ASSESSMENT OF COMPLIANCE AGAINST THE WASTE REGULATIONS 2011 (TEEP TEST): 2020 REVIEW

1. Background:

1.1. The EU's Waste Framework Directive requires that Member States have in place separate collections of paper, glass, metal and plastic by 1st January 2015.

1.2. Every waste collector must, when making arrangements for the collection of waste paper, metal, plastic or glass, ensure that those arrangements are by way of separate collection. The requirement to separately collect applies when it 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; [the necessity test] and it is Technically, Environmentally and Economically Practicable ('TEEP') [the TEEP test].

1.3. The Waste Framework Directive is implemented in England and Wales through the Waste (England and Wales) Regulations 2011 (The Regulations) which were later amended in 2012.

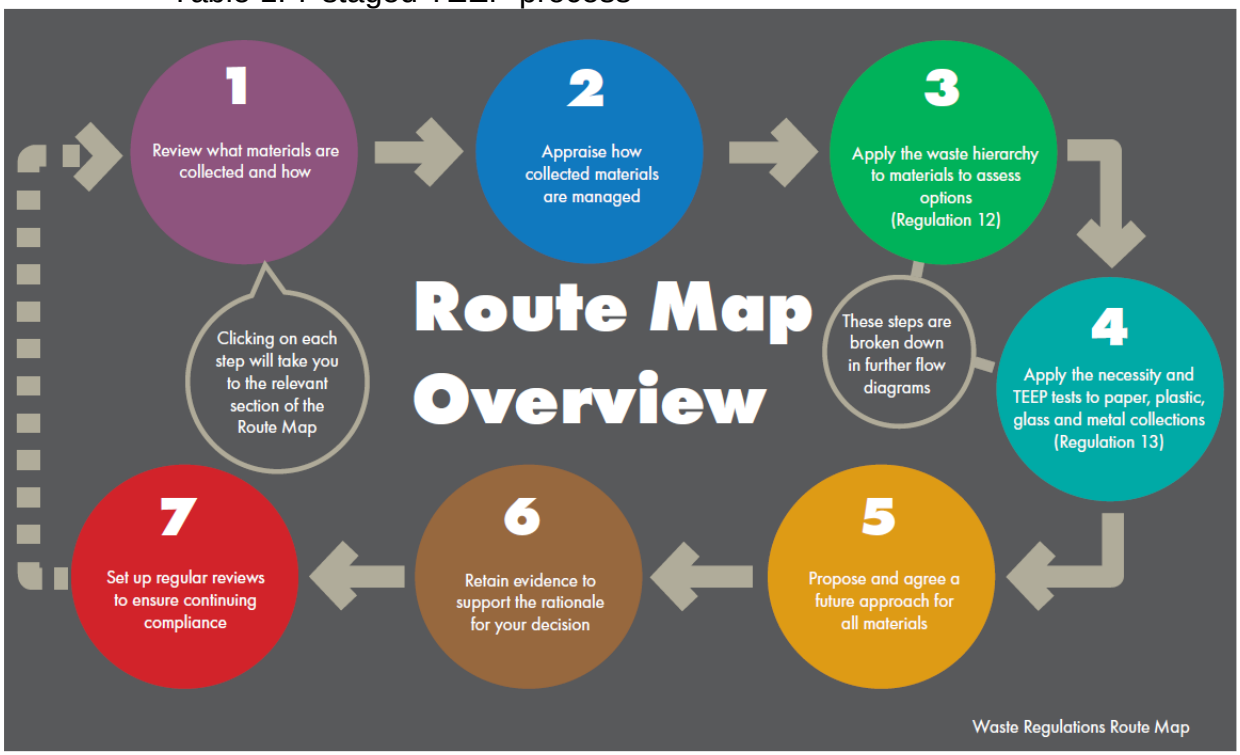
1.4. The Regulations have a clear presumption in favour of the material being collected separately, but there are circumstances where it is possible to collect the materials commingled.

1.5. Collectors who do not have separate collection arrangements in place are required to review their collection practices and consider carefully if, and how they comply. This should include rigorous application of the Necessity and TEEP tests.

1.6. DEFRA (Department for Environment, Food and Rural Affairs) and WRAP developed a route map in 2014 to assist local authorities in carrying out their TEEP Test (Appendix 1). This sets out a 7 staged process (table 1).

1.7. The most recent Assessment of Compliance against the Waste Regulations 2011 was carried out in 2016. This updated assessment recognises the change to the recycling service carried out in 2018 which saw the fortnightly blue bin and blue box recycling service replaced with a new four weekly service using a brown bin and blue bin. No new assessment was made at this time as while the container used to collect the material was changing, how the material was being segregated wasn't changing.

Table 1: 7 staged TEEP process



1.8. This report uses this route map and details the high-level assessment of compliance to the separate collection requirement in The Regulations for waste and recycling collection services provided by Sheffield City Council.

2. Step 1: What is collected and how

2.1. All waste and recycling collection services in Sheffield are carried out by Veolia, as part of a 35 year integrated waste management contract running from 2001 until 2036.

2.2. The contract includes all treatment and disposal of waste collected as part of the services set out in Table 2.

Table 2: Services provided in Sheffield

Service	Collection frequency	Container	Materials collected
Residual waste	Fortnightly	240L black bin	Residual waste
Dry recycling: Fibres	Four weekly	140L blue bin	Paper and card
Dry recycling: Containers	Four weekly	240L brown bin	Glass bottles and jars, cans and plastic bottles
Garden Waste (chargeable)	Fortnightly (April - Nov)	240L green bin	Garden waste
Clinical waste	Weekly	Yellow Sacks	Clinical waste
Bulky waste	On request	N/A	Bulky items
Bring sites	As required	Various	Paper, card, mixed plastics, glass, cans, textiles
HWRCs (Household waste recycling sites)	As required	Various	Paper, card, mixed plastics, glass, metals, textiles, WEEE, oil, plasterboard, wood, batteries, bric a brac, residual waste

2.3. The composition of Sheffield's household waste stream and method of targeting is shown in Table 3. No local waste composition audit has been carried out across all our waste services and so waste composition is based around the most recent national waste analysis results, (WRAP (Waste and Resources Action Programme), 2019, National municipal waste composition, England 2017).

Table 3: 2019/20 estimated tonnage by waste type based on WRAP composition estimates, 2017

Primary Level Waste type	Tonnage	% of waste (primary)	19/20 Sheffield Tonnes	Targeted for recycling?	Collected separately from other recyclables?	Collection service/s
Food waste	4,386,331	18.44%	34,982	No	No	Kerbside, HWRC
Garden waste and other organic	4,643,585	19.52%	37,033	Yes (garden waste)	Yes	Kerbside, HWRC
Paper and card	4,200,837	17.66%	33,502	Yes	Yes	Kerbside, HWRC, Bring sites
Glass	1,621,034	6.81%	12,928	Yes	No (kerbside with plastic bottles and cans)	Kerbside, HWRC, Bring sites
Metals	893,631	3.76%	7,127	Yes	No (kerbside with glass bottles and plastic bottles, HWRCs/Bring sites with cans)	Kerbside, HWRC, Bring sites
Plastic	2,143,984	9.01%	17,099	Yes	No (kerbside with glass bottles and plastic bottles, HWRCs/Bring sites with cans)	Kerbside, HWRC, Bring sites
Textiles	1,107,958	4.66%	8,836	Yes	Yes	HWRC, Bring sites
WEEE (waste electrical and electronic equipment)	424,637	1.78%	3,387	Yes	Yes	HWRCs, Bulky waste
Hazardous waste	89,358	0.38%	713	Yes (batteries and oil)	Yes	HWRCs
Wood	903,175	3.80%	7,203	Yes	Yes	HWRCs

Miscellaneous	3,378,342	14.20%	26,943	Yes (soil and rubble)	Yes	HWRCs
Total	**23,792,872**	**100.00%**	**189,751**			

2.4. Table 3 shows that all materials sent for recycling are collected separately with the exception of plastic bottles, cans and glass bottles at the kerbside, and cans and plastics at bring sites.

2.5. The annual collection cost for the kerbside recycling service in Sheffield is £5,796,872 (19/20).

3. Step 2: How the materials collected are treated and recycled

3.1. Sheffield produced 182,882 tonnes of household waste in 2019/20. An additional 6,869 tonnes of soil and rubble was also collected, a total of 189,751 tonnes.

3.2. The amount of material sent for recycling, recovery or landfill is shown in Table 4. Where possible, the tonnages have been separated by material stream.

- Table 4: Collection and disposal routes for collected waste types 19/20

Primary Level Waste type	Tonnes in Sheffield waste stream 19/20 est.	Kerbside	HWRCs	Bring Sites	Bulky Waste	Total Recycled	Energy Recovery Facility	Non-hazardous landfill	Hazardous Landfill
Food waste	34,982	0	0	0	0	0	120,972	7,366	27
Garden waste and other organic	37,033	4,213	5,930	0	0	10,143			
Paper and card	33,502	13,786	1,143	648	0	15,577			
Glass	12,928	23,697	30	303	0	25794			
Metals	7,127		1,384	381	0				
Plastic	17,099				0				
Textiles	8,836	0	179	69	0	248			
WEEE	3,387	0	1,548	0	1,013	2,561			
Hazardous	713	0	83	0	0	83			
Wood	7,203	0	5,426	0	0	5,426			
Miscellaneous	26,943	0	542	0	1,013	1,555			
	189,751					**61,387**	**120,972**	**7,392**	

3.3. Standard, single bodied refuse collection vehicles are used for the collection of dry recycling from the kerbside. The collection cycle for houses is:

Week 1: black bin
Week 2 brown bin
Week 3 black bin
Week 4 blue bin

3.4. Method statements are in place and include clear guidance to crews to ensure that collections of bins which include non-target materials are kept to a minimum.

3.5. Paper and card is taken to Veolia's paper and card Materials Recycling Facility (MRF) in Beighton, Sheffield.

3.6. The commingled glass, cans and plastics are taken to a waste transfer station in Tinsley and bulk transferred to H.W. Martin MRF in Derbyshire. The glass content is then extracted and sorted by colour, before the remaining plastic and cans are sent to a second H.W Martin MRF in Leeds for further processing.

3.7. Mixed cans and plastics collected from bring sites and the Household Waste Recycling Centres (HWRCs) are also taken to the waste transfer station in Tinsley, Sheffield, and transported with the kerbside material to the H.W. Martin MRF in Derbyshire.

3.8. Once transported to the relevant MRF, the materials are subjected to sampling as required under The Environmental Permitting (England and Wales) (Amendment) Regulations 2014, and in accordance with WRAP's MRF Code of Practice requirements.

3.9. The results of the sampling carried out by Veolia (Jan – Jun 20) at their paper MRF for the input material are shown in table 5a. This shows the proportion of non-target materials in the waste stream to be very low at 5.85%.

- Table 5a: Composition of materials collected: Veolia, Beighton sampling data

VES Beighton MRF (Jan – Jun 20)	% composition material input	Target Material
News and Pams	40.09%	Y
Mixed Paper	27.26%	Y
OCC	18.60%	Y
Other paper and card	7.80%	Y
Other	5.85%	N

3.10. Whilst the size of Veolia's paper MRF means that no output sampling is required, the sorting process removes a high proportion of any non-target materials present. The output materials meet the requirements of EN643 for the sale of the output material to the UK and Europe, and in accordance with each countries quality regulations for other overseas markets. No loads have been rejected by the processors in the past three years.

3.11. The results of the input sampling carried out by H.W Martin in accordance with the MRF sampling Regulations for the period (Jan – Jun 20) are shown in table 5b.

- Table 5b: Quality of materials collected: H.W Martin sampling data

H.W Martin (Oct-Dec 19)	% composition material input	Target Material
Glass	28.14%*	Y
Metal	25.59%	Y
Plastics	40.98%	Y
Paper and card	0.36%	N
Other	4.94%	N

* Batch analysis carried out by H.W Martin shows that 54% of the commingled material was comprised of glass. The information in Table 5b shows the official sampling results which uses a 45mm screen before sampling takes place. Most glass less than 55mm falls through this screen and so is not subjected to sampling.

3.12. Table 5C shows the results of the post sort sampling carried out by H.W. Martin in October to December 2019. The output contamination levels are compared to Resource Association target contamination levels, and show that the contamination levels for all materials fall within the Resource Association targets, with the exception of glass.

- Table 5c: H.W Martin output sampling

Output material	%	Contamination	Resource Recovery Contamination Target
Steel	97.80%	2.20%	N/A
Aluminium	99.06%	0.94%	3%
Plastic bottles	97.76%	2.24%	5%
Glass	89.00%	11.00%	<5%

3.13. The sorted materials are then sold on from the MRFs to the processors shown in Table 6.

Table 6: Material outlets

Kerbside	MRF	Material Stream	Outlet	Where Processed
Paper and Card	Beighton MRF, Sheffield	Mixed Paper	DS Smith Paper, Kemsley Paper Mill, Sittingbourne Kent, ME10 2TD	UK
			Euro Overseas - Anand Triplex Bord Limited ANAND TRIPLEX BORD LIMITED, 9th KM, VILLAGE SAINI, ,MEERUT MAWANA ROAD, UP, India, N1 9JY	India
			Euro Overseas - SHAKTI KRAFTS AND TISSUES 9 KM JANSATH ROAD, MUZAFFARNAGAR, UTTAR PRADESH, INDIA, Muzaffarnagar, India, 251002	India
			Via Mark Lyndon to VIETNAM LEE & MAN PAPER MFG., LTD	Vietnam
		News and Pams	UPM-Kymmene (UK) Limited, Paper Mill UPM Shotton, Weighbridge Road, Shotton, Deeside, Flintshire, CH5 2LL, UK.	UK
		OCC	DS Smith Paper, Kemsley Paper Mill, Sittingbourne Kent, ME10 2TD	UK
			Via Mark Lyndon to: Dongguan Lee & Man Paper Factory Co. Ltd. Huangyong Industrial Zone, Zhong Tang, Guang Dong CHINA	China
			via Mark Lyndon Paper Enterprises Ltd VIETNAM LEE & MAN PAPER MFG., LTD, PHU HUU A INDUSTRIAL ZONE - STAGE 1, MAI DAM TOWN, CHAU THANH DISTRICT, HAU GIANG PROVINCE,VIETNAM , N1 9JY	Vietnam
			Saica Natur UK Ltd, Paper Mill 144 Manchester Road Carrington M31 4QN	UK
			Euro Overseas - DISHA INDUSTRIES PRIVATE LIMITED 9TH KM. STONE, JAULY ROAD, UTTAR PRADESH, Muzaffarnagar, India, 251001	India
			Euro Overseas - RAJSHREE PULP & BOARD MILLS SP-41B, RIICO INDUSTRIAL AREA 308801, DISTT. JAIPUR, RAJASTHAN, INDIA, India, 308801	India
			European Overseas Trading to Dev Priya Products Ltd 4 Shanker Vihar Vikas marg, Delhi 110092, India	India

			Euro Overseas - SUBAM PAPERS PVT LTD 143-146, VADUGANPATI VILLAGE, VETTUVANKULAM ROAD, MANUR BLOCK, 627010 TIRUNELVELI, Tirunelveli, India, 627010	India
			Euro Overseas - VISHVAKARMA PAPER & BOARDS 4.5 KM STONE, RAMNAGAR ROAD, KASHIPUR, UTTARAKHAND, India, 244713	India
			Euro Overseas & Trading B.V.B.A (India) Lilapur Road, Morbi 363641, Gujarat, India, India, N1 9JY	India
			Euro Overseas & Trading B.V.B.A....Shakti kraft & tissue, Muzafarnagar, India OR Genus Industries Ltd., Moradabad, UP, India , India	India
			Palm Recycling - Ward Recycling Longhills Ind Est, Windmere R., Hartlepool, Hartlepool, United Kingdom, TS25 1PB	UK
			Palm Recycling Limited Pioneer House Pioneer Business Park, North Road, Cheshire, United Kingdom, CH65 1AD	UK
			Winfibre - Best Eternity (Malaysia) N0 35 & 35A, Jalan Emas 2, Bandar Sg Emas, Banting, Malaysia, 42700	Malayisa
			Winfibre UK PHU HUU A INDUSTRIAL ZONE - STAGE 1, Châu Thành, Vietnam, NA	Vietnam
			Winfibre UK – Vietnam, VIETNAM LEE & MAN PAPER MFG., LTD, PHU HUU A INDUSTRIAL ZONE - STAGE 1, MAI DAM TOWN, CHAU THANH DISTRICT, HAU GIANG PROVINCE,VIETNAM , N1 9JY	Vietnam
Plastic bottles, glass bottles cans	H.W Martin	Glass +10mm	Glass Recycling UK, 418, Carlton Road, Carlton, Barnsley, S71 3HX	UK
			Stacey Processing, Ryder Point Works, Wirksworth, Matlock, Derbyshire, DE4 4HE	UK
			Veolia Merseyside GCPF, Alexandra Warehouse, Ravenhead Road, St. Helens, WA10 3LR.	UK
			Viridor, Salmon Pastures, Attercliffe Road, Sheffield, S4 7WT	UK
		Glass -10mm	Stacey Processing, Ryder Point Works, Wirksworth, Matlock, Derbyshire, DE4 4HE	UK
			Veolia Merseyside GCPF, Alexandra Warehouse, Ravenhead Road, St. Helens, WA10 3LR.	UK
			Salmon Pastures, Attercliffe Road, Sheffield, S4 7WT	UK

			Wards Recycling, Griffon Road, Quarry Hill Ind Est, Ilkeston, Derbyshire, DE7 4RF	UK
			Glass Recycling UK, 418, Carlton Road, Carlton, Barnsley, S71 3HX	UK
		Steel Cans	EMR Sheffield - East Coast Road, Attercliffe, Sheffield, South Yorkshire, S9 3YD	UK
			Morris & Co Ltd, Bankwood Lane, Rossington, Doncaster, DN11 0PS	UK
			Sims, Birchwood Lane. Somercoates, Alfreton, Derbyshire, DE55 4NH	UK
			Ward Brothers Ltd, Hay Street, Monkwearmouth, Sunderland, Tyne & Wear, SR5 1BG	UK
			Wards Recycling, Griffon Road, Quarry Hill Ind Est, Ilkeston, Derbyshire, DE7 4RF	UK
		Aluminium cans	EMR Sheffield - East Coast Road, Attercliffe, Sheffield, South Yorkshire, S9 3YD	UK
		Mixed plastics	HW Martin Waste Limited, Unit 1, Parkside Lane, Parkside Industrial Estate, Leeds, LS11 5TD	UK
			SK Polymers B.V, Bossstraat 77, 4704 RL, Roosendaal, The Netherlands	Netherlands
			Polymer Resource Ltd, 11 Porthill Road, Mountnorris, Co. Armagh, BT60 2TY, Northern Ireland.	UK
			PlymerCare, Unit 1-6, Kingsnorth Ind. Est. Hoo, Rochester, Kent, ME3 9ND	UK
			Van Werven, Whitemoor Business Park, Cliffe Common, Selby, N.Yorks, Y08 6EG	UK

3.14. All paper and card is sent for closed loop recycling, as are the metals.

3.15. Plastics are sorted alongside the main MRF process using several specialised technologies to separate the various plastic polymer types, which are flaked and washed in order that it is of the highest quality when delivered to plastic product manufacturers. The H.W. Martin plastics recovery facility meets the stringent requirements of the plastics manufacturing industry, maximising closed loop recycling.

3.16. The state of the art glass sorting technology used by H.W Martin ensures that glass bottles and jars in mixed recyclable materials are extracted and processed through several stages to clean and grade the material. The resulting products use two size grades of glass cullet, which is used by glass re-processors to make new products, including glass bottles to deliver closed-loop recycling.

4. Step 3: Waste hierarchy

4.1. Regulation 12 of the Waste (England and Wales) Regulations 2011 requires Local authorities to comply with the waste hierarchy. Departure from it is allowed when the measures that would be required would not be ‘reasonable in the circumstances ‘or when departure will ‘achieve the best overall environmental outcome where this is justified by life-cycle thinking on the overall impacts of the generation and management of the waste’

4.2. The application of the waste hierarchy in Sheffield was subjected to an appraisal (table 7 below) to assess compliance with Regulation 12.

Table 7: Waste stream management compared to waste hierarchy

Material	Waste prevention and reuse	Recycling	Recovery	Can material be moved up the waste hierarchy?
Food waste	Love food hate waste campaign		Kerbside black bin	Separate collection costs for recycling prohibitive
Garden waste and other organic	Home composting	Kerbside green bin, HWRCs	Kerbside black bin	Potential to improve waste reduction communications
Paper and card	General waste reduction campaigns	Kerbside blue bin/bring sites, HWRCs	Kerbside black bin	Potential to improve waste reduction communications
Glass	General waste reduction campaigns	Kerbside brown bin, bring Sites, HWRCs	Kerbside black bin	Potential to improve waste reduction communications
Metals	General waste reduction campaigns	Kerbside brown bin, bring Sites, HWRCs	Kerbside black bin	Potential to improve waste reduction communications
Plastic	General waste reduction campaigns	Kerbside brown bin, bring Sites, HWRCs	Kerbside black bin	Separate collection costs for mixed plastic recycling at kerbside is cost prohibitive
Textiles	General waste reduction campaigns	Bring sites, HWRCs	Kerbside black bin	Separate collection costs for kerbside recycling prohibitive
WEEE		HWRCs, bulky waste collection		
Hazardous		HWRCs (batteries and oil)		Limited options to move up waste hierarchy
Wood		HWRCs, bulky waste collection	Kerbside black bin	Limited options to move up waste hierarchy
Miscellaneous	Some reuse of furniture from HWRCs	HWRCs, bulky waste collection	Kerbside black bin, offensive clinical waste	Limited options to move up waste hierarchy

*All black bin waste is taken to Sheffield's Energy Recovery Facility where it is converted into electricity for the national grid and heat for over 150 buildings.

4.3. Whilst a review of waste communications will be carried out in 2020 to improve waste reduction messages, any resulting impact is likely to be limited in terms of achieving tonnage reductions.

4.4. In summary, Sheffield can evidence that it has applied the waste hierarchy when considering each waste stream. The services in place have been designed to target the recycling of key materials, balancing carbon benefit and cost, as well as allowing for energy recovery from any waste not separated for recycling.

5. Step 4: Is separate collection required?

5.1. The purpose of step 4 is to determine whether Sheffield needs to operate a separate collection of glass, metals, paper and plastic.

5.2. Sheffield already operates a separate collection of paper (with card) and therefore the Council can be seen as compliant with the requirements, and no further testing for this material stream is required.

5.3. Currently Sheffield operates a commingled collection of glass, cans and plastics. Separate collection of these materials is required by Regulation 13 if doing so passes both the necessity and TEEP test.

6. Necessity test

6.1. The separate collection of glass, cans and plastic has been subjected to the necessity test. This looks at whether a separate collection service would facilitate or improve recovery, and consideration is needed to determine whether separate collections would lead to an increase in the quantity or quality of material collected.

6.2. A key indicator of whether separate collections provide better recycling performance than commingled services is the type of service used by the top performing local authorities. Table 8 shows the type of service used by England's top 20 dry recycling performers for 2018/19.

Table 8: Dry recycling performance of top 20 Local Authorities 18/19

Region	Local Authority	Authority type	Household Total Waste	Dry recycling - reuse (tonnes)	% Dry recycling-reuse	Service Provision (glass, cans, plastics)
London	Ealing LB	Collection	81369	28872	35.48%	Comingled glass, cans, plastics
South West	Stroud District Council	Collection	34731	12045	34.68%	Comingled glass, cans, plastics
South West	Bath and North East Somerset Council	Unitary	71738	24169	33.69%	Source segregated
South West	East Devon District Council	Collection	43254	14443	33.39%	Source segregated
South East	Isle of Wight Council	Unitary	58627	19365	33.03%	Comingled glass, cans, plastics
South West	North Somerset Council	Unitary	99231	32657	32.91%	Source segregated
Yorkshire and Humber	East Riding of Yorkshire Council	Unitary	168664	55250	32.76%	Comingled glass, cans, plastics
South West	Swindon Borough Council	Unitary	88310	28837	32.65%	Source segregated
South West	Poole Borough Council	Unitary	66510	21589	32.46%	Comingled glass, cans, plastics
Yorkshire and Humber	North Lincolnshire Council	Unitary	84211	27170	32.26%	Comingled plastics and cardboard, source segregated glass and cans
Yorkshire and Humber	Calderdale MBC	Unitary	81702	26114	31.96%	Source segregated
North West	Wigan MBC	Unitary	131098	41514	31.67%	Comingled glass, cans, plastics
South East	Surrey Heath Borough Council	Collection	29923	9384	31.36%	Comingled glass, cans, plastics
North East	Darlington Borough Council	Unitary	43194	13531	31.33%	Comingled plastic and cans, source segregated glass
South East	Chichester District Council	Collection	42512	13274	31.22%	Comingled glass, cans, plastics
South West	South Gloucestershire Council	Unitary	113348	35302	31.14%	Source segregated
London	Bexley LB	Unitary	99516	30975	31.13%	Comingled glass, cans, plastics
South East	West Sussex County Council	Disposal	389316	120639	30.99%	Comingled glass, cans, plastics
South East	Oxford City Council	Collection	42734	13080	30.61%	Comingled glass, cans, plastics
Eastern	Three Rivers District Council	Collection	32530	9930	30.53%	Comingled glass, cans, plastics

6.3. 14 of the top 20 Authorities operate a comingled collection service, with only 6 providing source segregated (separate) collections. This evidence suggests that separate collections do not lead to greater recycling performance, and on balance suggests that comingled services are more likely to achieve the better recycling performance.

6.4. Table 9 shows most up to date benchmarking data provided by WRAP, which compares the performance of Sheffield's kerbside dry recycling services against other Authorities in the UK.

Table 9: WRAP Local Authority waste and recycling performance benchmarks 2017/18

Key:

Authority is in bottom 25% of LAs. | Authority is in bottom 50% of LAs | Authority is in top 50% of LAs | Authority is in top 25% of LAs

Category	Detail	Paper	Card	Cans	Glass	Plastic bottles
Sheffield City Council	Yield (kg/hhd/yr)	37.8	17.8	11.9	54.3	12.7
How you compare against other UK Authorities						
How you compare against other authorities in the same region	Yorkshire and Humber					
How you compare against other authorities with similar characteristics - ONS area classification	Larger Towns and Cities					
How you compare against other authorities in the same rurality	1) Predominantly urban, higher deprivation					

6.5. Sheffield's commingled dry recycling performance for glass, cans, and plastic bottles can be seen to perform highly when compared to other Authorities, with Sheffield being in the top quartile for glass and cans when compared to other Authorities in the region and with a similar ONS classification. Although Sheffield's plastic performance is in the third quartile when compared to all other UK Authorities, the comparison of Sheffield's performance against other similar Authority types (regional and ONS neighbour) provides a more balanced, measure of recycling success as these take into account the demographic impact on recycling performance.

6.6. Sheffield's performance for paper and card performs less well when compared to other Authorities. However, as these materials are collected separately, they are deemed to be complaint with the Regulations.

6.7. It should be noted that the WRAP benchmarking carried out of17/18 performance, was based on a fortnightly collection service using a blue bin (140 litres) and blue box (55 litres) for the collection of dry recycling. In 2018, this service was replaced with a four weekly service using a brown bin (240 litres) and a blue bin (140 litres). This change has improved dry recycling performance, and extrapolating Sheffield's 19/20 dry recycling performance for glass, cans and plastics on to the WRAP benchmarking period of 17/18 would have seen an additional 1,125 tonnes of glass, cans and plastic bottles collected, and a further 235 tonnes of paper and card.

6.8. Quality may be defined in different ways, however for the purpose of this assessment, the measure of quality centres around 'the quantity of material available for closed loop recycling.

6.9. The state of the art technologies used by H.W Martin to clean and separate the commingled glass, cans and plastics into the various materials types ensure that all metals are sent for closed loop recycling, and the level of plastics and glass sent for closed loop recycling is maximised.

6.10. The evidence from the Necessity Test clearly indicates that the introduction of separate collections for glass, cans and plastics would not, in all likelihood lead to an increase in the quantity of material collected or the quality of output material sent for reprocessing.

6.11. Given the use of this state of the art technology, It is unlikely that a separate collection system would significantly increase the proportion of materials sent for closed loop recycling. However, the Authority acknowledges there is a lack of data to inform the proportion of plastics and glass sent for closed loop recycling. Therefore, as part of future duty of care checks to be carried out for the waste and recycling outlets used for Sheffield's waste streams, further discussions will held to seek greater clarity in this area.

6.12. In order to ensure the ongoing quality of Sheffield's commingled material, MRF sampling data will be reviewed and discussed with Veolia on a quarterly basis.

7. TEEP test

7.1. The TEEP test determines whether separate collections are technically, environmentally and economically practicable.

7.2. Whilst the necessity test found that separate collections do not meet the necessity test, the TEEP test has been applied to provide greater assurances and ensure the conclusions are sufficiently robust.

7.3. Assessment of technical practicability

7.3.1. With regards to technical practicability, whilst there has been no history of previous separate collections of glass, cans and plastics in Sheffield, it is clear that other Local Authorities do operate separate collections.

7.3.2. Whilst the nature of Sheffield's housing stock, which includes high density terraced housing, would make it difficult for some households to accommodate additional recycling containers, leaving aside any cost limitations, such issues could be overcome using standard refuse collection vehicles with sacks or a bin caddy, or by using stillage vehicles and operating a kerbside sort collection system.

7.3.3. From a technical perspective, it is clear that separate collections are practicable, however, should the results of the TEEP assessment identify that a change to separate collections is needed, further, more detailed analysis of housing type and appropriate service delivery methods would be needed to understand the barriers and limitations associated with such a change.

7.4. Assessment of environmental practicability

7.4.1. The evidence set out in section 6 (Necessity) demonstrates that in all likelihood the introduction of separate collections for glass, cans and

plastics would not lead to an increase in the quantity of material collected, the quality of material sent for reprocessing, nor the proportion of waste sent for closed loop recycling.

7.4.2. Therefore the separate collections of glass, cans and plastics is not environmentally practicable, and therefore does not meet the Necessity test.

7.5. Assessment of economic practicability

7.5.1. In 2020, Local Partnerships modelled a range of service change options to assess their cost and performance impact. All options included the introduction of separate food waste collections, to reflect the proposed requirement for all Authorities to do so by 2023, as set out in the Resources and Waste Strategy, 2018.

Table 10 Local Partnerships Service Change Modelling options

Modeling Options	Collection	Frequency	Capacity (l)
Option 1 *Current service with separate food waste*	Residual	Existing	Existing
	Dry	Existing	Existing
	Food waste	**Weekly**	**Kitchen caddy and 23l bin**
	Garden waste (charged)	Existing	Existing
Option 3 *Kerbside sort system plus weekly food waste current residual*	Residual	Existing	Existing
	Dry	**Weekly**	**3X 50l boxes**
	Food waste	**Weekly**	**Kitchen caddy and 23l bin**
	Garden waste (free)	Existing	Existing
Option 6 *Option 1 with four weekly residual*	Residual	**Monthly**	240l
	Dry	Existing	Existing
	Food waste	**Weekly**	**Kitchen caddy and 23l bin**
	Garden waste (free)	Existing	Existing

7.5.2. The impact of these service options when compared to the current service provided (baseline) are shown in Table 10. The costs are based on modelled, indicative collection and treatment costs rather than actual.

Table 10: Local Partnerships Option modelling results:

	Total number of vehicles required	Kerbside recycling rate	Indicative cost increase relative to baseline	Cost per household	Cost per 1% increase in kerbside recycling performance
Baseline	**44**	**24%**	**-**	**£61.18**	**-**
Option 1	**60**	**31%**	**£2.9 million**	**£73.01**	**£414,500**

Option 3	**94**	**44%**	**£8.4 million**	**£95.63**	**£422,340**
Option 6	**68**	**51%**	**£4.9 million**	**£81.14**	**£181,313**

7.5.3. The nature of the modelling options does not provide a direct cost and performance comparison between the existing service, and the replacement of Sheffield's current commingled glass, cans and plastic bottles service with separate collections. However, it is clear that option 3, which includes the introduction of separate collections alongside food waste, is by far the most expensive option, costing £3.5 million per year more than Option 6 which also has the advantage of achieving a 7% higher kerbside recycling rate. The equivalent cost per 1% increase in recycling rate for option 3 is more than double that of option 6.

7.5.4. Given the scale of the additional costs associated with introducing separate collections, alongside the higher recycling performance projected from the introduction of separate food waste collections and four weekly collections of residual waste, the Council deems that the introduction of separate collections is not economically practicable, does not provide value for money, and indeed would realise a backward step in terms of environmental benefit, when compared to other service options.

7.6. **TEEP Assessment: Conclusion**

7.6.1. Having carried out a full assessment of Sheffield's recycling service, it is clear that separate collections of glass, cans and plastics would not, in all likelihood:

- increase the quantity of material collected
- improve the quality of material sent for reprocessing, nor the proportion of waste sent for closed loop recycling
- be economically practicable

7.6.2. This assessment finds that separate collections of glass, cans and plastics in Sheffield are not technically, environmentally or economically practicable and the current commingled method of collection is permitted under these Regulations.

8. Step 5: Sign off

8.1.1. Step 5 of the Route Map (appendix A) requires sign off at 'the right level'.

8.1.2. As no service changes are recommended following the review, the Council's Governance Legal Team has confirmed that sign off should be carried out as an Officer non-key decision.

9. Step 6: Retention of Evidence

9.1. All evidence considered, including service method statements will be retained and are available for review.

10. Step 7: Ongoing Review

10.1.1. The assessment has identified a number of actions which are needed in order to ensure ongoing compliance to the separate collection requirement of the Waste (England and Wales) Regulations 2011:

10.1.2. Quarterly review of sampling data to monitor contaminants in Sheffield's input material

10.1.3. The Authority acknowledges there is a lack of data to inform the proportion of plastics and glass sent for closed loop recycling. Therefore, as part of future duty of care checks to be carried out for the waste and recycling outlets used for Sheffield's waste streams, further discussions will be held to seek greater clarity in this area.

10.1.4. Minimum annual review of this assessment to ensure ongoing compliance, and mandatory update/new assessment to be carried out prior to any significant change of kerbside collection service methodology.

Neil Townrow
Waste Management Officer
August 2020