**Appendix 4**

**Household Waste Collections – Future Service Options Appraisal Findings**

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## 1. Purpose

**1.1** This document sets out the objectives, scope, evaluation process and findings from the Waste Re-procurement Options Appraisal and Suitability Assessment work completed by the Council, with a view to determining the most cost-efficient and operationally practical approach to future household waste and recycling collection services.

## 2. Background

**1.2** Evidence from analysis and benchmarking of UK waste data identifies clearly that reducing frequency of waste collections, segregation of food waste and separation of recycling has the impact of reducing waste and increasing / improving the quality of recycling. This, in turn, improves the cost-efficiency and carbon impact of waste collection and treatment services.

**1.3** A robust options appraisal was therefore completed, to model and evaluate ten potential future approaches to household waste and recycling collections - with change elements ranging from minimum, moderate and major – to understand the financial, environmental and social impacts.

## 2 Options Appraisal / Suitability Assessment

**2.1** Whilst alignment with emerging policy and legislation is driving the need for national and local change, the most influential element in determining the direction of travel for waste services in Leicester is the Council's strategic priorities, in particular the requirement to minimise the increasing financial (revenue cost) burden of waste services on the Council in future years.

**2.2** A robust options appraisal was therefore essential to ensure that a range of potential changes to the household waste collections service were evaluated based on cost-efficiency of operations and service delivery, whilst being able to deliver a good quality, compliant, practical and reliable service.

**2.3** The first steps in the options appraisal process were to determine a financial and carbon baseline for the existing household waste collections service, followed by modelling and evaluation of household waste / recycling collection service options to understand what the service could look like, the cost versus benefit of each option, and how costs and carbon emissions compare with the existing service.

**2.4** Modelling considered the impact of diverting food waste away from the residual waste stream including anticipated financial benefits / savings, climate impact, management options and resource requirements, as well as the impact on service users, other services, and the potential to work towards national targets for recycling and waste.

## Household Collections - Options for Modelling

**2.5** A total of ten household waste collection options were modelled, with the modelling process calculating the financial implications of the service change scenarios, including elements such as staffing, vehicles, containers, haulage, treatment and processing, gate fees, management and communications. Environmental impact and ease of use was also assessed and evaluated.

| Option | Food Waste | Dry Recycling | Residual Waste |
|---|---|---|---|
| **1** | Separate<br>Weekly | Co-mingled (bags)<br>Weekly | Black bin<br>Weekly |
| **2** | Separate<br>Weekly | Co-mingled (bags)<br>Weekly | Black bin<br>Fortnightly |
| **3** | Separate<br>Weekly | Co-mingled (re-usable bag)<br>Weekly | Black bin<br>Fortnightly |
| **4** | Separate<br>Weekly | Co-mingled (bin)<br>Fortnightly | Black bin<br>Fortnightly |
| **5** | Separate<br>Weekly | Co-mingled (bin)<br>Fortnightly | Black bin<br>Fortnightly |
| **5+** | Separate<br>Weekly | Co-mingled (bin)<br>Fortnightly | Black bin<br>Three-weekly |
| **6** | Separate<br>Weekly | Paper/card (bin 1)<br>Co-mingled (bin 2)<br>Fortnightly (alternating) | Black bin<br>Fortnightly |
| **6+** | Separate<br>Weekly | Paper/card (bin 1) / Co-mingled (bin 2)<br>Fortnightly (alternating) | Black bin<br>Three-weekly |
| **7** | Separate<br>Weekly | Paper / card (reusable bag) / Co-mingled (reusable bag) / Glass (box)<br>Weekly | Black bin<br>Fortnightly |
| **7+** | Separate<br>Weekly | Paper / card (reusable bag) / Co-mingled (reusable bag) / Glass (box)<br>Weekly | Black bin<br>Three-weekly |

## Options Evaluation Methodology / Rationale

**2.6** Assessment of each option focussed on quantitative and qualitative impacts on the Council and service users, including cost-efficiency and practicality of operations, service quality and compliance, recycling rates at kerbside, environmental impact, ease of use for households, impact on street scene, and financial impact (i.e. mitigation of anticipated cost increases).

**2.7** The methodology used for evaluating the service delivery options:

- Used the *Green Book value-for-money / social cost-benefit analysis method.
- Used an industry-recommended Kerbside Assessment Tool (KAT).
- Included findings from a 2023/24 Waste Composition Analysis.
- Benchmarked options with other local authorities using national waste data.

- Included soft market testing with the market / potential providers and engagement with other local authorities and Leicester residents.
- Assessed the impact of property type on the suitability of approach.
- Included engagement with waste programme advisory bodies (WIDP and IPA / NISTA) in relation to DEFRA guidance and legislative reform.
- A carbon impact assessment, in-sourcing impact assessment and Equality Impact Assessment.

*For further details on VFM evaluation methodologies see the government Green Book guidance: The Green Book (2022) – GOV.UK (www.gov.uk)

**2.8** The outcome of the options appraisal process was that a short list of the two best-performing options was identified - Option 5 and Option 7.

**2.9** Whilst options 5+ and 7+ would perform well financially in modelling, reducing the frequency of residual waste collections to three-weekly is not considered a practical solution at this time for City households and, in practice, is likely to result in significant levels of recycling contamination that would result in increased treatment costs. These options were not therefore short-listed for further assessment, although could be considered in future.

Assessment of Short-List

**2.10** Following completion of the evaluation, a short-list of two options was identified for further assessment with a view to determining the most suitable / practical way forward for Leicester household waste collections that is simple to use, economically sustainable, segregates food from other waste, reduces residual waste volumes, encourages recycling at kerbside, and reduces carbon emissions.

**2.11** The short-list suitability assessment included the following activity:

- Financial and operational risk assessment - a review of the financial sensitivities and operational risk relating to the options short-list.

- Waste capacity audits / sampling - a review of a representative sample of flats (of varying sizes and with communal collection points) and terraced properties was conducted to understand likely issues relating to introduction of additional bins / containers for collecting food waste and recycling.

- Engagement with the market - three soft market testing exercises were undertaken to ensure that service requirements, contract and commercial requirements, and service delivery are viable and likely to attract market interest (in the case of out-sourced provision). In addition, service providers have significant expertise in delivering service in the most cost-efficient way to meet the needs of residents in a range of household types across urban and rural areas and can provide insight into the most suitable approach to household collections in Leicester.

- Engagement with other local authorities - discussions were held with authorities operating a range of approaches to household waste and recycling collections, including unitary and non-unitary authorities with both similar and dis-similar

socio economic and demographic profiles to that of Leicester. Engagement sought to understand perspectives on i) the benefits, challenges and constraints of different approaches to household collections – including frequencies, recycling streams, managing collections in-house; ii) recognising how the public might respond to change and how they have supported / encouraged behaviour change; and iii) discussing any points of learning / recommended best practice.

- Engagement with WIDP (Waste Infrastructure Delivery Programme) and IPA / NISTA (National Infrastructure and Service transformation Authority) in relation to DEFRA guidance and legislative reform.

- Mapping property types across the City, and assessing the suitability of collections approach, particularly to flush-fronted terraces and flats.

- Engagement with Leicester households - an engagement survey was developed and publicised to encourage households to have their say. The survey opened on 07 April 2025 and closed after 6 weeks on 19 May 2025. The Council sought views from all households on a range of waste-related matters including how they currently manage their waste and recycling; challenges with current services; and concerns about potential future changes that the Council will need to make to waste and recycling collection services to comply with recent legislation.

- Sustainability assessment - both the carbon assessment methodology and the short-list were considered in more detail by the Sustainability team, who made a number of observations and recommendations.

- In-sourcing impact assessment - based on the modelled short-list of options identified as part of the options appraisal process a detailed assessment of the impact of bringing the household waste and recycling collections service in house was completed. The process identified that, in addition to increasing annual operating costs significantly, bringing the household waste collections service in-house in 2028 would be high risk in terms of performance, lost economies of scale, management complexity, sector knowledge and operational risk.

Waste Composition Analysis (WCA)

**2.12** The 2023/24 Waste Composition Analysis (WCA) identified the average household residual waste bin in Leicester contains only 31% non-recyclable material, with almost 40% of the contents of the black bins being food waste.

**2.13** Simplifying and improving understanding about materials that can be put out for recycling can reduce the contents of the black bin and is essential to improve recycling rates and reduce costly processing of residual waste. In addition, maximising the removal of food waste from residual waste bins will result in black bins having a large proportion of empty space.

**2.14** Our Waste Composition Analysis, supported by WRAP data, identifies that, on average, each household in Leicester puts around 230kg of food waste in their

black bin each year. Separate weekly food waste collections should encourage households to reduce their food waste – with the potential to save up to £800 per year per household.

## 3 Financial Appraisal of the Options

**3.1** Whilst work to assess the impact of each option was detailed, actual costs of delivering the services can only be determined by bidders during the procurement process, with the actions of residents also having significant influence on the cost. As such, the financial outputs can only ever be treated as estimates.

**3.2** Options 1, 2, 3 and 6 were all assessed as being more expensive than the current annual costs by amounts ranging from £0.2m (Option 3) up to £1.7m (Option 1).

**3.3** Option 5+, 6+ and 7+ include for the 3-weekly collection of residual waste, which, in theory at least, could generate annual savings of £1.5m, £0.7m and £3m respectively. Option 7 could deliver up to £1.5m in annual savings. The deliverability of the savings for these 4 options is heavily dependent upon changing the behaviour of residents and realistically, savings of this scale would probably not be achievable.

**3.4** Option 5 is estimated to cost broadly in line with the annual cost of current service provision.

## 4 Options Appraisal Outcomes

**4.1** The best performing options from a financial and carbon perspective were those that altered the frequency of residual waste collections to three-weekly. Moving from weekly to three-weekly residual waste collections is considered a major change for households, impractical and likely to result in significant levels of recycling contamination that would increase waste treatment costs.

**4.2** Of those options that did not propose three-weekly residual waste collections, the lowest cost option required households to separate their recycling into three different streams and place them in separate boxes and bags. This approach would introduce major change for households, have a significant adverse impact on street scene, and is not aligned to the guidance issued by DEFRA regarding the maximum number of containers. The approach presents a higher financial risk, as cost savings would rely on household compliance to ensure good quality recycling materials.

**4.3** The DEFRA recommended approach, i.e. Introducing two bins for recycling (to replace bags), did not perform well in terms of cost-efficiency, practicality, ease of use, or street scene.

**4.4** Reducing the frequency of residual waste and recycling collections to fortnightly performed significantly better than retaining weekly collections as it is more cost-efficient, reduces emissions, and encourages households to reduce their

residual waste - that is more costly collect and treat - and increase their recycling at kerbside. Simple to use, the approach is also both flexible and scalable.

**4.5** Alternate weekly collections of residual waste and co-mingled recycling in a bin is the approach adopted by the majority of local authorities in England, including in Leicestershire, as it combines cost and operational efficiency with ease of use and practicality and encourages waste reduction.

**4.6** Collecting co-mingled recycling in a bin rather than bags is more cost-efficient as it allows collections to take place fortnightly rather than weekly without having an adverse impact on household recycling capacity and street scene. It is also considered a minor change for households.

**4.7** Alternate weekly collections of residual waste and co-mingled recycling in a bin is the approach supported by providers in a city environment.

**4.8** Standard colours for bins are black, brown, green and blue. Providing recycling bins of a standard colour is lower cost with shorter lead times.

**4.9** Bringing the service in-house would add to service delivery costs in the region of c.17% and would present significant operating risk, lost economies of scale, and management complexity.

## 5 Recommended Approach to Household Waste and Recycling Collections

**5.1** Reducing the frequency of residual waste collections is one of the key measures in encouraging a reduction in household waste volumes (evidenced by DEFRA / WRAP research and benchmarking data). It is therefore recommended that, from May 2028, the Council alters its approach to household waste and recycling collections in line with Option 5, and provides a service that delivers the following:

Revised Approach to Household Waste and Recycling Collections:

- Alternate weekly residual waste collections.
- Alternate weekly co-mingled dry recycling collections in a wheeled bin.
- Separate weekly food waste collections.

Other Household Collection Arrangements:

- Retention of bespoke arrangements for communal collection points (e.g. flats), as well as households with specific requirements for non-standard collections.
- Continuation of fortnightly garden waste collections from March to November.
- Continuation of clinical waste collections from households on request.
- Continuation of bulky waste collections from households on request.

Other Service Requirements:

- Management and operation of the Bursom site (Beaumont Leys) as a Waste Transfer Station, with ownership of the site retained by LCC. Regulatory oversight, including licensing and permits, sits with the Environment Agency.

**5.2** Based on feedback from households regarding limited use of the bring bank service, it is also recommended that the suitability and cost-efficiency of existing bring bank provision is reviewed, with pricing comparisons to be requested from bidders for options to either i) continue servicing bring banks, or ii) replace bring banks with kerbside collection of textiles and / or small electrical items.

## 6 Impact / Benefits of the Revised Approach

For Households:

**6.1** Households will continue to receive the same number of waste collections – two per week – although these will consist of a weekly collection of food waste and alternate weekly collections of residual waste and recycling.

**6.2** The solution provides only minimal change for households with recycling continuing to be deposited in a single container (co-mingled) - placed in a bin rather than single use bags.

**6.3** Maintaining co-mingled recycling, albeit in a bin, is a simple to use approach that, alongside weekly food waste collections, should be effective in increasing household recycling volumes and reducing residual waste arisings presented at kerbside. This is essential to maintain recycling rates once the waste processing facility (ball mill) is decommissioned.

**6.4** The approach is supported by public engagement findings that highlighted that almost 60% of households reported that they do not currently fill their black bin each week.

**6.5** With no increase in the number of bins to be presented at kerbside each week (as residual waste and recycling will be collected alternate-weekly), street scene issues should be reduced as single use bags will no longer be in use.

**6.6** The approach is supported by evidence from the waste capacity audits and public engagement that identify that most households have sufficient space for an additional recycling bin outside but limited indoor space for bags.

**6.7** Exception processes will remain in place and be regularly reviewed to ensure that they continue to support vulnerable residents, those with access or capacity issues and / or other special requirements.

For the Council:

**6.8** Adopting the recommended approach means that operating costs of delivering the service - including the weekly food waste collection service – are expected to be broadly similar to current service delivery costs.

**6.9** The solution as modelled will reduce carbon emissions (CO2e) by almost 5,000 tonnes per annum.

**6.10** The approach aligns with that of other authorities across England, with neighbouring authorities in Leicestershire, and with similar cities, as alternate weekly residual waste collection is evidenced to be influential in reducing residual waste volumes.

**6.11** Alternate weekly collections of residual waste and co-mingled recycling is the approach supported by providers in a city environment. The recommended approach is therefore anticipated to be attractive to the market and result in a competitive procurement process.

**6.12** As the total number of collections will remain unchanged (two each week), the approach is not expected to adversely impact fly tipping rates across the City and will complement the Fly Tipping Strategy by maintaining a simple-to-use approach for residents.

**6.13** Provides an approach that is compliant with DEFRA's guidance / default position in relation to maximum number of bins / containers.

**6.14** The approach provides the Council with flexibility to introduce an additional container to separate paper and card in future, should it prove affordable and technically feasible.