

South Kesteven District Council

TEEP Assessment – June 2023

Proposed change to twin-stream collections

Based on WRAP's "Waste Regulations Route Map":

<https://www.wrap.org.uk/sites/files/wrap/Route%20Map%20Revised%20Dec%2014.pdf>

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Introduction & Legislative Background

The Environment Act (2021) sets out rules regarding the collection of household waste by a Waste Collection Authority like South Kesteven District Council. Section 57¹ includes:

- Subsection 10 – For the purposes of this section the recyclable waste streams are—
 - (a) glass; (b) metal; (c) plastic; (d) paper and card; (e) food waste; (f) garden waste.
- Subsection 5 – Recyclable household waste in each recyclable waste stream must be collected separately, except so far as provided by subsection 6.
- Subsection 6 – Recyclable household waste in two or more recyclable waste streams may be collected together where—
 - (a) it is not technically or economically practicable to collect recyclable household waste in those recyclable waste streams separately, or
 - (b) collecting recyclable household waste in those recyclable waste streams separately has no significant environmental benefit (having regard to the overall environmental impact of collecting it separately and of collecting it together).

Further details are awaited from DEFRA on the implementation of the Environment Act 2021 and whether the specific wording will result in any practical differences from the current requirement (under the Waste Regulations 2011/2012, updated by The Waste (Circular Economy) (Amendment) Regulations 2020) for separate collection of paper, plastic, metal and glass where technically, environmentally and economically practicable (commonly known as "TEEP").

In the meantime, this document uses the Waste Regulations Route Map² (see summary below) produced by the Waste and Resources Action Programme (WRAP) to align with previous legislation. The Route Map presents a step-by-step process for councils to assess and demonstrate their compliance with the Regulations.



¹ [Environment Act 2021 \(legislation.gov.uk\)](https://www.legislation.gov.uk)

² WRAP Route Map – <https://www.wrap.org.uk/sites/files/wrap/Route%20Map%20Revised%20Dec%202014.pdf>

Undertaking a review

This is not the first time SKDC has undertaken such an assessment. However, the WRAP Route Map (Step 7) makes clear the need for regular reviews to ensure continued compliance in the light of changing circumstances.

This report revisits and updates the 2014 assessment in the light of:

- A new local strategy – In January 2019 the Lincolnshire Waste Partnership (LWP) adopted a new Waste Strategy for Lincolnshire.
- New national requirements – As described above, the Environment Act (2021) changes the rules on household waste collections although details of how this is to be implemented are yet to be confirmed.

A key new consideration in this assessment is that the LWP have, in line with their strategic objective, "to improve the quality and therefore commercial value of our recycling stream", proposed that there be separate collections of paper and card (together) across the county. As well as the national steer for recyclables to be collected separately, these collections align with the paper industry's preference that their recycled feedstock be collected separately from other materials, particularly glass. Four of the LWP's Waste Collection Authorities have already started these "twin-stream" collections, and this provides excellent data to help us assess how such a system might work in the SKDC area.

Whilst the principal reason for undertaking an assessment at this point is to consider whether a move to separate collections of paper and card would comply with the "TEEP" requirements of the Waste Regulations, it should also be noted that the government has proposed the introduction of mandatory separate collections of food waste nationally. It is anticipated that food waste collections will help to reduce contamination levels in mixed recycling collections, however, details on the implementation are still awaited. Since the nature and size of that impact will only become clear with time, a further "TEEP" review will be undertaken once the details of food waste collections are known.

Given that all of the above applies to all of the LWP partner authorities, and that those partners are working together to implement the shared Waste Strategy for Lincolnshire, the format of this report, and some of the information contained in it, will be shared across assessments for all seven Waste Collection Authorities (WCA). However, each report also contains information specific to the WCAs own area.

Summary of Assessment Results

This assessment confirms that the proposed twin-stream collections of recyclables (separate paper and card; other recyclables mixed) meet the requirements of the Waste Regulations as follows.

Have we applied the Waste Hierarchy? – Regulation 12 (See "Step 3" for details)
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Yes. Where possible materials are handled as high as possible on the hierarchy, and very little ends up being sent for landfill disposal.

Is separate collection (of the four specified materials) necessary to “facilitate or improve” recovery? – Regulation 13(4)(a) (See "Step 4a" for details)
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- Paper – May be necessary for quality.
- Glass, metals & plastics – Not necessary for quantity or quality.

Is separate collection technically, environmentally and economically practicable? – Regulation 13(4)(b) (See "Step 4b" for details)
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- Multi-stream (kerbside sort) = Not practicable.
- Twin-stream (including separate paper & card) = Practicable.

Conclusion – Twin-stream collections with separate paper and card by South Kesteven District Council would comply with the Waste Regulations.
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Step 1 – Determine What Waste is Collected and How

1.1 – List of collections

The vast majority of the waste collected by SKDC comes from kerbside collections, so this assessment will mainly focus on those.

Table 1.1 – Kerbside collections

Service	Frequency	Container(s)	Households served (rounded)
Current collections			
General (residual) waste ⁱ	Fortnightly	Black bin/sack	69,300 (all households)
Mixed dry recyclables ⁱ	Fortnightly	Silver bin/sack	69,300 (all households)
Garden waste ⁱⁱⁱ	Fortnightly	Green wheelie bin	29,900 (subscribers)
Proposed twin-stream collections (to replace current MDR)			
Separate paper & card	Every 4 weeks	Purple-lidded black wheelie bin	All applicable households
Mixed dry recyclables ⁱⁱ	Every 4 weeks	Silver bin/sack	All applicable households

i – Kerbside rounds include some collections from other premises such as schools, nursing homes and village halls.

ii – MDR collections in twin-stream areas exclude paper & card.

iii – 23 collections per year

Table 1.2 – Other collections

Service	Frequency	Container(s)	Description
Bulky waste	On request	n/a	Large household items (e.g. furniture)
Litter/street cleaning	Daily	Various	Various
Flytipping	Various	Various	Various
Sharps (needles, etc.)	Fortnightly	Various	Various
Commercial Waste	Various	Various	Various

1.2 – Waste composition

In order to assess the various collections, it is important to understand the quantities arising from each type of collection.

Table 1.3 – Overall 2022/23 quantities (tonnes)

Collected at Kerbside	Q1	Q2	Q3	Q4	Year
General (Residual) Waste	6,623	7,315	6,147	7,313	27,398
Mixed Dry Recyclables	3,692	3,298	3,753	3,269	14,012
Garden Waste	3,586	2,660	1,854	1,099	9,199
Kerbside TOTAL	13,901	13,273	11,754	11,680	50,609
Commercial residual waste					2,488
Commercial MDR					431
Litter/street cleaning/flytip					1,890
Other (Bulky)					89
Overall TOTAL					55,507

It is also important to understand the quantity of each material within the main waste streams. As indicated above the largest mixed-material streams, both collected at kerbside, have been assessed as follows:

- General (Residual) Waste – In 2022 the LWP undertook an analysis to feed data into various strategic work including this assessment.
- Mixed Dry Recyclables (MDR) – The Materials Recycling Facility (MRF) which processes the recyclables are required to test and report on the composition of their outputs.

Table 1.4 – Composition of kerbside-collected mixed waste streams

	By percentage		By tonnage	
	General	MDR	General	MDR
Paper & Card	14.4%	38.3%	3,935	5,369
Plastics	16.4%	10.7%	4,482	1,504
Glass	3.9%	17.9%	1,075	2,505
Metals	4.3%	6.4%	1,183	897
TOTAL (4 specified materials)*	39.0%	73.3%	10,675	10,276
Food Waste	30.3%	unknown ⁱ	8,292	unknown ⁱ
Garden Waste	0.9%	unknown ⁱ	251	unknown ⁱ
Other	29.9%	26.7%	8,180	3,735
TOTAL (all materials)	100.0%	100.0%	27,398	14,012

i – Food and garden waste included in “other” category in sampling of recycling collections.

Chart 1.1 – Composition of kerbside-collected general (residual) waste

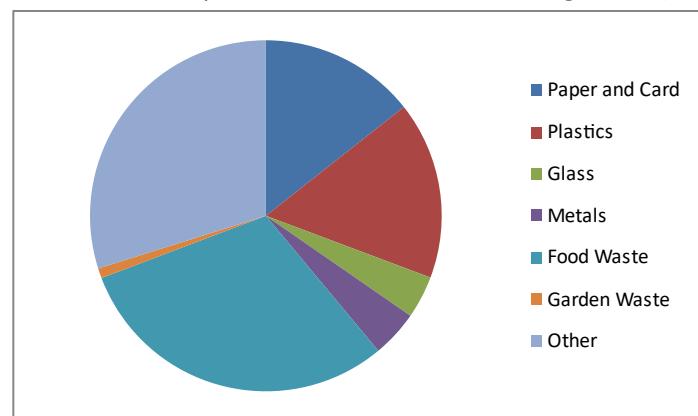
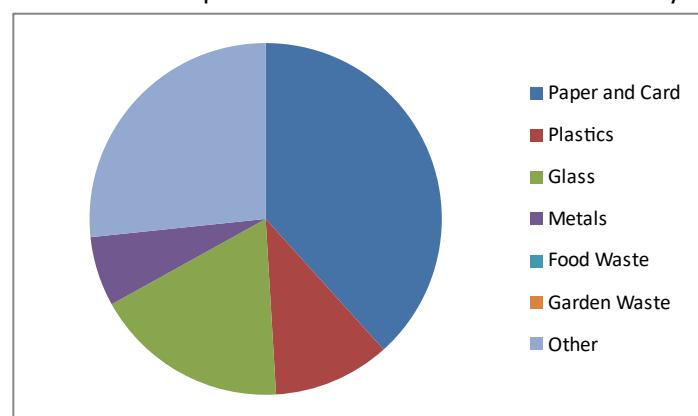


Chart 1.2 – Composition of kerbside-collected mixed dry recyclables



1.3 – Operating costs

Table 1.5 – Costs of operating collection services (2021/22)

	Staffing Costs	Vehicle Costs	Operational Costs	Income	Total Costs
Residual Waste Collections	£896,206	£619,958	£200,851	-£110,063	£1,606,952
Recycling Collections	£872,079	£420,394	£59,624	-£88,956	£1,263,141
Green Waste Collections	£408,609	£344,299	£79,962	-£1,392,460	-£559 590
Total Kerbside Collections	£2,176,894	£1,384,651	£340,437	-£1,591,479	£2,310,503

1.4 – Contractual arrangements

Collection

Since SKDC's waste collections are run as an in-house operation, there would be no contractual issues arising from a change to the current collection patterns. It should, however, be noted that there could be considerable practical issues if such a change were to result in:

- A change in disposal facilities and/or locations, or
- The need to undertake a route review to achieve those new collections.

Treatment/Disposal – Recycling

The contract for the processing of dry recyclables collected at kerbside is held and managed by Lincolnshire County Council as Waste Disposal Authority (WDA), and the current contract commenced in July 2020. That contract has been specifically written to allow for potential changes to how dry recyclable materials are collected, so there will be no issue in one or more WCAs making such a change.

Treatment/Disposal – Residual Waste

Lincolnshire County Council has a long-term contract in place for the processing of residual waste at Hykeham Energy from Waste (EfW) facility. Whilst changes to the collection of dry recyclables could impact on the tonnage and composition of the material entering that facility, it should be noted that two effects are likely to counteract each other:

1. Diversion of dry recyclables which are currently being lost to residual collections into dry recycling collections – Reducing EfW input tonnage.
2. Diversion of non-recyclables which are currently contaminating dry recycling collections into residual collections – Increasing EfW input tonnage.

1.5 – Twin-stream collections in other LWP areas

Several LWP partner authorities already operate the type of twin-stream collections which are under consideration by SKDC. An initial trial began in September 2019 and, having proved successful, four LWP WCAs have, on a staggered basis, rolled out these collections across their area.

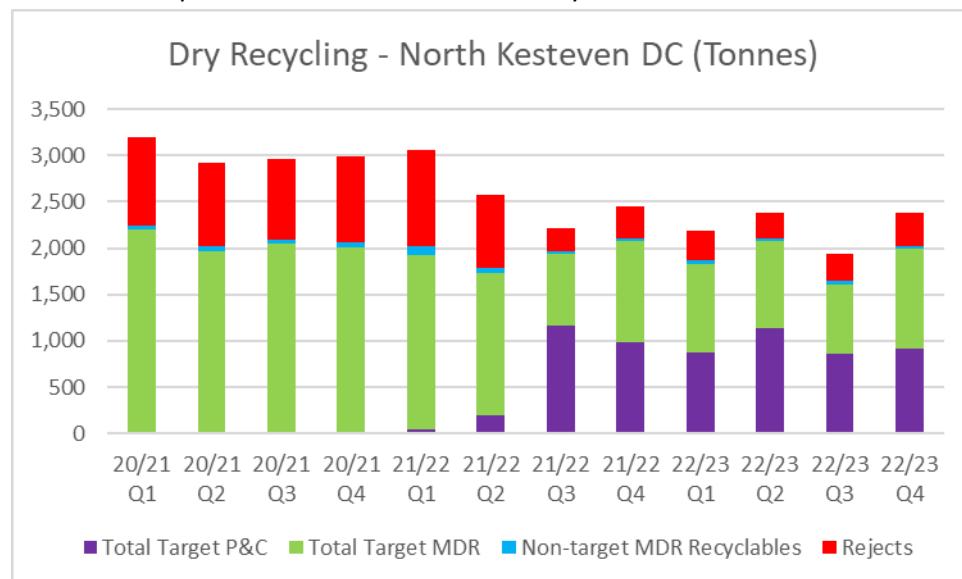
Since the existing collection patterns in SKDC are similar to what was previously in place in those areas now receiving twin-stream collections, it is helpful to be aware of the changes they have made to their kerbside collections.

	Previous (standard) service	New (twin-stream) service
Week 1	Residual waste	Residual waste
Week 2	Mixed dry recyclables	Mixed dry recyclables (no paper/card)
Week 3	Residual waste	Residual waste
Week 4	Mixed dry recyclables	Paper and card

All four twin-stream WCAs have seen similar results but, looking specifically at North Kesteven District Council (see chart below):

- Quantity of recyclables – A little less recycled than via comingled previous collections.
 - 7,639 tonnes in 2022/23 (twin-stream) compared to 8,412 tonnes in 2020/21 (fully comingled).
- Quality of recyclables – A dramatic reduction in the quantity of non-recyclable materials contaminating recycling collections.
 - Mixed recyclables contamination down from 3,661 tonnes in 2020/21 to 1,148 tonnes.
 - Paper and card contamination in 2022/23 was only 100 tonnes, less than 2% of the total material collected.

Chart 1.3 – Impact of twin-stream collections by North Kesteven District Council

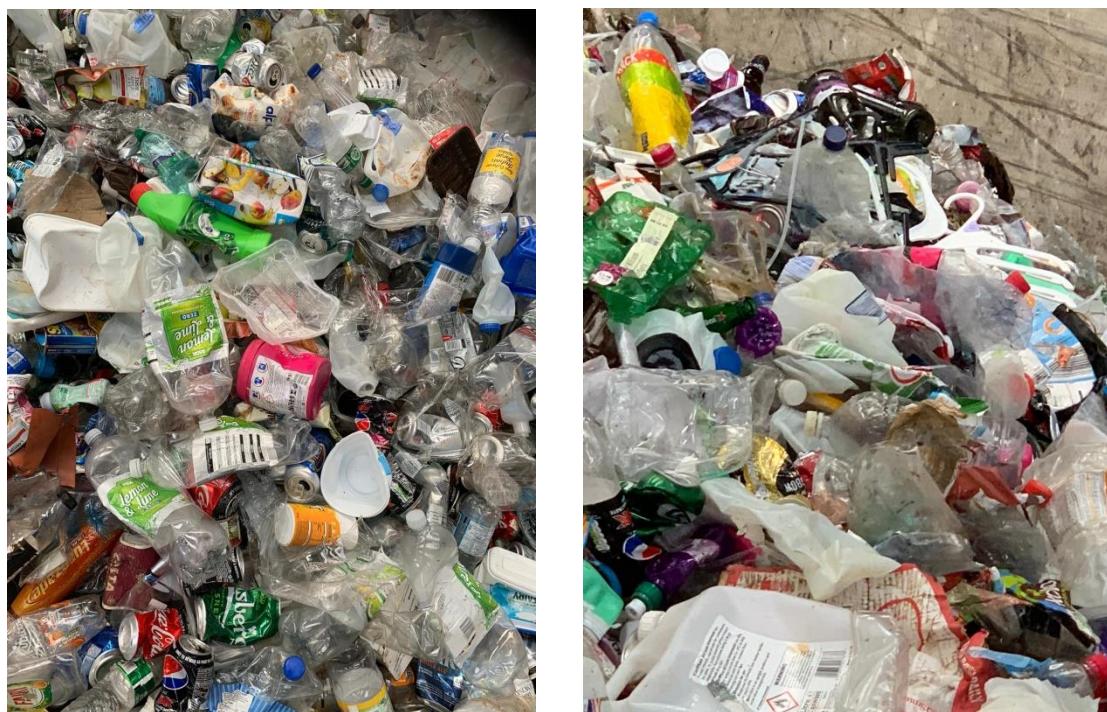


In addition to the outcomes reflected by these statistics there is clear visual evidence (as per the below photos) that the introduction of twin-stream collections, accompanied by a communications and engagement campaign to encourage residents to put the right waste into the right collection, has led to a reduction in the levels of contamination in the mixed recycling stream.

Figure 1.1 – Mixed recyclables from fully-comingled MDR rounds (including paper & card)
(Contamination clearly visible – e.g. black plastic sacks)



Figure 1.2 – Mixed recyclables from MDR rounds in a twin-stream area
(Minimal visible non-target recyclable material)



Step 2 – Check How Collected Materials are Treated and Recycled

As a Waste Collection Authority in a 2-tier local authority area, the waste collected by South Kesteven District Council is delivered to destinations arranged by Lincolnshire County Council as the local Waste Disposal Authority (WDA), sometimes via a WDA-provided Waste Transfer Station (WTS).

Table 2.1 – Destination and fate of each waste stream (2022/23)

Waste Stream	WTS or direct to Destination	Destination	Material Fate
General (Residual) Waste	Grantham WTS	Hykeham Energy from Waste	Recovery (energy generation)
Mixed Dry Recyclables	<ul style="list-style-type: none"> 93% Grantham WTS 7% Market Deeping WTS 	Barkston Materials Recycling Facility (MRF)	Recycling (see below)
Garden Waste	Direct delivery	<ul style="list-style-type: none"> 79% Colsterworth 21% Market Deeping 	Recycling (composting)

The MRF at Caythorpe is a sorting facility from where the output streams go to a number of different destinations for final processing.

Table 2.2 – Destination and fate of MRF output stream for Lincolnshire (2022/23)

Waste Stream	Percentage of this stream to this destination	Final Destination	Material Fate
Paper	14%	UK	Recycling
	3%	Other: EU	
	84%	Other: non-EU	
Cardboard	100%	Other: non-EU	Recycling
Steel Cans	100%	UK	Recycling
Aluminium Cans	100%	Other: non-EU	Recycling
Other Metals	100%	UK	Recycling
Plastic Bottles	22%	UK	Recycling
	78%	Other: EU	
Other Bottles	90%	UK	Recycling
	10%	Other: EU	
Glass	100%	UK	Recycling
Non-recyclables	62%	UK	Recovery (Energy from Waste)
	38%	Other: EU	

Bulky electrical items, which are collected from households separately, are also recycled.

Step 3 – Apply the Waste Hierarchy

3.1 – Background

Regulation 12 of the Waste (England and Wales) Regulations 2012 asserts the need for us to consider the Waste Hierarchy in choosing how to handle all our waste streams. This hierarchy sets out, in order of preference, five waste management options as shown below.

Figure 3.1 – The Waste Hierarchy



The Waste Hierarchy helps to encourage a change in thinking so that waste is considered as a resource to be made use of, with disposal being the last resort.

The following table sets out how the various materials collected by SKDC, or at HWRCs in the area, are treated with regard to the hierarchy.

Table 3.1 – Destination and fate of materials

The "four materials" (as specified in Waste Regulations)		
Material (as per WRAP Route Map)	Preferred route	Waste Hierarchy result
Glass	Kerbside – Mixed recyclables	Recycling
Metal	Kerbside – Mixed recyclables	Recycling
Paper	Kerbside – Mixed recyclables	Recycling
Plastics	Kerbside – Mixed recyclables	Recycling
Other materials		
Material (as per WRAP Route Map)	Preferred route	Waste Hierarchy result
Waste oil	HWRC	Recycling
Food waste ¹	Kerbside – General waste (Potential for mandated separate collections from 2025)	Recovery (EfW) (Potential for recycling from 2025)
Garden waste	Kerbside/HWRC – Separate collections	Recycling
Card	Kerbside – Mixed recyclables	Recycling
Fines	Kerbside – General waste	Recycling (EfW bottom ash to aggregates)
Furniture	Bulky collections/HWRC	Reuse/recycling
Hazardous	HWRC	Disposal
Mattresses	Bulky collections/HWRC	Disposal

Miscellaneous combustible (e.g. nappies)	Kerbside – General waste	Recovery (EfW)
Miscellaneous non-combustible (e.g. crockery; bricks)	Kerbside – General waste HWRC – Non-household DIY waste	Recycling (EfW bottom ash to aggregates)
Sanitary	Kerbside – General waste	Recovery (EfW)
Soil	HWRC	Recycling
Textiles	HWRC	Reuse/recycling
WEEE	HWRC	Recycling
Wood	HWRC	Recovery (EfW)

i – The Environment Act (2021) indicates that food waste collection from all households will become mandatory. We await final clarification but the current proposal is that this has to be in place by March 2025.

3.2 – Actions taken

As part of the Lincolnshire Waste Partnership (LWP), South Kesteven has adopted the Waste Strategy for Lincolnshire which identifies an objective "To explore new opportunities of promoting waste minimisation and of using all waste as a resource in accordance with the waste hierarchy". Other strategic objectives will also drive material further up the hierarchy – e.g. "To improve the quality and therefore commercial value of our recycling stream".

These objectives are reflected in a number of actions which the LWP are undertaking to move materials further up the hierarchy.

Table 3.2 – Actions relating to each level of the Waste Hierarchy

Prevention	In line with the LWP's strategic objective, a team are working on an ongoing programme of joint communications which include messages about waste minimisation.
Preparation for re-use	The HWRCs include an element of reuse of suitable items including textiles, furniture and bric-a-brac. Bring sites also provide a collection point for textiles for reuse.
Recycling	<p>Provision of kerbside collections for the recycling of a wide range of materials. We are working to further improve recycling opportunities by:</p> <ul style="list-style-type: none"> • Agreeing a simplified LWP-wide recycling mix, consistent with national government guidelines • Improved joint communication of recycling messages, • Consistent website development, and • Working towards separate collections of specific materials for new/improved recycling. <p>The combined aim of these initiatives is to help our residents to support our efforts to:</p> <ul style="list-style-type: none"> • Capture recyclables which are currently being lost to residual waste collections, and • Divert non-recyclables which are currently contaminating our collections of recyclables.
Other recovery (including energy recovery)	The vast majority of materials which are not recycled are sent for energy recovery at Hykeham EfW. Those which are not are generally not suitable for that facility – e.g. hazardous chemicals, mattresses
Disposal	Landfill remains the option of last resort. In 2022/23 the Lincolnshire Waste Partnership only landfilled around 3% of the total household waste collected.

Step 4 – Decide Whether Separate Collection of the Four Materials is Required

4.1 – Introduction

Necessity Test and Practicability Test

The Waste Regulations (as amended in 2012), stated in Section 13 that:

(3) Subject to paragraph (4), every waste collection authority must, when making arrangements for the collection of waste paper, metal, plastic or glass, ensure that those arrangements are by way of separate collection.

(4) The duties in this regulation apply where separate collection—

- a) 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; and
- b) is technically, environmentally and economically practicable.

In line with these requirements, WRAP's Route Map describes two tests to be undertaken in assessing whether separate collections are indeed required:

- The Necessity Test – *Whether separate collection is necessary to “facilitate or improve” recovery; and*
- The Practicability Test – *Separate collection is required only if it “is technically, environmentally and economically practicable”.*

The Waste (Circular Economy) (Amendment) Regulations 2020 provide further clarity on the criteria for the ‘Practicability Test’ by replacing the above paragraph 4 as follows:

(4) The duties in this regulation apply where separate collection is necessary to ensure that waste undergoes preparing for re-use, recycling or other recovery operations in accordance with Articles 4 and 13 of the Waste Framework Directive and to facilitate or improve preparing for re-use, recycling or recovery, unless one of the following conditions is met—

- a) collecting the waste paper, metal, plastic or glass together results in output from those operations which is of comparable quality to that achieved through separate collection;
- b) separate collection of the waste does not deliver the best environmental outcome when considering the overall environmental impacts of the management of the relevant waste streams;
- c) separate collection of the waste is not technically feasible taking into consideration good practices in waste collection; or
- d) separate collection of the waste would entail disproportionate economic costs taking into account the costs of adverse environmental and health impacts of mixed waste collection and treatment, the potential for efficiency improvements in waste collection and treatment, revenues from sales of

secondary raw materials as well as the application of the polluter-pays principle and extended producer responsibility.

This report sets out an assessment of SKDC's current and proposed collections in the light of these two tests and the extended details.

WRAP Consistency Framework

In deciding which collection systems to assess, we have referred to WRAP's paper "A framework for greater consistency in household recycling in England" (<https://www.wrap.org.uk/collections-and-reprocessing/consistency>). This sets out three preferred overall models:

- Multi-stream with separate food
- Two-stream (fibres separate) with separate food
- Co-mingled with separate food

Figure 4.1 – WRAP's list of suggested collection schemes

Multi-stream with separate food	Two-stream (fibres separate) with separate food	Co-mingled with separate food
 or  Residual waste (up to a maximum equivalent of 120 litres weekly) Minimum of 120 litres collected weekly  Plastics, metals and cartons  Glass and card*  Paper	 or  Residual waste (up to a maximum equivalent of 120 litres weekly) Minimum equivalent of 120 litres weekly  Plastics, metals, cartons and glass  or  Paper and card	 or  Residual waste (up to a maximum equivalent of 120 litres weekly) Minimum equivalent of 120 litres weekly  Plastics, metals, cartons, glass, paper and card**
 Food	 Food	 Food
 Plastics, metals, cartons, glass, card, paper and food	 Plastics, metals, cartons, glass, card and paper Food	 Plastics, metals, cartons, glass, card and paper Food

*Glass and card would be presented in the same box but separated into different compartments on the vehicle. In flatted properties card and paper could be collected together. Glass would be collected as a separate stream.

**The advice from reprocessors is that glass and paper are collected separately to maintain material quality.

In line with this our assessment focuses on those three recommended systems.

In addition to all the above considerations which apply to all councils, it is important to note that, learning from the twin-stream experiences of other LWP partners, SKDC is in a strong position to assess the potential impacts of introducing such collections across the district.

4.2 – Benchmarking data

Letsrecycle.com league tables

Whilst an individual "necessity" and "practicability" assessment will be carried out for each of the four specified materials, it is interesting first to consider the necessity of separate collections by the impact they might have on recycling performance.

In 2021/22 (latest available data), the best performing local authorities in England, by overall recycling rate, were as follows (see <https://www.letsrecycle.com/councils/league-tables/>).

Table 4.1 – Top five recycling authorities in England 2021/22 (plus SKDC for comparison)

Council	Recycling Rate (dryⁱ only)	Dry Recycling (main materials)	Food & garden waste
Three Rivers DC	63.5% (30.3%)	Co-mingled: including glass, metal, paper and plastic	<ul style="list-style-type: none">• Separate garden waste• Separate food waste
South Oxfordshire DC	62.7% (26.3%)	Co-mingled: including glass, metal, paper and plastic	<ul style="list-style-type: none">• Separate garden waste• Separate food waste
St Albans City and DC	62.4% (26.6%)	Two Stream: <ul style="list-style-type: none">• Co-mingled: including glass, metal and plastic• Separate paper and card	<ul style="list-style-type: none">• Separate garden waste• Separate food waste
Vale of White Horse DC	61.9% (26.0%)	Co-mingled: including glass, metal, paper and plastic	<ul style="list-style-type: none">• Separate garden waste• Separate food waste
East Devon DC	61.3% (29.9%)	Two Stream: <ul style="list-style-type: none">• Sack = Includes metal and plastic• Box = Includes glass, paper and card	<ul style="list-style-type: none">• Separate garden waste• Separate food waste
South Kesteven DC	39.7% (18.9%)	Co-mingled: including glass, metal, paper and plastic	<ul style="list-style-type: none">• Separate garden waste• No separate food

i – Headline recycling rate includes composting of garden waste and food waste. Since these are not directly relevant to this report, the figure in brackets (taken from Wastedataflow – see <https://www.wastedataflow.org/>) is for "dry" recycling (former BVPI 82a) and excludes those.

It is clear from this list that it is possible to achieve high recycling rates, both overall and for dry recycling, with co-mingled collections. Thus, separate collections are not necessary for achieving high quantities of recycling. Although there is scope for improvement in SKDC's dry recycling rate, the main differences between SKDC's overall collection scheme and those described for the best-performing councils are that those authorities have food waste collections, which are expected (date to be confirmed) to be mandated for England as a result of the Environment Act.

WRAP data

WRAP provide benchmarking data (see <https://laportal.wrap.org.uk/benchmark>) to enable comparison with other local authorities, particularly those with similar characteristics. The following tables will be referred to later for each material, but they also provide insight into overall performance.

Table 4.2 – Benchmarking of SKDC performance with various cohorts (2020/21)

NB – This data includes all authorities, not just those with comingled collections

Green = Top 25% of authorities; Yellow = Above median; Orange = Below median; Red = Bottom 25%

This LAs average yield per household						
6 Core Materials 247.9kg	Paper 105.5kg	Cardboard 39.1kg	Cans 12.8kg	Glass 66.3kg	Plastic Bottles 17.4kg	Plastic Tubs And T... 6.8kg
Compared to LAs across the UK						
+25.1%	+47.4%	+20.5%	+17.5%	+7.5%	+13%	+10.6%
Compared to LAs in the East Midlands						
+17.1%	+29.8%	+18.9%	+19.8%	+0.6%	+15.6%	+17.5%
Compared to Country Living LAs						
+12%	+22.3%	+15.3%	+15.7%	-3.2%	+12.5%	+9.6%
Compared to Predominantly rural, mid deprivation LAs						
+23.4%	+49.9%	+22.6%	+15.7%	+1.4%	+9.4%	+8.5%
Figures based on average yield per household - measured in kilograms per year						

In all the cohorts assessed above, SKDC places in the top 25% for the total quantity collected of the five "widely recycled" materials and above average for those individual materials in almost all these comparisons.

4.3 – Necessity Test

In line with the amended Waste Regulations (see section 4.1 above), this test sets out to assess whether *“collecting the waste paper, metal, plastic or glass together results in output from those operations which is of comparable quality to that achieved through separate collection”*. If this is **not** the case, separate collections are “necessary”.

Paper

Quantity (Table 4.2)	SKDC's collections achieve a high yield of paper nationally and compared to other similar authorities.
Quality	Discussions with the paper industry have revealed that, whilst paper from comingled collections can be recycled, their preference is for paper which has not previously been mixed with glass and has a low moisture level. This aligns with WRAP's list of suggested recycling schemes (Figure 4.1) that, ideally, glass and paper should be collected separately from each other. The LWP have trialled, and now rolled out in four WCAs, a twin-stream approach with separate collections of paper and card. This has demonstrated an uplift in quality of paper collected for recycling compared to including it in collections of mixed recyclables.
Assessment	Separate collection may be necessary for quality In order to provide the highest quality paper for recycling, it may be necessary to collect paper separately from other recyclables.

Glass

Quantity (Table 4.2)	SKDC's collections achieve an above-average yield of glass nationally and comparable to other similar authorities.
Quality	The County Council's MRF provider, MidUK Recycling, have stated that: <i>MidUK have upgraded their glass recycling at their Caythorpe site through implementation of a separate glass cleaning operation that ensures the maximum percentage of glass can be sent for remelt rather than the lower value use of aggregates.</i>
Assessment	Separate collection is not necessary for quantity or quality It should be noted that, where LWP partners have introduced twin-stream collections (separate paper & card), contamination levels have fallen in the remaining mixed recyclables collections.

Metals & Plastics

Quantity (Table 4.2)	SKDC's collections achieve an above-average yield of both these streams.
Quality	These streams are simple to sort from each other and from other wastes for recycling.
Assessment	Separate collection is not necessary for quantity or quality It should be noted that, where LWP partners have introduced twin-stream collections (separate paper & card), contamination levels have fallen in the remaining mixed recyclables collections.

In line with the above, it may be necessary to collect paper separately from other recyclables. Thus, it is essential to assess whether such collections are practicable.

In light of this, the following options will be considered in each element of the practicability test for the separate collection of paper. These options are in line with the WRAP consistency framework (see <https://www.wrap.org.uk/collections-and-reprocessing/consistency> from which Figure 4.1 above is copied):

1. Multi-stream with separate food – a.k.a. kerbside sort
2. Two-stream (fibres separate) with separate food – i.e. paper & card separately
3. Co-mingled with separate food – This is the service against which other options will be compared.

Whilst each of these options specifies "with separate food", neither that nor garden waste collections form a part of this assessment as they don't have a significant impact on the collection of dry recyclables. It should, however, be noted that any future collections of food waste are likely to reduce contamination and increase quality of recycling collections thus increasing the likelihood that separate collections are necessary.

4.4 – Practicability Test – Technically Practicable?

This test sets out to assess whether (see section 4.1 above) “*separate collection of the waste is not technically feasible taking into consideration good practices in waste collection*”.

Clearly the current comingled collections are practicable so, as with the other following elements, this test checks the other two options and compares them with comingling. For ‘technically’, this is a simple one-stage test.

Multi-stream (kerbside sort)	Yes – Other authorities are already doing these, including those covering both urban and rural areas.
Two-stream (separate paper & card)	Yes – The Lincolnshire Waste Partnership's successful rollout across four WCAs has demonstrated that this can be done both in urban and in rural settings.
Assessment	Both options are technically practicable

4.5 – Practicability Test – Environmentally Practicable?

This test sets out to assess whether (see section 4.1 above) “*separate collection of the waste does not deliver the best environmental outcome when considering the overall environmental impacts of the management of the relevant waste streams*”.

Multi-stream (kerbside sort)

Benefits	Recycling rate – As described in the necessity test, separate collections are unlikely to improve the quantity or quality of anything other than paper.
Negatives	Vehicle movements – WRAP analysis (see Tables 4.3 & 4.4 below, taken from their report at https://www.wrap.org.uk/collections-and-reprocessing/collections-and-sorting/kerbside-collection/guidance/kerbside-recycling-costs-performance) suggests that it is unlikely to be possible to achieve similar overall yields to SKDC's present scheme (see Table 4.2 above) using kerbside sort. Even with weekly collections, the highest estimates of 202kg/HH (rural) and 147kg/HH (urban) fall well short of SKDC's current 248kg per household. As well as reduced recycling quantities, weekly collections would involve significant extra vehicle emissions (including commuting of additional staff).
Assessment	Not environmentally practicable – Significant negative impact

Table 4.3 – "Kerbside Sort Systems Modelled for Kerbsider and Stillage Vehicle Options (Rural)"

Ref.	Refuse frequency	Recycling container	Recycling frequency	Materials Collected				Vehicle Type	Yield kg/hh/yr
				Paper	Glass	Cans	Plastic		
KS1	Fortnightly	2 boxes + 1 lid	Weekly	✓	✓	✓		Kerbsider	188
								Stillage	188
KS2	Fortnightly	2 boxes + 1 lid	Fortnightly	✓	✓	✓		Kerbsider	168
								Stillage	168
KS3	Fortnightly	2 boxes + 1 lid	Weekly	✓	✓	✓	✓	Kerbsider	202
								Stillage	202
KS4	Weekly	1 box	Weekly	✓	✓	✓		Kerbsider	149
								Stillage	149
KS5	Weekly	1 box	Fortnightly	✓	✓	✓		Kerbsider	131
								Stillage	131
KS6	Weekly	2 boxes + 1 lid	Weekly	✓	✓	✓	✓	Kerbsider	160
								Stillage	160
KS7	Weekly	2 boxes + 1 lid	Fortnightly	✓	✓	✓	✓	Kerbsider	140
								Stillage	140

Table 4.4 – "Kerbside Sort Systems Modelled for Kerbsider and Stillage Vehicle Options (Urban)"

Ref.	Refuse frequency	Recycling container	Recycling frequency	Materials Collected				Vehicle Type	Yield kg/hh/yr
				Paper	Glass	Cans	Plastic		
KS1	Fortnightly	2 boxes + 1 lid	Weekly	✓	✓	✓		Kerbsider	137
								Stillage	137
KS2	Fortnightly	2 boxes + 1 lid	Fortnightly	✓	✓	✓		Kerbsider	124
								Stillage	124
KS3	Fortnightly	2 boxes + 1 lid	Weekly	✓	✓	✓	✓	Kerbsider	147
								Stillage	147
KS4	Weekly	1 box	Weekly	✓	✓	✓		Kerbsider	109
								Stillage	109
KS5	Weekly	1 box	Fortnightly	✓	✓	✓		Kerbsider	96
								Stillage	96
KS6	Weekly	2 boxes + 1 lid	Weekly	✓	✓	✓	✓	Kerbsider	117
								Stillage	117
KS7	Weekly	2 boxes + 1 lid	Fortnightly	✓	✓	✓	✓	Kerbsider	102
								Stillage	102

Two-stream (separate paper & card)

Benefits	Recycling quality (paper & card) – Twin-stream collections by other LWP WCAs produce clean paper and card which, in line with paper-mill specifications is suitable for recycling into new paper/card products. This "closed loop" recycling is more environmentally beneficial than recycling paper extracted from mixed recyclables into lower quality products. The improved quality has also opened up more local recycling options, thus reducing emissions from road haulage. Recycling quality (mixed recyclables) – The remaining mixed recyclables in LWP twin-stream areas are also less contaminated than the previous fully-comingled mix. This means less non-recycled materials going through the MRF sorting process.
Negatives	LWP twin-stream collections are being run with the same vehicles following the same route, and tipping locations, as the previous comingled collections, simply alternating between paper & card and mixed collections. Thus, there is no significant negative impact.
Assessment	Environmentally practicable – Positive impact

4.6 – Practicability Test – Economically Practicable?

This test sets out to assess whether (see section 4.1 above) "*separate collection of the waste would entail disproportionate economic costs*".

Multi-stream (kerbside sort)

An assessment of overall system costs needs to look at the balance between two factors:

- Increased collection costs – SKDC's previous (2014) TEEP assessment established that the annual costs of operating fortnightly kerbside-sort collections are around 30% higher (£1.3 million compared to £1.0 million) than for twin-stream or comingled collections, mostly resulting from the need for additional staff and vehicles. These costs would be even higher for a weekly kerbside-sort service which, as described in section 4.5 above, would be needed to ensure the best yield of recyclables.
- Reduced processing costs – Previous work, including analysis undertaken on behalf of the LWP by WRAP, has suggested that the income received by selling high quality material to recycling companies might offset the additional collection costs. However, market prices have fallen considerably and would no longer be sufficient to fund those increased collection costs.

At present, kerbside sort collections are not economically practicable. However, should there be a significant and sustained upturn in the market for recyclables, this situation may change. Thus, it is important to continue to monitor the situation going forwards.

Two-stream (separate paper & card)

The rollout of LWP twin-stream collections has demonstrated that whole system costs can be significantly lower than those for mixed dry recyclables:

- Collection costs – The scheme simply replaces one of the mixed recyclables collections (in each cycle of four weeks) with the collection of paper and card. Thus, once initial costs (e.g. an additional bin for each household) have been covered, collection costs are essentially the same. In LWP areas, those initial costs, including a supporting communications team, are funded by the Waste Disposal Authority partner, Lincolnshire County Council (LCC), from disposal cost savings.
- Transport costs – Again, these are the same as for the current system as the delivery points are no further away, and the routes are the same; meaning no further miles are travelled.
- Processing costs – The quality paper and card collected is sufficient that paper reprocessors are happy to pay to receive it. Compared to the cost charged for sorting it from the mixed recyclables, this represents a saving of over £100 per tonne including avoided processing costs for the Waste Disposal Authority partner, LCC, who use these to fund startup and communications costs.

Summary

Multi-stream (kerbside sort)	Not economically practicable – Costs are considerably higher than the current comingled collections
Two-stream (separate paper & card)	Economically practicable – Collection costs are essentially the same as the current comingled collections, and processing costs are considerably lower.

4.7 – Practicability Test – Summary

Comparing the other WRAP-specified options with the current comingled collections:

	Multi-stream (kerbside sort)	Two-stream (separate paper & card)
Technically Practicable?	Yes	Yes
Environmentally Practicable?	No	Yes
Economically Practicable?	No	Yes
Overall Assessment	Not practicable	Practicable

Step 5 – Obtain Sign-off

The WRAP Route Map indicates a number of steps to ensure necessary approval and sign-off of this assessment and associated actions. We have undertaken each of these actions as follows.

You may wish to obtain a peer review of work carried out to assess your compliance.	This assessment has been undertaken in cooperation with the LWP to ensure that expertise and experience is drawn upon.
You will need explicit sign-off from senior officers including: <ul style="list-style-type: none"> • Relevant Director/Assistant Director • Senior Lawyer 	See below.
It is also likely that the decisions taken will need to be reviewed by the council committee or member with lead responsibility for waste.	This assessment will be reviewed and approved by Cabinet.

If the assessment indicates that substantial changes to the authority's collection method are required, especially if there will be costs associated with the change, the minuted agreement of full council may be required.	Substantial changes are required, so Cabinet agreement will be sought.
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The results and actions set out in this assessment are approved by:

SIGNATURE	SIGNATURE
NAME "Director/Assistant Director"	NAME "A senior lawyer within the council"

Step 6 – Retain Evidence

Simple once the rest of the process is complete.

- Check that this report fulfils the requirements as set out in Route Map notes on Step 6.

This step essentially refers to keeping records of any evidence to back up the information set out in this assessment, particularly with regard to the following categories. Each of these corresponds to one step as described in this report:

1. Current waste collections
2. Current waste treatment and recycling processing
3. Applying the waste hierarchy
4. The Four Materials – Necessity and Practicability
5. Sign-off

All such information has indeed been retained.

Step 7 – Re-evaluation Process

As stated in the WRAP Route Map, this assessment is not a "once and for all" task. We will repeat it on a regular basis, particularly in light of any changes in the landscape in which we are working. Indeed, this report represents a re-evaluation of a previous assessment.