regarding the use to which the material is put. If a high proportion of the material is fed into closed loop recycling processes, this would be evidence that definition 1) c is met.

However, it appears the council would be unable to meet definitions 2)a or 2)b as the material is not currently compositionally equivalent to separately collected recycling.

⁷ Enviro Consulting (2009) *MRF Quality Assessment Study*, Report for WRAP, November 2009
⁸ Zero Waste Scotland (2014) *Contamination in Source-separated Municipal and Business Recyclate in the UK 2013*, March 2014,
<http://www.zerowastescotland.org.uk/sites/files/zws/Contamination%20in%20source-separated%20municipal%20and%20business%20recyclate%20in%20the%20UK%202013%20240314.pdf>
⁹ Resource Association *Recycling Quality Specifications*, accessed 5 August 2014,
<http://www.resourceassociation.com/recycling-quality-specifications/>

3.3 Conclusions

On the basis of the modelling undertaken and the information provided by the Council:

- it does not appear that a weekly separate collection system could be expected to increase the amount of recycling collected or ultimately recycled, although it might not be expected to decline to the levels achieved under the previous kerbside sort system. Separate collection therefore does not appear to be “necessary” (in the technical language of the Regulations) to *facilitate* recovery of the four materials;
- depending on the view taken on the definition of “high quality recycling” it appears that separate collection may not be necessary to *improve* recovery, since there are definitions of this term that the Council’s material would meet, and its card is of equivalent quality to separately collected material; but
- additional information on the end destinations and uses of material, or updated output quality data, if available in the future, may allow the Council to establish that more of its material meets additional definitions of “high quality” and increase its confidence that separate collection is not necessary in order to *improve* recovery.

There is an argument that separate collection (in the terms set out in the Regulations) may not be necessary to facilitate or improve recycling. However, it is also worth considering whether some level of separate collection system is practicable.

4.0 Practicability Test

Even where the separate collection of material is necessary in order to facilitate or improve recovery, it is only required under the law where it is deemed to be practicable. The Practicability (TEEP) Test examines whether separate collection would be technically, environmentally and economically practicable. It must be practicable in all three respects in order for it to be required. However, for something not to be practicable is a ‘high hurdle’.¹⁰ It is not the same as it being difficult or inconvenient.¹¹

4.1 Technical Practicability

The European Commission guidance on the Waste Framework Directive says that:

¹⁰ Defra, Letter to Local Authority Bodies on the Separate Collection of Waste Paper, Metal, Glass and Plastic, October 2013, p2.

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/250013/waste-seperate-collection-201310.pdf

¹¹ Compare UK Recyclate Ltd and Others v Secretary of State for Environment, Food and Rural Affairs and Welsh Ministers, Royal Court of Justice, Case No. CO/6117/2011, paragraph 18

“Technically practicable’ means that the separate collection may be implemented through a system which has been technically developed and proven to function in practice.” (Section 4.3.4)

There is an interplay between technical and economic practicability. Many technical issues with separate collection – for example, concerns regarding access or the storage space householders have available – are capable of being addressed, provided that sufficient resources are dedicated to the task.

Like many other waste collecting authorities, Barnet has previously operated a kerbside sort collection system. This presented certain technical issues as the Council was unable to provide the full range of recycling bins to a number of flats with communal bins and limited storage space. No solution to this issue has been identified by the Council. Were a separate collection service to be implemented again in Barnet, a number of households would therefore still only be able to access a comingled recycling collection service. For these households, separate collection is not technically practicable and a co-mingled approach has been modelled. However, the great majority of properties have sufficient bin storage space to allow separate collections to be implemented.

A single co-mingled bin is widely perceived as more convenient for householders than a system in which materials must be sorted into two or more bins. The Waste Regulations Route Map advises that, in itself, the anticipated reaction of residents would not be a sufficient reason to deem separate collection not to be practicable, in part because the Waste Framework Directive explicitly seeks to “move towards a European recycling society”, which suggests that a change in societal attitudes is envisaged.

The concept of “bin blight” has gained traction, particularly as regards areas where there is very limited space for residents to store bins. However, none of the options examined in the options appraisal necessitate more than two recycling containers (other than at communal bin properties), and each is used by many authorities. In each case, the containers are available that would not increase the current bin footprint. It is therefore difficult to argue that, in themselves, these factors make separate collection impracticable.

Co-mingled collections tend to progress more quickly than kerbside sort collections, since in the latter case operatives must spend time either manually separating waste or emptying multiple bins. There may be concerns regarding disruption to traffic flow. However, this issue could potentially be addressed through route planning: by optimising collection rounds so as to avoid slow moving vehicles in particularly busy areas at certain times, enabling the Council to minimise the problem of increased congestion. Tackling congestion in this way might cause some decrease in collection efficiency as it would limit routing possibilities, and could therefore lead to increased operational costs. However, this would make it an issue of economic, rather than technical practicability.

The Council will also naturally be concerned as to whether kerbside sort collections would raise health and safety risks for staff. Whilst this is a valid concern, it is difficult to argue that kerbside sort collections are so risky for staff as to make the practice technically impracticable. Numerous other authorities use the kerbside sort collection

system and have not found themselves subject to particular health and safety concerns. The issue of how to minimise risks associated with kerbside sort collections has been examined by the Health and Safety Laboratory, and whilst a number of areas of good practice were identified, no indication was given that this form of collection carried unacceptable risks.¹²

4.2 Economic Practicability

The European Commission guidance on the WFD says that:

“Economically practicable’ refers to a separate collection which does not cause excessive costs in comparison with the treatment [including recycling] of a non-separated [co-mingled or residual] waste stream, considering the added value of recovery and recycling and the principle of proportionality.” (Section 4.3.4)

‘Economically practicable’ does not therefore mean ‘the cheapest option’. Separate collection will be economically practicable so long as the cost is not excessive, or disproportionate to the benefits. Except where any extra costs of separate collection are very small or very large, assessing ‘proportionality’ is not straightforward. It may not be sufficient to show, for example, that the extra costs would marginally exceed the current waste budget. It may even be proportionate to consider cuts to other discretionary expenditure in order to meet the legal obligations regarding separate waste collection.

4.2.1 Modelling Results

Eunomia has used its collection options appraisal tool in order to assess whether separate collection of glass is economically practicable. The results of the economic modelling are set out in Table 4-1.

¹² Health and Safety Laboratory (2006) *Manual Handling in Kerbside Collection and Sorting of Recyclables*, 2006, www.hse.gov.uk/research/hsl_pdf/2006/hsl0625.pdf

Table 4-1: Financial Performance of Collection Systems (£)

Material	Baseline – Co-mingled (Weekly)	Option 1 – Kerbside Sort (Weekly)	Option 2 – Two Stream with Glass Separate (Weekly)	Option 3 – Two Stream, Fibres/ Containers (Weekly)
Vehicles	1,878,621	1,620,946	1,782,870	1,782,870
Staff	3,218,000	3,468,000	2,848,000	2,848,000
Additional Depot Costs	0	250,000	0	0
Receptacles	699,520	737,257	741,328	741,328
Material Income (1)	0	-1,828,306	-99,284	-711,608
NLWA Rebate	-622,732	0	-786,191	-423,935
Organics Processing	1,219,655	1,219,655	1,219,655	1,219,655
Residual Treatment	9,815,680	10,486,652	10,285,834	10,006,277
Net Cost	16,168,745	15,954,204	15,992,212	15,462,588
Notes				
(1) Material not delivered to NLWA MRF				
(2) Rebate rate is adjusted to reflect the range of materials delivered to the NLWA MRF contract in each option				

The modelling undertaken shows that the current comingled collection system (the baseline) is the most expensive of the options modelled. Option 3, where paper and card are collected separately from metals, plastics and glass, is the cheapest option, based on the assumption that additional income could be obtained for paper and card, and the NLWA rebate can be retained; it would be expected to be 4.4% cheaper than the current baseline service. If the NLWA rebate were to be lost, this option would be more expensive than Option 1.

Kerbside sort (Option 1) is otherwise the second cheapest option, at 1.3% less than the current baseline service. The anticipated material income for kerbside sort is very much greater than that achieved with comingled or two stream collections, and offsets the cost of extra staff and the annualised capital and expenditure running costs of an upgraded depot. Option 2 (separate glass) might save 1.1% compared with the baseline.

Economically, separate collections seek to balance an investment in additional staff against a saving in sorting costs and higher material incomes. As a result of its additional investment, the economics of kerbside sort are more heavily dependent on securing good material incomes than, typically, a comingled collection. Under its current MRF arrangement with NLWA the Council is not affected by reductions in the quantity of material collected or downwards market movement.. Under a primarily kerbside sort system, a 20% decline in material incomes across the board would result in Option 1 being 0.9% more expensive than the current comingled system.

If the Council proposes to argue that separate collection is not economically practicable, it would need to evidence that it would represent an excessive operational cost.¹³ This entails consideration of the balance between the costs and the benefits (including the environmental benefits) of separate collection; and of the Council's financial position, which will have a considerable bearing on whether it could reasonably meet any additional costs. Given that separate collection appears likely to be less expensive than the baseline, provided that expected material values can be realised, it is difficult to argue directly that this would be the case. However, the Council may wish to consider whether there is a significant risk that, were the it to receive significantly less than the expected level of material income, separate collections could in future represent an excessive cost, and that heavy reliance on variable material revenues may be impossible to manage effectively within annual budgets.

If the Council was to introduce separate collections, in order to obtain the highest value from material sales it would have to arrange to market or set up brokerage agreement for its own materials.

While the options appraisal indicates that separate collection will be cheaper than the baseline, the adoption of a kerbside sort system would result in transitional costs. These costs include the losses that might be incurred if vehicles had to be sold before the end of their useful life, or costs incurred in stopping or changing the Council's current MRF arrangements or setting up a brokerage service for material sales. The Council may wish to identify these costs – and indeed whether the arrangements with NLWA can be ended prematurely. We would recommend that operational costs should always be viewed separately from transition costs in assessing economic practicability. It appears legitimate for an authority to recognise that, operationally, kerbside sort might be economically practicable, whilst taking the view that contractual, infrastructural or capital considerations made change impossible in the short term.

4.2.2 Conclusions

On the basis of the modelling undertaken and the information provided by the Council:

¹³ European Commission (2012) *Guidance on the Interpretation of Key Provisions of Directive 2008/98/EC on Waste*, June 2012, http://ec.europa.eu/environment/waste/framework/pdf/guidance_doc.pdf

- it appears that separate collection is could be 1.3% cheaper than the baseline system provided that expected levels of material income are received. If material incomes were to be 20% lower than expected, kerbside sort would be 0.9% more expensive than the baseline;
- because of the higher reliance on material incomes within kerbside sort systems to offset the additional operational costs of collection, there is an inherently greater economic risk attached to them in the event either of reduced tonnage or poorer prices. However, price risk can be managed in part by agreeing long-term arrangements with offtakers, which can be more readily available for separately collected material;
- the Council cannot straightforwardly argue that the kerbside sort system would represent the 'excessive cost' that guidance indicates makes separate collection economically impracticable;
- Option 3 (separate fibres and containers) appears to outperform fully separated collection financially, and does so with less material income risk. While this does not have a bearing on whether separate collection would be economically practicable, since both options appear less costly than the baseline, were the Council to decide separate collections were not practicable it might need to consider whether the same concerns applied to two stream collections ; and
- aside from the operational cost considerations, the Council may be able to argue a change of collection systems is problematic as result of the need for capital expenditure on vehicles, or the costs of exiting its MRF arrangements with NLWA in order to access market prices for separately collected recyclables, will entail incurring substantial transitional costs.

The Council may wish to reach a view on the extent of any additional knock-on costs (e.g. additional litter and street cleansing costs) that should be factored into the economic assessment of either collection system. However, such costs would need to be substantial and highly plausible in order to make a clear difference to the results of the economic modelling.

If the Council was to rely on the argument that separate collection is not economically practicable, it would need to ensure that a clear, high level decision was reached to the effect that the material income risks were unacceptable. The Council would need to explicitly take the view that the risk of additional expenditure in future would, in its circumstances and in the light of the environmental performance of different collection systems, represent an 'excessive cost'.

4.3 Environmental Practicability

The European Commission guidance on the WFD says that:

“‘Environmentally practicable’ should be understood such that the added value of ecological benefits justify possible negative environmental effects of the separate collection (e.g. additional emissions from transport).” (Section 4.3.4)

A system will therefore be environmentally practicable if the benefits from increased or improved recycling outweigh any negative impacts. However, this test is likely to be met by almost any recycling collection system, since the benefits achieved through recycling should almost always outweigh the environmental impacts of its collection and processing.

4.4 Modelling Results

The results of the environmental modelling are shown in Table 4-2.

Table 4-2: Environmental Benefit of Collection Options (Tonnes of CO₂e/yr)

	Baseline – weekly Co-mingled	Option 1- Kerbside Sort (weekly)	Option 2 –Two Stream with Glass Separate (Weekly)	Option 3 – Two Stream, Fibres/ Containers (Weekly)
Dry Recyclables	12,630	12,901	13,595	13,247
Organics	7,736	7,736	7,736	7,736
Transport	-116	-94	-109	-109
MRF	-549	-24	-368	-246
Net Carbon Benefit	19,701	20,519	21,219	20,629

As anticipated, each collection system meets the minimum practicability requirement of its costs being outweighed by its benefits. The greatest net benefit comes from the two stream collection services, Option 2 and Option 3, yielding 7.7% and 4.7 more net carbon benefit per year than the current baseline service, respectively. Kerbside sort (Option 1) has a net carbon benefit of 4.2% per year greater than the current baseline service. This result of reduced transport emissions and savings from not using a MRF providing a greater net environmental benefit.

4.4.1 Conclusions

The results of the modelling show that separate collection is environmentally practicable, and outperforms the current approach by a small margin.

5.0 Recommendations

5.1 Overview

At present, a good deal remains uncertain regarding how the Waste Regulations will be enforced. The Environment Agency has begun to outline its approach to enforcement,

but has not yet indicated how active it proposes to be in its role as the enforcement body for this legislation; nor have any third parties disclosed an intention to seek to clarify the requirements of the law by pursuing legal action against authorities.

As a result, there is a risk that some authorities may act in anticipation of enforcement action that might not in practice be forthcoming; there is also a risk that some authorities may do too little, and find themselves subject to attention from either the Environment Agency or third parties that results in them needing to make changes under pressure. For authorities that have followed the Waste Regulations Route Map process and acted on the findings, the likelihood of these risks emerging is in all probability low, although the impact of enforcement, and the need to make change in some haste, may be high.

Our recommendations here are intended to set out a course of action that the Council can pursue that will help to minimise these risks. Authorities that have set out a clear path towards compliance will have a reasonable position to rely on if challenged regarding their approach to the Regulations, but can avoid taking action that may be precipitate, and in the Council's situation this may be an advisable course of action.

5.2 Necessity Test

The analysis carried out indicates that separate collection of the four materials:

- is unlikely to increase the quantity of recycling collected, but may (depending on output contamination) increase the amount ultimately recycled. In the terms set out in the law, there is an argument that separate collection is not necessary in order to *facilitate* recovery; but
- is likely to lead to an improvement in the purity of materials (with the exception of cardboard) compared with current MRF outputs. However, there is an argument that there are definitions of "high quality" that the materials produced by the MRF would meet and so in the terms set out in the law, would not be necessary in order to *improve* recovery.

This means there is an argument available to the Council that separate collection is not 'necessary'.

5.3 Practicability Test

The work conducted in the course of this project strongly indicates that separate collection in Barnet is:

- technically practicable for the majority of households; and
- environmentally practicable.

It also appears to be economically practicable to extend separate collections to the majority of households, although there is an argument that the additional material income risk could undermine this practicability.

However, there is an argument that separate collection may not be feasible in the short term based on the findings that:

- the costs and difficulty of terminating its MRF arrangements and setting up a brokerage contract for material sales may be prohibitive; and
- the net capital required to purchase new vehicles and containers has not been budgeted for and may exceed the Council's means.

The Council may now wish to review the findings of this report and gain appropriate internal sign-off for one or more of the following propositions:

- Separate collection is not necessary, because it is unclear that it would increase the amount of material recycled and the Council is content that its material is "high quality".
- Separate collection is not economically practicable because of the risk that it would be more expensive than comingled collections if material incomes were to fall.
- Regardless of the operational findings, the transitional costs associated with amending or terminating its MRF arrangements, setting up a brokerage contract for material sales or net capital required to purchase new vehicles mean that in the short term it is not possible for the Council to adopt separate collection.