

Co-design Report

Scotland's new Code of Practice for household recycling

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Report For

The Scottish Government

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V2.0	14/08/2026	Eunomia	Draft final (sent to client)
V3.0	20/10/2026	Eunomia	Final version

Executive summary

Introduction

This report presents the outcomes of a co-design process to develop the content of a new Code of Practice (CoP) required by the Circular Economy (Scotland) Act 2024. The new code would build on Scotland's long-established voluntary Household Recycling Charter CoP.

The CoP will define expected standards for local authorities responsible for waste collection and recycling services. The goal of the new CoP is to improve service quality, performance and consistency, in order to increase diversion of recyclable material from the residual waste stream.

The co-design process took place between June 2025 and August 2026. It involved engagement with a wide range of stakeholders, including local government, businesses, third-sector organisations, and citizens, through a series of three workshops. These were supported by modelling and analysis to inform discussions. While this report presents the conclusions of the co-design process, the CoP will place a financial burden on local government. The final CoP must therefore be approved through the formal financial governance process and discussion between Scottish Ministers and CoSLA, so is subject to change prior to consultation.

Scottish authorities operate a range of waste collection schemes, reflecting the challenges posed by their different geographies, housing stock and population. Although most households in Scotland have access to services that are aligned with the voluntary CoP, not all councils have fully implemented the services it specifies. Further, the voluntary CoP does not require all services to be provided in the same way (or at all) across all areas. For example, food waste collections are not required in rural areas, and it allows glass collections via bring banks rather than door to door. Different potential requirements that could be included in the CoP therefore have different impacts on each council.

Analysis

Review of service design features that positively influence recycling

The development of recommendations for the new CoP proceeded through a series of steps. First, Eunomia analysed whether there are certain service design features that positively influence recycling performance. Positive correlations were found with:

- Separate collection of glass from households, rather than from bring banks
- Separate collection of food waste, via separate presentation rather than in a mixed organics container
- Reduced effective weekly residual waste capacity (e.g. a 180-litre bin collected fortnightly provides 90 litres of capacity per week)

The outputs of this analysis are briefly outlined in Section 4.5.1.

Initial impact modelling

Second, using the findings from Step 1, various potential system design changes were identified. Detailed modelling was then undertaken to determine the impact of implementing each potential service change in terms of cost and environmental performance. A high-level presentation of the findings is provided in Table E-1.

Table E-1: Impact of the system design elements assessed

Key	Cost – Revenue	Cost – Capital	Recycling rate	Carbon benefit
▲ / ▼	+/- £0-5m	+/- £0-10m	0-1%	0-5,000 tCO ₂ e
▲▲ / ▼▼	+/- £5-10m	+/- £10-20m	1-1.5%	5,000-10,000
▲▲▲ / ▼▼▼	+/- £15m+	+/- £20m+	1.5%+	15,000+

System design	Cost – revenue	Cost – capital	Recycling rate impact	Carbon benefit
Two-stream recycling with separate fibres	▼▼	▲▲▲	◀-▶	▲▲
Separate kerbside glass waste collections	▲	▲	▲▲	▲▲
Separate weekly food waste collections	▲▲▲	▲▲▲	▲▲	▲▲
Garden waste collections (free)	▲▲	▲▲▲	▲▲▲	▲
Garden waste collections (charged)	▼▼▼	▲▲	▲▲▲	▼
Three-weekly residual waste collections	▼▼▼	▼	▲	▲▲
Four-weekly residual waste collections	▼▼▼	▼	▲▲	▲▲▲

Because of the very wide range of combinations of options that could emerge from the work, at this stage options for residual waste were considered separately from those for dry recycling or organics. More detail on the initial modelling can be found in Appendix 2.

Workshop 2

Following the assessment of the impact of service elements, the results were presented to and discussed at Workshop 2. The outcomes of Workshop 2 are described in section 5.2. The principal area of consensus was that there should be restrictions on residual waste services, although participants generally preferred an approach based on weekly effective capacity restrictions rather than a defined

frequency. There was also support for the idea that there should be a clear way for councils to seek to derogate from or delay implementation of changes if local circumstances necessitated this.

On other topics, such as expanding organics collections and glass services, there was less agreement. Stakeholders largely recognised the recycling and carbon benefits of such changes, but some local authorities were concerned about the cost and difficulty of implementation, and consequent value for money. There were specific concerns about new expectations regarding kerbside glass collections. This was due to changes made to service design previously in response to the incoming Deposit Return Scheme (DRS). Scottish Government indicated that the scope of DRS would not be reconsidered until at least 2030. Nevertheless, stakeholders expressed uncertainty around whether glass might be captured through the DRS in future. Local authorities currently operating a mixed organic waste collection service were particularly unsupportive of the proposed organics measures.

Options appraisal

Incorporating feedback from Workshop 2 – particularly the consensus on restricting residual waste – the analysis of system design was extended to develop a set of options. These options, the modelled results, and value for money (VfM) metrics to aid comparison, are summarised in Section 4.5.3. However, in brief summary, the findings were:

- For dry recycling, two stream collections where paper/card was separated from other materials performed better in cost and carbon performance than co-mingled collections, with the best balance of recycling performance and cost being achieved where this was combined with the inclusion of separate glass collections.
- For organics, free garden waste collections deliver the greatest increase in recycling performance, improving the recycling rate by 2.9 percentage points if implemented across Scotland, but at a very high cost. Mandatory charged garden waste collections are highly cost-effective but deliver only a 0.9 percentage point increase. Separate food waste collections in UR4-5 would add 0.3 percentage points of recycling performance. This would have additional collection costs, but if introduced alongside charged garden waste in areas that currently have free garden waste services would result in net saving across Scotland.
- Residual waste was modelled based on frequency, although it was understood that ultimately a restriction based on capacity might be preferable. Setting a standard that collections must be no more than 4-weekly would add 1.4 percentage points to recycling performance, while 3-weekly would add 0.9 percentage points. This would increase if implemented alongside expanded recycling collections. Both would lead to significant savings for councils.

Workshop 3

The results of the options appraisal and VfM modelling, together with the findings from Workshop 2 (see Section 5.2 for further details), informed the development of the full system proposals described below. These proposals were subsequently presented to and discussed with stakeholders. The outcomes of these discussions are summarised in Section 5.3.

1. Restricting weekly residual capacity to 80 litres, as it drives improvements in climate and waste targets and can lead to a more affordable service. This was accompanied by a proposal to set a timeline for a further reduction in capacity.
2. Moving to a two-stream recycling collection system, where fibres are separate. A two-stream service maximises values of collected materials, increasing the economic opportunities for local authorities. No new expectation for glass collection as it was not supported by stakeholders.
3. Introducing kerbside collection of batteries and sWEEE. The importance of collecting minor waste streams was raised during Workshop 2, with batteries and sWEEE identified as key opportunities to reduce the risk of waste fires and increase recycling. Textiles were excluded due to the higher operational costs and feasibility challenges associated with kerbside collection.
4. Separate food and garden collections for UR1-3, with plans for expansion to UR4-5. To maximise the recycling and carbon benefits of separate collections, the proposal would also apply to those operating a mixed organic service. However, local authorities would retain flexibility to charge for garden waste collections.

At the workshop, there was strong support for residual waste restrictions, with a preference for a single-phase change to either 70 litres or 60 litres per week. This was considered operationally simpler than a two-step implementation, first to 80 litres and then to a lower limit.

On dry recycling, there was qualified support for two stream recycling, and most stakeholders were content with no new expectations regarding glass collections. Local authorities did not favour any expectation that additional materials such as batteries and textiles would be collected as part of door-to-door collections.

On organics, the proposals to expand collections and separately collect food waste were not welcomed, with councils that deploy mixed organic collections being particularly unsupportive. While stakeholders recognised the benefits of expanding food and garden waste collections, there were concerns that the costs of expanded services could outweigh the benefits for particular councils. These were particularly expressed in relation to weekly collection frequency and separation of food waste.

There was support for the principle of derogations and delays, but differing views on how extensive they should be. Some stakeholders wanted substantial council autonomy, while others worried that too much flexibility would undermine a nationwide CoP.

Financial analysis

After Workshop 3, the options to be modelled were further narrowed to two, informed by stakeholder feedback and input from CoSLA. The two options differed only in their approach to charging for the garden waste collection service. Both options were then subject to a financial analysis. Full details of this analysis are provided in section 6.0. The shared features of Option 1 and Option 2 were:

- Restricting weekly residual waste capacity to 60 litres, implemented in a single phase to simplify delivery.
- A two-stream recycling collection system, with fibres collected separately. No new expectations were proposed for the kerbside collection of glass or minor material streams.

- Providing separate food waste collections to all households in areas classified as UR1-5* under the Scottish Government's Urban Rural Classification.
- Providing separate garden waste collections to all households in areas classified as UR1-5*.

The difference between the options related to the approach to garden waste collections in council areas where currently no service or a free service is offered. Under Option 1, garden waste collections in these areas were modelled as a free service, while under Option 2 they were modelled as a charged service. A summary of the headline modelling results for each option, relative to the baseline, is provided below in Table E-2. Although vehicle and container costs are annualised and incorporated into the main cost results, they are also presented separately here for clarity.

Table E-2: Headline modelling results showing recycling rate, marginal cost, capital expenditure, and marginal carbon emissions

	Unit	Baseline	Option 1	Option 2
Recycling rate	%	43.5%	47.2%	46.6%
Change in recycling rate	%	-	+3.7%	+ 3.1%
Marginal operational cost	£ million	-	- £11.36	- £28.04
Vehicle capital cost	£ million	-	£36.92	£36.38
Container capital cost	£ million	-	£43.17	£43.17
Marginal carbon emissions	t CO ₂ e	-	- 62,500	- 61,600

Both options resulted in improved recycling performance, reduced carbon emissions and lower system costs relative to the baseline. Option 1 performed better environmentally because the free garden waste service captures more material for recycling. However, Option 2 delivered greater annual system cost saving, largely because of revenue from garden waste subscription charges.

In addition to changes in operational costs, the proposed CoP options would also have implications for infrastructure costs, which Eunomia estimated. These changes include additional tipping facilities for food and garden waste, as well as additional bays to store fibres separately from other packaging materials. As a result, some authorities may need to upgrade, redesign or relocate depots and waste transfer stations.

Based on analysis of the number of facilities that might require upgrades, the potential cost of these infrastructure changes was tentatively estimated at £23.5 million for depots and £30.7 million for transfer stations, giving a total of £54.2 million. These estimates should be treated as preliminary. They rely on several assumptions due to incomplete data and uncertainty around the scale and location of required works, as well as the costs associated with planning, construction and land acquisition. A dedicated infrastructure assessment would be required to estimate these costs more robustly.

Extending separate food waste collections would also require additional treatment infrastructure. If all food waste was treated through anaerobic digestion, the infrastructure cost of building new capacity was tentatively estimated at £18-30 million. However, estimating the associated costs properly would require an in-depth study. The costs could be reduced if food waste was presented in separate containers but was then mixed with garden waste prior to treatment. This would allow in-vessel composting to continue to be used in current mixed organics authorities.

Due to concerns about the potential logistical complexities and high collection and treatment infrastructure costs associated with implementing this organics approach, the Scottish Government commissioned additional modelling from Eunomia to assess alternative options. This modelling will be published as a separate report and can be found in Appendix 8.

Proposals for CoP

At the conclusion of the co-design process, based on the modelling and stakeholder discussions, the proposals that are suggested for the CoP are as shown in Table E-3. The proposals are explained in greater detail in section 7.0.

Table E-3: CoP proposals

Material Stream	Proposal
Residual waste	Councils should provide an effective weekly residual capacity no greater than 60 litres for individual/low-rise properties that have food waste collections.
Dry recycling	All properties should receive separate collections of paper/card in one container and metal/plastic/cartons in another. Retain the language of the voluntary CoP regarding glass collections, specifying that households should have separate containers for glass or alternatively be provided with containers in the community for communal use, if councils can demonstrate that this achieves the same quality and quantity of glass as kerbside collection. No additional specified materials must be collected, but the language of the voluntary CoP that encourages councils to consider how additional materials could be collected alongside their other services should be retained.

Material Stream	Proposal
Food waste	Food waste collections should be provided to all properties in UR1-4. The food waste collection may be co-mingled with garden waste. The frequency of food waste collections must be at least fortnightly. Councils offering co-mingled services may charge for garden waste, but not for food waste collection. Food waste collected from households not in receipt of a garden waste collection can be co-mingled with garden waste at point of collection.
Garden waste	Garden waste collections should be offered to all properties that have gardens, unless the household is situated in an isolated or inaccessible place such that the costs would be unreasonably high. Collections may be on a subscription or charged-for basis, if the council wishes.

Both Scottish Government and local authorities will need to put in place supporting measures to enable the CoP to be implemented successfully (see section 7.3). For the Scottish Government, this would involve making funding available to support the costs of alignment with the CoP.

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List of Appendices

Appendices are not included in the report itself but instead provided separately.

1. Appendix 1: 2023 Collection systems
2. Appendix 2: Modelling methodology and limitations
3. Appendix 3: Key CBA findings
4. Appendix 4: Workshop 2 report
5. Appendix 5: Workshop 3 report
6. Appendix 6: Options appraisal, VfM, and financial analysis results
7. Appendix 7: Review of service charging
8. Appendix 8: Organics options modelling report

1.0 Introduction

Eunomia was commissioned by the Scottish Government to support its plans to build on Scotland's long-established voluntary Household Recycling Charter Code of Practice (CoP). Eunomia's role involved leading and facilitating a process to co-design a new CoP with stakeholders, particularly local authorities, along with modelling and appraising different options for system change.

The Circular Economy (Scotland) Act 2024 requires the Scottish Government to publish a CoP for household waste recycling. The transition from the voluntary CoP to the new CoP represents a significant step change in how local authorities' delivery of their duties relating to recycling services are specified.

The CoP will define expected standards for local authorities responsible for waste collection and recycling services. It aims to deliver high-performing recycling and reuse services that are effective, efficient, and responsive to local needs.

The main objectives of the CoP are:

- To deliver improved service quality and performance. This includes enhancing consistency of provision across local authorities, while recognising that the introduction of the CoP will place additional expectations on local authorities.
- To maximise the diversion of waste from disposal, supporting Scotland's broader circular economy ambitions.

Since the CoP will place a financial burden on local government, it must be approved through a formal financial governance process.¹

The approach to developing the new CoP was guided by three core principles:

1. Building from the existing voluntary CoP, ensuring continuity while identifying opportunities for improvement and expansion.
2. Co-design, working collaboratively with stakeholders to shape practical and effective measures.
3. Evidence-based decision making, drawing on data, best practice, and stakeholder insight to inform recommendations.

The development of the CoP involved engaging with a wide range of stakeholders, including local government, businesses, third-sector organisations, and citizens. As the organisations responsible for delivering frontline services and implementing the CoP, local authorities were a particular priority throughout this process.

¹ This requires agreed recommendations from the joint Scottish Government and CoSLA Officers' Settlement and Distribution Group (SDG) and political agreement from Scottish Ministers and CoSLA political Leaders.

The formal engagement process began with an initial stakeholder workshop between the Scottish Government and local authorities to confirm the approach to co-design. This was held on 23 June 2025. The outcome of this workshop was the vision shown in Box 1-1.

Box 1-1: Vision for co-design of Code of Practice

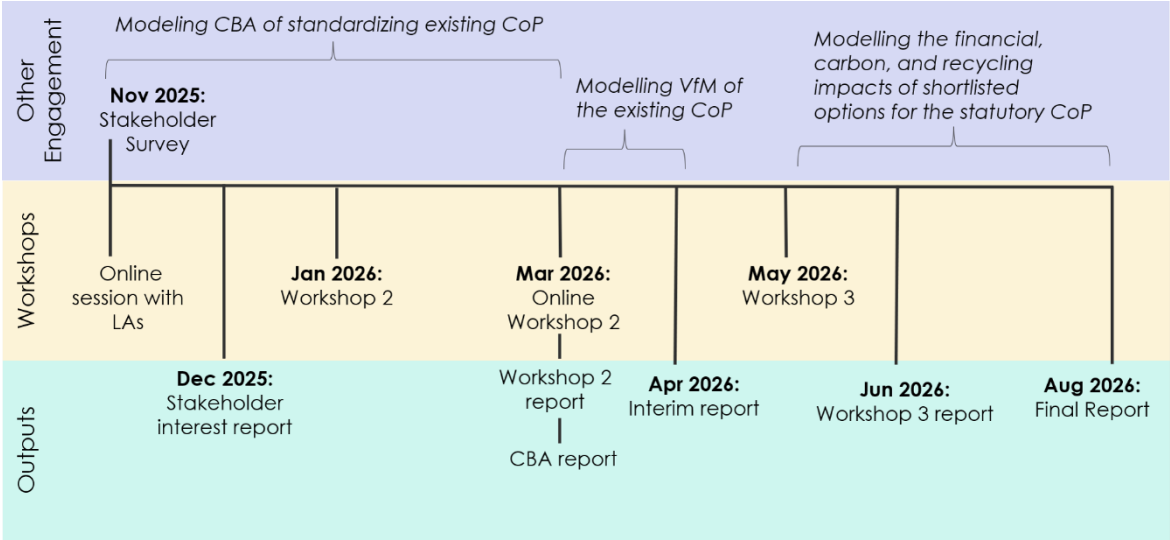
Scottish Government and local government will work in partnership, and with communities and other key stakeholders, to evaluate the strategic context and infrastructure requirements to inform the co-design of refreshed standards for household recycling and reuse services that:

- maximise value of materials and economic opportunities for local authorities
- drive performance nationally and locally against climate and waste targets
- promote more consistent, high quality, deliverable and affordable services that take account of local circumstances and economics
- address specific challenges (e.g. rurality, communal properties)
- and make the right choices easier for householders and easier to communicate for local government.

The subsequent engagement programme, led by Eunomia, was agreed between the Scottish Government and local government delivery partners. It aimed to provide a structured framework to guide the co-design process and ensure that the outcomes were both robust and deliverable.

Figure 1-1 outlines the work conducted by Eunomia to inform the development of the CoP.

Figure 1-1: Timeline of Eunomia’s work to support the development of the CoP, November 2025 to August 2026



The work included:

- An online session to keep local authorities updated (Nov 2025).
- A survey and stakeholder interest report (Nov -Dec 2025).

- Workshop 2, held in person on 27th January 2026 and online on 5th March. Pre-read was provided and findings were reported in the Workshop 2 report (see Appendix 4).
- A cost benefit analysis of standardising the voluntary Code of Practice for Household Waste Recycling in Scotland (see Appendix 3).
- Further value for money analysis of the voluntary Code of Practice (presented in the interim report with relevant findings incorporated into this final report)
- Workshop 3, held in person on 14th May. Pre-read was provided, including information on the Review of Service Charging and approach to household flexible plastics collections, and findings were reported in the Workshop 3 report (see Appendix 5)
- Modelling of the financial, carbon, and recycling performance impacts of the shortlisted options for the Code of Practice (presented in this report)
- Development of recommendations for the Code of Practice, informed by engagement with stakeholders and the Scottish Government (presented in this report).

2.0 Report structure

This report includes:

- **Section 3.0** (Scope and definitions) – Defines the services and impacts covered by the analysis.
- **Section 4.0** (Background and assessment of the voluntary CoP) – Overviews current collection schemes in Scotland, assesses their alignment with the voluntary CoP, and evaluates the impacts of its key elements.
- **Section 5.0** (Co-design workshops) – Summarises the design, participation and key findings from Workshops 1 and 2.
- **Section 6.0** (Financial analysis) -- Provides the performance and cost impacts of the two future collection schemes developed through the workshops.
- **Section 7.0** (Code of Practice) – Provides final recommendations on the collection scheme to be included in the CoP.

3.0 Scope and definitions

The voluntary CoP focuses mainly on household collections, among other aspects of household waste services in Scotland. Household collections are scheduled or regular local authority collections of household waste directly from individual/low-rise and communal properties, at or near the boundary with the public highway.

While acknowledging that differences in housing stock between local authorities result in varied service designs, this report divides household collections into two main types:

- **Individual/low-rise:** These are services to properties that have their own containers. It also includes individual houses converted into flats, where a small number of households share containers like those used in the wider low-rise service. Residents will have specific collection days and place containers for collection at or near the kerbside.

- Communal: Mid or high-rise properties (and some HMOs) that share containers. Services may vary in terms of container size and number and the frequency of collection, and containers are not presented for collection.

While not all authorities will classify their services neatly according to this distinction, it is a key definition for the project. Understanding the distinction is important in interpreting the results.

Changes in household collection systems can affect other systems.² This analysis considers how changes move waste and recycling between systems and the impact this has on costs, carbon emissions and recycling rates. It does not consider some small costs, such as incremental changes in the costs of collecting from bring banks or managing HWRCs.

The scope of this work did not encompass certain future waste flow changes resulting from incoming policy and legislation. Therefore, the analysis does not consider the impacts of introducing a Deposit Return Scheme (DRS), Extended Producer Responsibility (EPR), and kerbside collection of flexible plastics. Separate resources were provided by Zero Waste Scotland to help local authorities assess potential impacts of DRS and EPR.

4.0 Background and assessment of the voluntary CoP

4.1 Schemes operated in Scotland

Scottish authorities operate a range of waste collection schemes. Table 4-1 shows the most common scheme for each waste stream. Appendix 1 sets out the detail of the range of collection schemes.

Table 4-1: Modal collection scheme for individual/low rise properties

Waste stream	Modal system (2023)
Residual	240 litre wheeled bin collected three-weekly. (12 local authorities).
Recycling	Two-stream with fibres (paper/cardboard) collected separately. (12 local authorities; although in the second container, half collect glass mixed with plastics and metals, while the rest do not).
Glass	Kerbside collections of glass. (20 local authorities: 12 collect glass separately and eight collect glass mixed with other materials).

² Other systems include: 1) Bulky waste – large household items that are separately collected, such as fridges and sofas. 2) Bring sites or bring banks – communal collection points for a narrow range of items that can be recycled or reused, typically in public or semi-public locations like community centres and car parks. 3) Household Waste Recycling Centres (HWRCs) – facilities provided by local authorities where householders can deliver their waste for disposal, recycling, or reuse, which generally accept a wide range of materials.

Waste stream	Modal system (2023)
Food	Most local authorities (30 out of 32) collect food separately, although the service coverage varies from ~25% to 100%. (14 local authorities (1m households) provide collections where food is mixed with garden waste. 16 local authorities (888k households) provide separate food collections).
Garden	Charged-for collections. (15 local authorities (866k) provide charged-for collections (833k households), 11 provide free collections.).

4.2 The voluntary Code of Practice

The voluntary CoP was agreed in 2015. It sought to create greater consistency in household waste services while recognising the challenges posed by different property types. Six housing types were identified (shown in Table 4-2). The voluntary CoP adapted the essential and desirable waste and recycling service requirements for each type of property.

Table 4-2: Indicative households (2023) by voluntary CoP household category

Group	Voluntary CoP household category	Indicative number of households (2023 data)	%
1	Households with access to the kerbside	2,172,062	80.2%
2	Households without access to kerbside or with shared containers	537,208 ¹	19.8%
Total		2,709,270	100%
<i>Including households that are different, challenging, or remote:</i>			
3	Rural properties	494,255 ²	18.2%
4	City centre properties	54,419 ³	2.0%
5	Islands	49,298 ⁴	1.8%
6	Difficult access properties	- ⁵	-

Group	Voluntary CoP household category	Indicative number of households (2023 data)	%
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- Notes:
- ¹ Based on the number of communal bin properties and flats above shops, excluding group 5.
 - ² Within the Scottish Government 6-fold Urban/Rural classification, properties in Category 4 (Remote Small Towns), Category 5 (Accessible Rural), and Category 6 (Remote Rural) are considered rural.
 - ³ Estimated from data zones and ward names to identify and approximate the city centre areas in Scotland's seven cities.
 - ⁴ Populated islands: Shetland, Orkney, Western Isles, Arran, Bute, Coll, Tiree, Islay, Jura, Mull, Iona, Colonsay, and Oronsay.
 - ⁵ Unable to be separately identified. Could fall within any/all other groups.

The voluntary CoP outlined the following 'essential' collection system design principles for 'Households with access to the kerbside', as a minimum:

1. Collecting paper and cardboard separately from metals, plastics, and cartons.
2. Separately collecting glass from the kerbside; alternatively, glass can be separately collected via communal bring sites, where the same performance is achieved.
3. Collecting food waste in separate containers where the Waste (Scotland) Regulations 2012 require a collection.
4. Meeting minimum weekly container volumes for these materials (40 litres for paper/cardboard, 70 litres for metals/plastic/cartons, 20 litres each for glass and food waste).

Where the Council has adopted all essential requirements, the voluntary CoP states it should consider reducing non-recyclable waste capacity to 80 litres weekly.

In relation to the third design principle, the Waste (Scotland) Regulations 2012 mandate that food waste be collected only in non-rural areas. Rurality was defined using the Scottish Government Urban Rural Classification, 2011-2012. This defines six classes of area based on population and accessibility (measured by drive time to an urban area).

Table 4-3 shows the classes and how they relate to Regulations. These classes are henceforth abbreviated from 'Urban-Rural' to 'UR', with abbreviations such as 'UR1-3' used to refer to Urban-Rural classes 1, 2, and 3.

Table 4-3: Scottish Government six-fold urban rural classification

Class	Class name	Percentage of population	Description	Food collections mandated by Waste (Scotland) Regulations 2012?
1	Large Urban Areas	37.6%	Settlements of 125,000 people and over.	Yes
2	Other Urban Areas	33.6%	Settlements of 10,000 to 124,999 people.	Yes
3	Accessible Small Towns	8.6%	Settlements of 3,000 to 9,999 people, and within a 30-minute drive time of a settlement of 10,000 or more.	Yes
4	Remote Small Towns	2.6%	Settlements of 3,000 to 9,999 people, and with a drive time of over 30 minutes to a settlement of 10,000 or more.	No
5	Accessible Rural	12.1%	Areas with a population of less than 3,000 people, and within a 30-minute drive time of a settlement of 10,000 or more.	No
6	Remote Rural	5.5%	Areas with a population of less than 3,000 people, and with a drive time of over 30 minutes to a settlement of 10,000 or more.	No

The 'desirable' services set out in the voluntary CoP for these properties include:

- Weekly collections of dry recycling and particularly food.

- Expanding food collections beyond where the Waste (Scotland) Regulations 2012³ require a collection.
- Considering whether other items could be collected using existing collection resources. The examples provided included small Waste Electrical and Electronic Equipment (sWEEE), textiles, batteries and Absorbent Hygiene Products (AHPs).

For other housing types, the voluntary CoP encouraged introducing the same services but permitted adaptations, such as allowing the use of communal containers for rural properties.

4.3 Alignment with the voluntary Code of Practice

4.3.1 Assessing alignment and overview

The degree to which local authority services have come into alignment with the voluntary CoP is difficult to quantify. This is because different requirements apply to different housing types (see Table 4-3) and local authority household collection system information was not provided in a way that distinguished between these housing types.

Instead, the tables below summarise collection services and look at alignment with the voluntary CoP as closely as the data allows. This included looking at:

- The alignment across all households.
- The alignment across the main individual/low-rise scheme. This was used as a proxy for 'households with access to the kerbside' (group 1), to which essential criteria apply for dry recycling.
- Estimating the alignment across UR1-3 for food waste, which was based on two assumptions:
 - communal, city centre and other services with shared bins and/or more frequent residual collections fall into UR1-3, and
 - the remaining UR1-3 properties are within the main individual/low-rise scheme.

Table 4-4 shows an overview of collection services provided to households across Scotland.

³ Scottish Government (2012) *The Waste (Scotland) Regulations 2012*. Available at: <https://www.legislation.gov.uk/ssi/2012/148>, accessed 01/07/2026.

Table 4-4: Overview of household collection services (2023)

Collection service	Number of households	Number of households on main individual/low-rise scheme
Residual collection (all households)	2,707,325 (100%)	2,055,392 (100%)
Recycling collection	2,687,103 (99%)	2,021,113 (98%)
Glass collection ¹	1,688,228 (62%)	1,239,727 (60%)
Food waste collection	2,149,808 (79%)	1,809,660 (88%)
Garden waste collection ²	1,217,572 (45%)	1,204,668 (59%)
Notes	¹ Excludes bring services ² Excludes non-subscribers to charged services	

4.3.2 Separate paper/cardboard and glass

Table 4-5 shows alignment with the essential requirement at certain properties to separate paper/cardboard and glass for both 2023 and 2026. Estimates indicated that the number of households receiving separate paper/cardboard collections increased over 10% since 2023 as six local authorities changed from co-mingled to two-stream collections, with separate paper/cardboard collections. The transition towards voluntary CoP alignment was supported by local authorities accessing investment through the Recycling Improvement Fund.⁴

The voluntary CoP requires glass to be in a separate container, not mixed with other materials. 2023 data indicated that a further 888,122 households (33%) received kerbside glass collections mixed with other materials. While separate glass collection figures were unchanged between 2023 and 2026, there was a slight shift towards bring sites from the kerbside.

⁴ Zero Waste Scotland (2023) *Recycling Improvement Fund (RIF)*. Available at: <https://www.zerowastescotland.org.uk/resources/recycling-improvement-fund>, accessed 01/07/2026.

Table 4-5: Households with separate paper/cardboard and glass (2023)

Essential system design	Number of households	Number of households on main individual/low-rise scheme
Separate paper/cardboard collection 2023	1,442,028 (53.3%)	1,317,754 (64.1%)
Separate paper/cardboard collection 2026	1,756,680 (64.9%)	1,556,371 (75.7%)
Separate glass collection 2023/26	1,819,203 (67.2%)	1,461,027 (71.1%)

4.3.3 Collecting food waste in separate containers

Table 4-6 shows the number of households with food waste collections.

82% of households fall into UR 1-3 and should be provided food collections in line with the Waste (Scotland) Regulations 2012. The estimate suggests only 82% receive a food waste collection. The properties without food collections were mainly communal.

All individual/low-rise properties met the minimum container requirement of 20 litres per week. However, as ~50% of households use the same bin as for garden waste, capacity will vary week-to-week depending on garden waste levels. Communal capacity could not be assessed as data on communal bins numbers was unavailable.

Table 4-6: Households with food waste collections (2023)

Essential system design	Number of households	Estimated number of households in UR1-3
Food waste collection 2023	2,149,808 (79.4%)	1,809,660 (81.7%)
Food waste collection 2026 (June)	2,176,651 (80.4%)	1,826,576 (82.5%)
Scotland	2,707,325 (100%)	2,215,015 (100%)

4.3.4 Meeting minimum weekly container volumes

The voluntary CoP provides minimum volumes for paper/cardboard, metals/plastics/cartons and glass. Table 4-7 shows the number of households provided with the minimum recycling container volume as required by the voluntary CoP. For collection systems that are differently designed, alignment was assessed against the cumulative minimum volume requirement. For example, the 90 litre per week minimum for metals/plastic/cartons/glass was based on combining the 70 and 20 litre volume requirements for metals/plastic/cartons and glass.

The alignment with the minimum weekly container volume was lowest of across the essential system design criteria.

Table 4-7: Households provided with minimum container volumes (2023)

Essential system design (litres per week)	Number of households	Number of households on main individual/low-rise scheme
40: Paper/cardboard	1,297,945 (48%)	1,251,686 (61%)
70: Metals/plastic/cartons	284,755 (11%)	283,920 (14%)
20: Glass	581,449 (21%)	563,915 (27%)
90: Metals/plastic/cartons/glass	1,000 (<1%)	0
110: Co-mingled (no glass)	619,369 (23%)	535,555 (26%)
130: Co-mingled (with glass)	310,255 (11%)	126,582 (6%)
Average	515,796 (19%)	460,276 (22%)

4.4 How recommendations were developed

The development of recommendations for the new CoP proceeded through the steps described below.

Step 1

The analysis of system design began with reviewing Scotland's data to answer two questions:

1. How does service design impact performance?
2. Are there common themes among the highest performing local authorities?

The outputs of this analysis are briefly outlined in Section 4.5.1.

Step 2

Using the findings from Step 1, various potential system design changes were identified. Detailed modelling was then undertaken to determine the impact of implementing each potential service change in terms of cost and environmental performance. The results of this analysis are summarised in Section 4.5.2.

More detailed recycling rate and carbon impact results were shared with stakeholders at Workshop 2, held in January 2026, to seek feedback on options to develop. This took the format of reading material issued in advance and slides presented to stakeholders.

Step 3

Incorporating feedback from Workshop 2 – particularly the consensus on restricting residual waste – the analysis of system design was extended to develop a set of options. These options, the modelled results, and value for money (VfM) metrics to aid comparison, are presented in Section 4.5.3.

The findings supported the development of emerging CoP recommendations, which were presented to stakeholders at Workshop 3. Information was shared in the same formats as for Workshop 2.

Step 4

Feedback on the emerging recommendations was collected from stakeholders at Workshop 3. The modelled impact of the emerging CoP system is presented in Section 6.0.

Each stage of modelling was designed to be led by data and involved evidence-based assessments. The methodology and limitations are detailed in Appendix 2.

4.5 Analysis of collection system design

The data presented is based on the calendar year 2023, the latest year for which all necessary data was available when this research commenced. It forms the basis for all analysis undertaken for this report. Where relevant changes have occurred since 2023, these are noted in the text.

4.5.1 Performance analysis

One of the core principles for the new CoP was to build from the existing voluntary CoP, ensuring continuity while identifying opportunities for improvement and expansion.

The extent to which the voluntary system design elements contribute to service quality and performance was assessed by comparing recycling performance between local authorities. However, multiple factors influence arisings and performance, not just service design on its own. The influence of other factors, such as rurality, deprivation, and housing stock, meant that drawing conclusions on service design was challenging.

The key findings from this analysis are summarised in Table 4-8. Further details can be found in Appendix 3.

Table 4-8: Key findings: Influence of system design on recycling performance

Research question	Finding
Does the type of household recycling collection system influence yield or capture rates?	No, a comparison between recycling system groups showed no pattern or trend in performance single-stream ('co-mingled'), two-stream and three/multi-stream.

Research question	Finding
Does the type of kerbside recycling collection influence contamination rates?	Yes, the data showed contamination rates were highest for co-mingled collections and decreased as recycling was separated into more different containers for collection. There was a significant difference between the percentage of contamination between co-mingled, two-stream, and three/multi-stream collections.
Does the type of collection influence glass yields?	Yes, the mean yield of glass was statistically higher when collected at the kerbside, compared to bring banks. However, while the mean yield for separate kerbside glass was only marginally greater than the yield when glass was mixed with other materials.
Does the type of kerbside food collection influence yield or capture rates?	Yes, separate food waste collection resulted in a statistically significant increase in yield compared with mixed organics. While the estimate of food in mixed organics was based on limited primary data, ¹ this result echoes findings from other studies.
Does residual waste collection type influence household recycling rates?	Yes, local authorities with lower effective weekly residual waste capacity had lower residual arisings and more collected through recycling services.
Notes	¹ Waste composition study of organics from 2011-2014 for Aberdeen, East Renfrewshire, North Lanarkshire, Perth and Kinross, West Dunbartonshire, Moray, and North Ayrshire councils.

4.5.2 Impact of system design across Scotland

The impact of voluntary CoP system design and other system design elements identified through the work was assessed. The results are summarised in Table 4-9. The assessment involved modelling the implementation of each element of the voluntary CoP across Scotland to determine its cost, recycling rate, and environmental (carbon) impacts. Table 4-9 provides a simplified illustration of the results. Further details are given in Appendix 3.

Table 4-9: Impact of the system design elements assessed

Key	Cost – Revenue	Cost – Capital	Recycling rate	Carbon benefit
▲ / ▼	+/- £0-5m	+/- £0-10m	0-1%	0-5,000 tCO ₂ e
▲▲ / ▼▼	+/- £5-10m	+/- £10-20m	1-1.5%	5,000-10,000
▲▲▲ / ▼▼▼	+/- £15m+	+/- £20m+	1.5%+	15,000+

System design	Cost – revenue	Cost – capital	Recycling rate impact	Carbon benefit
Two-stream recycling with separate fibres	▼▼	▲▲▲	◀-▶	▲▲
Separate kerbside glass waste collections	▲	▲	▲▲	▲▲
Separate weekly food waste collections	▲▲▲	▲▲▲	▲▲	▲▲
Garden waste collections (free)	▲▲	▲▲▲	▲▲▲	▲
Garden waste collections (charged)	▼▼▼	▲▲	▲▲▲	▼
Three-weekly residual waste collections	▼▼▼	▼	▲	▲▲
Four-weekly residual waste collections	▼▼▼	▼	▲▲	▲▲▲

Following the assessment of the impact of service elements, the results were presented to and discussed at Workshop 2. This led on to further options analysis.

4.5.3 Options appraisal and value for money assessment

The changes that were assessed in the options appraisal were developed from initial analysis (see sections 4.5.1 and 4.5.2) and feedback from Workshop 2. The assessment involved modelling the cost, recycling rate, and environmental (carbon) impacts of implementation across Scotland, with results shown in Table 4-9. The results allowed value for money (VfM) metrics to be calculated. The results were presented at Workshop 3 to support co-design discussions.

4.5.3.1 Recycling

The assessment explored the following recycling system changes:

- Two-stream recycling with separate fibres
- Two-stream recycling with glass
- One-stream, fully co-mingled collections
- Different approaches to collecting glass:
 - Separate glass collections, either at the kerbside or through bring banks
 - Glass collected mixed with other material streams

The dry recycling options assessed are set out in Table 4-10. Recycling systems vary across Scotland, and the impact of a change therefore affects authorities differently, depending on their starting point. Because there is uncertainty regarding the future place of glass in Scotland's DRS, options were designed to include authorities' current approach to glass collections.

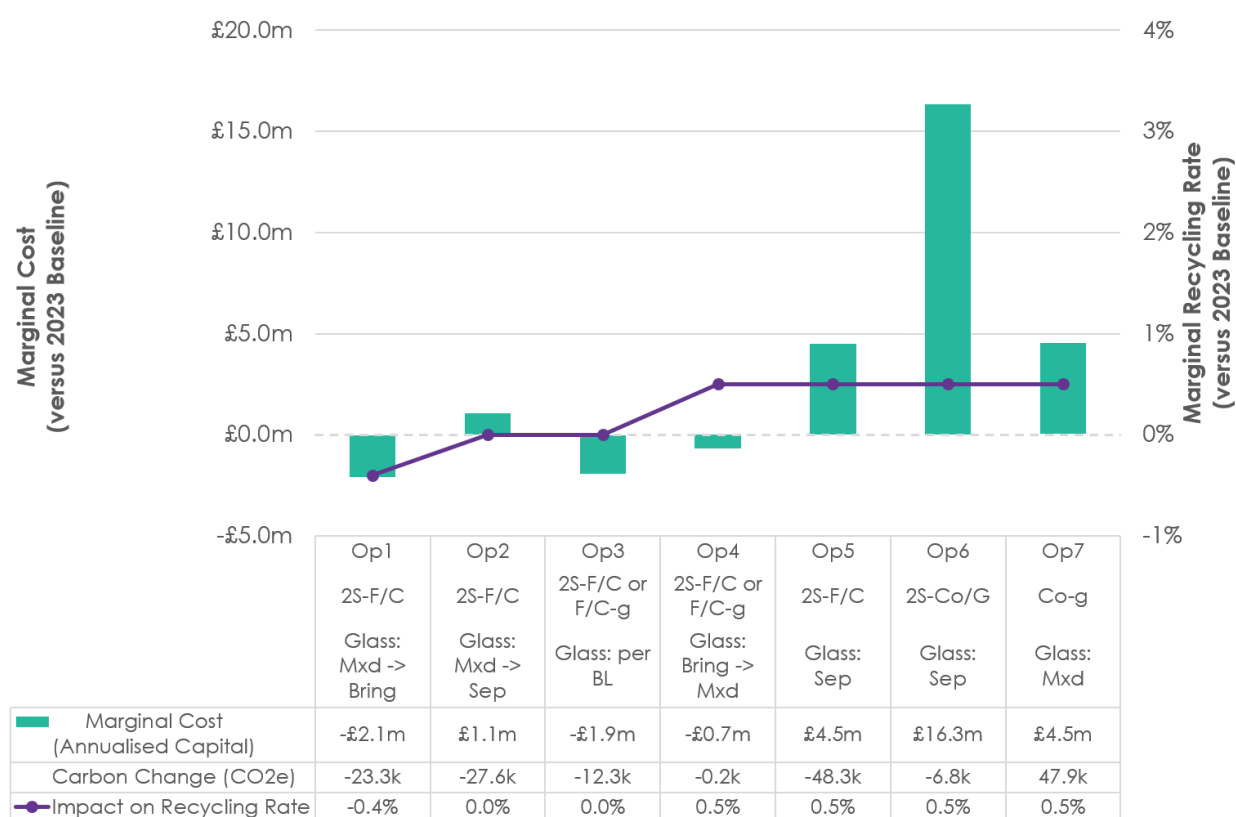
Table 4-10: Recycling options assessed

Key						
1S/2S/3S	1, 2 or 3 streams			MS	Multi-stream (>three stream)	
LAs	Local authorities			Co	Co-mingled	
F	Fibres (Paper/cardboard)			C	Containers (Plastics/metals)	
G	Separate glass			-g	Mixed glass	

Option	LAs with separate glass		LAs with bring glass		LAs with mixed glass	
	Recycling	Glass	Recycling	Glass	Recycling	Glass
1	2S: F/C	Separate	2S: F/C	Bring	2S: F/C	Bring
2	2S: F/C	Separate	2S: F/C	Bring	2S: F/C	Separate
3	2S: F/C	Separate	2S: F/C	Bring	2S: F/C-g	Mixed
4	2S: F/C	Separate	2S: F/C-g	Mixed	2S: F/C-g	Mixed
5	2S: F/C	Separate	2S: F/C	Separate	2S: F/C	Separate
6	2S: Co/G	Separate	2S: Co/G	Separate	2S: Co/G	Separate
7	1S: Co-g	Mixed	1S: Co-g	Mixed	1S: Co-g	Mixed

Figure 4-1 shows the impact of the options across Scotland. All costs, including capital costs for containers and vehicles, have been annualised to allow for direct comparisons. While the impact has been modelled nationwide, it will vary considerably between local authorities, depending on each authority's starting point and the changes selected. Climate impact (not shown on the chart but summarised beneath) is expressed as tonnes of CO₂e – a measure of the total climate impact of greenhouse gases, expressed as an equivalent amount of carbon dioxide.

Figure 4-1: Recycling rate, cost and carbon impact of system change



The results indicate that collecting fibres separately from other materials yields financial and carbon savings. Option 3 shows the impact of introducing two-stream recycling with separate fibres independent of any change in glass collections.

Implementing a nationwide two-stream system with separate fibres closely aligns with the Vision's goals of maximising the value of materials and delivering a more consistent, high-quality service. It is also a cost-effective option, offering the potential to deliver a more affordable service while creating additional economic opportunities for local authorities.

Introducing separate kerbside glass collection alongside separate fibre collection (Option 5) requires a relatively small investment and has a considerable carbon benefit. However, stakeholders at Workshop 2 expressed concerns about separate kerbside glass collection. The most prevalent concern was that it would be unwise to invest in separate glass collections if glass bottles (the bulk of the material) were later brought into the DRS. Some had already made significant investment in service changes after the DRS policy was first developed. Scottish Government indicated that the scope of DRS would not be reviewed until after 2030. Nevertheless, stakeholders still felt that it was wiser not to make further changes to glass collections at this point.

The best balance may sit between Options 3 and 4. Authorities would be allowed to collect glass in the way that best suits the area – though with greater emphasis on the voluntary CoP's requirement that bring banks are used only where they achieve the same performance as kerbside collections. However, such an approach runs somewhat counter to the goal of consistent collections across Scotland and would only lead to an increase in the recycling rate if glass yields increase. The results are described in more detail below.

Recycling rate

Across the options, the largest improvements in recycling performance occur where all households receive kerbside glass (Options 4-7). The recycling rate decreases in Option 1 when mixed kerbside glass collections are removed and replaced with bring services. The changes in Options 2 and 3 have no impact on the recycling rate.

Carbon impact

Separating both fibres and glass produces the greatest carbon benefit (negative values show a reduction in the carbon impact). Option 5 therefore has the highest benefit, followed by Options 2 then 1. There is still a small benefit under two-stream collections with separate glass (Option 6) – but at significant cost. The carbon benefit of separate fibres is mainly associated with more of material being recycled due to lower contamination. This outcome is more closely aligned with the co-design Vision and Circular Economy principles.

However, if local authorities collecting glass at bring sites switch to mixed kerbside collections, the benefit of separate fibre collection is almost negated. This is due to the assumption that separately collected glass will generally be sent for remelt and closed-loop recycling, whereas glass from a mixed stream is more likely to be used for open-loop applications, such as aggregate, which has less carbon benefit. Some local authorities disagreed with this assumption, though it does reflect findings of research by WRAP.⁵ Implementing fully co-mingled collections across Scotland (Option 7) would increase the carbon impact by generating more CO₂e.

Cost impact

Most options result in relatively small cost changes. The change is mainly due to:

- higher resource costs when changing from one to two-stream collections, or
- fibres changing from a cost to an income when these materials are separated from plastics and metals.

Costs reduce when fibres are separately collected and glass collections are reduced (Option 1), unchanged (Option 3) or minimally changed (Option 4). The cost impact (both capital and revenue) of local authorities collecting glass at bring sites switching to mixed kerbside collections is small. This is because the resource impact is negligible and the material cost changes are less than the income from separate fibres.

In Option 2, the cost of collections only increases slightly when local authorities collect glass separately (instead of mixed). This is because the additional resource costs are only slightly higher than the income from separate fibres and, to a lesser extent, glass. The cost increases

⁵ WRAP (2024) *A Roadmap to Closed Loop Glass Recycling*. Available at:

<https://www.wrap.ngo/resources/report/roadmap-closed-loop-glass-recycling>. In particular, on page 4 WRAP reports that "The separate collection of glass is key to improving final cullet quality for avoiding contamination and closed loop recycling, as a result, recovered glass collected separately receives a higher price than glass collected co-mingled and MRF processed."

further when local authorities with bring-only glass systems also collect glass separately at the kerbside (Option 5).

The exception to the relatively small cost changes is two-stream collections with glass collected separately (Option 6), which is substantially more costly.

Metrics

Two metrics were used to assess value for money:

- Metric 1: Cost per 0.1 percentage point increase in the recycling rate (negative values mean the recycling rate increased and the cost decreased).
- Metric 2: Cost per 1000 tonnes of carbon benefit (negative values means there was a carbon benefit and the cost decreased).

The results in Table 4-11 align with the conclusion that Scotland should move towards collecting fibres separately to meet the Vision of providing affordable services that drive performance nationally and locally against climate and waste targets.

The results also indicated that introducing kerbside glass collections would increase the recycling rate. Collecting glass mixed with other materials would increase annual costs by approximately £1.2m and lead to higher emissions, offsetting much of the carbon benefit associated with separate fibre collections. In contrast, collecting glass separately would deliver a substantial reduction in emissions but at a considerably higher cost. However, as discussed above, stakeholders expressed concerns about investing in services that could be made redundant by changes to the DRS have been explained above.

Table 4-11: Value for money metrics

Option and description	Metric 1 (rank)	Metric 2 (rank)	Combined rank
1 Two-stream fibres and containers, mixed glass goes to bring glass	(-0.4%) (7)	-£90k (3)	6
2 Two-stream fibres and containers, mixed glass goes to separate glass	(0%) (5)	£40k (4)	4
3 Two-stream fibres and containers, no change to glass	(0%) (5)	-£160k (2)	2
4 Two-stream fibres and containers, bring glass goes to mixed glass	-£140k (1)	-£4,410k (1)	1

	Option and description	Metric 1 (rank)	Metric 2 (rank)	Combined rank
5	Two-stream fibres and containers, separate glass	£900k (2)	£90k (5)	2
6	Two-stream co-mingled DMR and glass	£3,270k (4)	£2,390k (6)	6
7	One-stream co-mingled DMR, including glass	£900k (2)	(+47.9) (7)	4

4.5.3.2 Organic waste

Co-design did not initially result in consensus on the management of organic waste. This report documents assessment and stakeholder discussion up to August 2026. The results of subsequent stakeholder engagement and modelling are set out in a separate report, found in Appendix 8.

The assessment of organic waste changes concentrated on a consistent approach to food waste, introducing separate weekly collections from food caddies from individual/low rise households. Communal properties were also provided with food collections from shared bins. This was modelled for both UR1-3 (non-rural) and UR1-5 (encompassing non-rural properties as well as Remote Small Towns and Accessible Rural areas).

Alternative approaches to garden waste were considered alongside separate food collections, including:

- Free or charged collections in all local authorities
- Local authorities changing from mixed organic collections:
 - retaining the same approach to charging
 - changing to charged collections

The options developed are outlined in Table 4-12.

Table 4-12: Organic waste options assessed

Key	
UR1-3	Urban-rural categories 1 to 3
UR1-5*	Urban-rural categories 1 to 5. *Where 95% of households were within UR1-5 in a specific local authority, the service was expanded to include all households.
MO	Mixed organics (co-collection of food with garden waste)

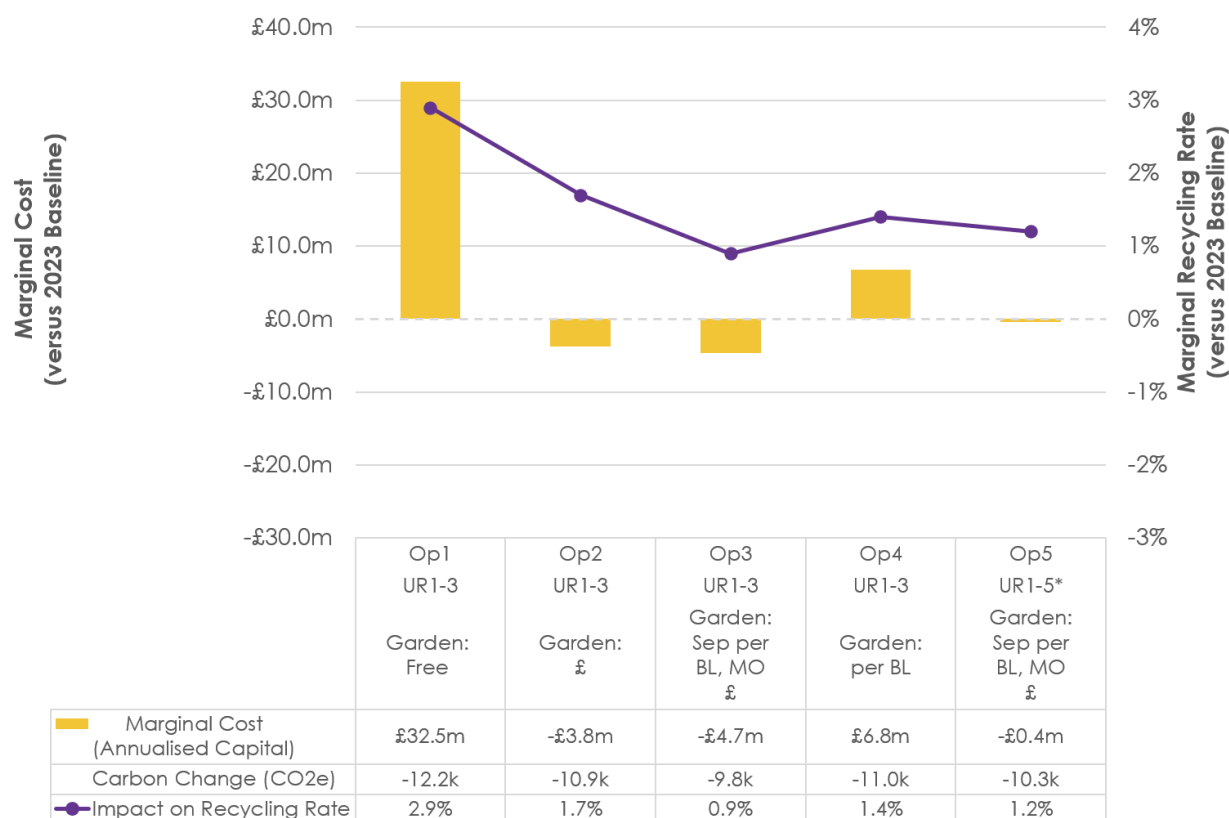
Key						
LAs	Local authorities					

Option	Food waste			Garden waste		
	All LAs	LAs with a free service	LAs with a charged service	MO LAs with a free service	MO LAs with a charged service	LAs with no service
1	UR1-3	Free	Free	Free	Free	Free
2	UR1-3	Charged	Charged	Charged	Charged	Charged
3	UR1-3	Free	Charged	Charged	Charged	None
4	UR1-3	Free	Charged	Free	Charged	None
5	UR1-5*	Free	Charged	Charged	Charged	None

Figure 4-2 shows the impact of the options if introduced across Scotland. All costs, including capital costs for containers and vehicles, have been annualised to allow direct comparisons to be drawn. While the impact has been modelled nationwide, it will vary considerably between authorities depending on each authority's starting point and the changes selected.

Climate impact (not shown on the chart but summarised beneath) is expressed as tonnes of CO₂e – a measure of the total climate impact of greenhouse gases, expressed as an equivalent amount of carbon dioxide.

Figure 4-2: Recycling rate, cost and carbon impact of system change



The results do not indicate a clear direction for Scotland based on Vision criteria:

- Option 1 has the highest overall environmental performance (recycling rate and carbon benefit). However, the cost is very high.
- Option 2 provides a good balance of performance and cost but would mean mandating charged garden waste collections. The voluntary CoP does not stipulate whether councils should provide garden collections or the approach to charging.
- Options 3 and 4 show the range that might be expected if local authorities were given a choice regarding whether/how to provide garden waste collections. However, should all local authorities collecting food mixed with free garden waste change to separate charged collections, it would decrease the recycling rate by 0.5 percentage points. Increasing food waste coverage to UR1-5* could go some way to mitigate this drop.

Moving to separate food and garden waste collections has a positive impact on recycling rates and carbon savings, regardless of the charging scheme or the extent to which collections are expanded into rural areas. As a result, all organic waste options align, to varying degrees, with the Vision's objective of improving performance against climate and waste targets. The results are described in more detail in Appendix 6.

- Food is more likely to go to anaerobic digestion (AD) when separately collected, rather than in-vessel composting (IVC) when collected with garden waste. The CarbonWARM2 carbon factors show AD delivers around 13% greater carbon savings

per tonne of food waste than IVC (approximately 62 kg CO₂e/t compared with 55 kg CO₂e/t).

Metrics

Two metrics were used to assess value for money (Table 4-13):

- Metric 1: Cost per 0.1 percentage point increase in the recycling rate (negative values mean the recycling rate increased and the cost decreased).
- Metric 2: Cost per 1,000 tonnes of carbon benefit (negative values means there was a carbon benefit and the cost decreased).

All options are based on the same collection and treatment system, where food is presented, collected and treated separately. The only variable is the quantity of food and garden waste collected for recycling. As a result, the trend is straightforward: the greater the tonnage collected, the higher the recycling rate and carbon benefit. This means the options follow the same pattern across both metrics. Because the differences in recycling rate improvement and carbon benefit between options are relatively small, cost becomes the primary differentiating factor in the assessment. Consequently, Option 3 (in which separate food waste collections extend across UR1-3 and mixed organics authorities switch to charged garden waste) performs best on the metrics because of the savings it delivers. Whereas Option 1 (free garden waste) is the lowest ranked option, despite having the greatest positive impact on recycling rate.

Table 4-13: Value for money metrics

Option and description	Metric 1 (rank)	Metric 2 (rank)	Combined rank	Recycling rate change
1 UR1-3, garden free	£1,120k (5)	£2,660k (5)	5	2.9
2 UR1-3, garden charged	£-220k (2)	£-350k (2)	2	1.7
3 UR1-3, free MO->charged	£-520k (1)	£-470k (1)	1	0.9
4 UR1-3, garden per baseline	£480k (4)	£610k (4)	4	1.4
5 UR1-5, free MO->charged	£-30k (3)	£-40k (3)	3	1.2

Cost is an important consideration, particularly in relation to the Vision's objective of delivering affordable services and maximising value for local authorities. However, a cost-led outcome does not fully reflect the broader ambitions of the Vision and places insufficient weight on factors that may be equally, or in some cases, more important. It is also difficult to draw conclusions because it remains unclear how local authorities will deliver garden waste services in the future. The modelling shows that:

- Free garden waste collections (Option 1) deliver the greatest increase in recycling performance, improving the recycling rate by 2.9 percentage points. This option aligns strongly with the Vision's objective of driving performance but performs least well against the objective of providing affordable services.
- Charged garden waste collections (Option 3) represent the opposite end of the spectrum. It is the most cost-effective option but delivers only a 0.9 percentage point increase in the recycling rate, the smallest improvement of all options considered.

This suggests that an approach between these two options may, therefore, offer the most balanced way forwards. Such an approach would take each local authority's existing services and context into account. For example:

- Retaining existing free garden waste collections, as introducing charges is likely to reduce recycling performance.
- Encouraging charged garden waste collections in local authorities where there are none, as this will improve recycling performance, cost-effectively.
- Expanding food waste collections where opportunities exist. Most particularly, where a local authority introduces garden charging. This is because savings can be used to fund service expansion and the increase in food waste collected will offset the downward impact on the recycling rate.

4.5.3.3 Residual waste

This analysis focussed initially on changing the residual waste collection frequency to three- and four-weekly, with no other system changes. The results are shown in Table 4-14.

- The recycling rate and carbon improvements are a consequence of reduced bin capacity causing householders to divert more recyclable material to the dry recycling and organics streams.
- The cost decrease results mainly from residual waste treatment savings and reduced residual waste collection resources.
- The value for money metric results are the highest across all waste streams, as recycling increases and carbon decreases are achieved, while costs are reduced.

Table 4-14: Impact of three and four-weekly residual waste collections

Residual Waste	Three-Weekly	Four-Weekly
Marginal cost (annualised capital)	-£10.1m	-£17.1m
Carbon change (CO ₂ e)	-16.9k	-38.5k
Impact on recycling rate	0.6%	1.4%

Residual Waste	Three-Weekly	Four-Weekly
Cost per 0.1 percentage point increase in recycling	-£1,690k	-£1,220k
Cost per 1,000 tonnes carbon benefit	-£600k	-£450k

At Workshop 2, most stakeholders expressed a preference for capacity-based restrictions, although this was not unanimous. At this stage in co-design, the CoP system was still uncertain and so no additional residual waste options were modelled. The initial results still provide a useful comparison against which to assess the impact of recycling and organic waste system changes.

4.5.3.4 Emerging Proposals

Following the options appraisal, the emerging proposals shown below were arrived at.

Box 4-1: Emerging proposals following the options appraisal and VfM modelling and Workshop 2

1. Restricting weekly residual capacity to 80 litres, as it drives improvements in climate and waste targets and can lead to a more affordable service, with a timeline to reduce further to 60 litres.
2. Moving to a two-stream recycling collection system, where fibres are separate. A two-stream service maximises values of collected materials, increasing the economic opportunities for local authorities. No new expectation for glass collection as it was not supported by stakeholders.
3. Separate food and garden collections for UR1-3, with plans for expansion to UR4-5. To maximise the recycling and carbon benefits of separate collections, this proposal would also apply to those operating a mixed organic service. However, local authorities would retain flexibility to charge for garden collections.
4. Expanding kerbside collection of batteries and sWEEE.

5.0 Co-design workshops

The central component of the co-design process was a series of three workshops hosted by the Scottish Government, in partnership with CoSLA. Facilitation support for the latter two workshops was provided by Eunomia and 3KQ.

The engagement programme was designed to run alongside the other work involved in developing the CoP. This enabled stakeholders to feed in as options were developed and appraised, ensuring a collaborative and inclusive process. The aim was to create a final product that reflected both the data and the concerns and ambitions of those affected by the CoP.

Each workshop was scheduled at a pivotal moment in the co-design process, with objectives that reflected that stage. The objectives for each workshop were:

- **Workshop 1 (June 2025):**⁶ Attended just by local authorities, it determined the scope for co-designing the new CoP in line with the Vision.⁷
- **Workshop 2 (January 2026):** The wider group of stakeholders, including businesses and the third sector, considered different service design elements for the new CoP. This included how these elements could interact in practice and across different locations. Stakeholders also identified the key issues that needed to be addressed. *The outcomes of this workshop informed the development of emerging options for the new CoP.*
- **Workshop 3 (May 2026):** Stakeholders indicated their level of support for emerging service options, as well as for relevant delays and derogations that would aid in making the transition smoother. *The outcomes of this workshop informed the service design incorporated into the new CoP.*

5.1 Methodology

5.1.1 Stakeholder mapping and engagement

In line with co-design best practice, Scottish Government and Eunomia undertook a stakeholder mapping exercise as a first step. This identified relevant stakeholder organisations and individuals to invite to the workshops or otherwise engage in the co-design process. The target stakeholders fell into four broad categories, outlined in Table 5-1.

Table 5-1 Stakeholder participant groups

Stakeholder groups	Stakeholder description	Workshop 2 ⁸	Workshop 3
		Attending stakeholders	
Local authorities	32 Scottish local authorities	31	29

⁶ Workshop 1 occurred prior to Eunomia and 3KQ's involvement in the co-design process. As a result, this report will focus primarily on the outcomes from Workshops 2 and 3.

⁷ The Vision was developed and agreed by the Local Government - Scottish Government Strategic Steering Group.

⁸ Workshop 2 attendance numbers include both in-person and online attendance.

Stakeholder groups	Stakeholder description	Workshop 2 ⁸	Workshop 3
		Attending stakeholders	
Public bodies	PackUK, NHS, Zero Waste Scotland, Historic Environment Scotland, CoSLA	3	6
Businesses	UK DMO, trade associations, waste management companies, packaging producers, retailers, membership organisations	18	9
Other (third sector – NGOs, charities, non-profits)	Third sector (environmental and community NGOs, charities, non-profits), trade unions	8	3

Attendee lists for Workshops 2 and 3 were developed using Scottish Government and Eunomia contacts, supplemented by online research and further informed by stakeholder recommendations. All 32 local authorities were invited to attend. Over 60 other stakeholders were also invited, representing the stakeholder groups described above.

To make the co-design process as inclusive as possible, stakeholders unable to attend in person were offered offline feedback opportunities. An online version of Workshop 2 was also offered. The Scottish Government also undertook additional engagement with third-sector organisations. This followed feedback that some organisations might lack capacity to attend or engage through formal routes.

Over 60 stakeholders attended Workshop 2, including 50 attendees at the in-person session and 11 at the online session. A total of 47 stakeholders attended Workshop 3. All 32 local authorities attended at least one workshop or an online follow-up and fed into the process. The breakdown of attending stakeholders by group is shown in the table above.

5.1.2 Workshop inputs and content

Workshop 2

Ahead of Workshop 2, two parallel workstreams helped inform its structure and content.

First, stakeholders were surveyed to gauge initial support for the Scottish Government's Vision and the proposed co-design process. The survey also captured views on the most important aspects of the new CoP and the right balance between bespoke and universal service provision. Finally, it asked about the most challenging aspects of implementation.

Second, the Scottish Government commissioned Eunomia to conduct a Cost Benefit Analysis (CBA) to assess adherence to the voluntary CoP across Scotland. Findings on the most impactful measures for increasing recycling rates and carbon benefits were used to inform and guide discussion.

Workshop 3

After Workshop 2, and informed by the feedback received, Eunomia undertook additional modelling. This assessed the costs and benefits of proposed collection systems across residual, dry recycling, organics, and minor streams.

These results, combined with the findings from Workshop 2, helped identify the ‘best performing option’ consistent with the Vision. This became the emerging proposed system that formed the basis of discussion at Workshop 3. Implementation concerns raised during Workshop 2 also supported the development of proposals for derogations and delays for each system that would help to smooth implementation.

5.1.3 Workshop format

Both workshops followed a similar format, with each comprising four facilitated sessions covering the topics outlined in Table 5-2.

Table 5-2 Workshop facilitated session topics

Workshop 2 topics	Workshop 3 topics
Dry recyclables collection (incl. containers and capacity)	Emerging proposals for residual and dry recycling
Dry recycling at different, challenging, or remote properties	Emerging derogations and delays for residual and dry recycling
Food waste exemptions and impact on garden waste	Emerging proposals for food waste and garden waste
Restriction in residual waste frequency	Emerging derogations and delays for food waste and garden waste
Additional materials for collection, such as textiles, WEEE, batteries.	Additional materials for collection, such as WEEE, batteries.

Each session began with a short presentation covering relevant background, modelling, and other evidence gathered through the process described in Section 5.1.2. The main part of each session consisted of facilitated small-group table discussions. Table facilitators took detailed notes to capture the views expressed by participants. The aim was to understand the range of opinions, rather than guide discussion towards consensus.

A more detailed explanation of the workshop format can be found in the Workshop 2 and 3 reports in Appendices 4 and 5, respectively.

5.2 Workshop 2 outcomes

Stakeholders were asked to consider which dry recycling, organics, and residual service designs could best deliver the Vision for the CoP for household recycling. This included prioritising consistency across Scotland, while also achieving strong recycling rates and carbon benefits.

A more detailed summary of the findings is given in the Workshop 2 report in Appendix 4.

5.2.1 Dry recycling findings

- There was broad support for consistency in the materials collected, to facilitate household understanding and behaviour change. This was balanced with a desire for flexibility around the method of collection.
- Funding, affordability, and practical implementation challenges were key concerns around consistent dry recycling systems, along with the carbon impacts of additional collection rounds.⁹
- There were also concerns about how the new CoP would interact with other policies. In particular, stakeholders raised concerns about glass collections due to uncertainty around the DRS.
- There was wide agreement that textiles, small WEEE, and batteries had merit as recycling targets. However, stakeholders raised concerns about kerbside practicality, value for money, and making too many changes in quick succession.

5.2.2 Residual waste findings

- There was broad support among stakeholders for including residual capacity limits in the new CoP.
- There was a clear preference for capacity-based limits over prescribed collection frequencies. Suggested ranges clustered around 60–80 litres per household per week, with some support for phased reductions over time.
- Key concerns raised in relation to introducing this measure included:
 - The potential for increased contamination and fly-tipping.
 - Residents being confused or overwhelmed by system changes.

⁹ These impacts were accounted for in subsequent modelling.

- The potential leakage of residual waste to HWRCs.
- The impact of introducing plastic film collections, which could reduce available recycling bin capacity.
- Cost implications, particularly where new containers may be required to align with reduced capacity limits.
- There were concerns about the difficulty of implementing capacity limits in communal, rural, or island areas where kerbside collection services may not be available.
- Some stakeholders flagged the need for exemptions for households dealing with special circumstances (e.g., large families, high nappy volumes, or medical needs).

5.2.3 Organic waste findings

- Stakeholders expressed a range of views on the universal collection of food waste. These centred on balancing expanded provision with improved participation in existing services.
- Financial and logistical concerns were key issues for many stakeholders. These could be reduced if food services were not required to be weekly. Ongoing support from the Scottish Government was also seen as important.
- Other barriers and concerns associated with weekly food waste services included:
 - Infrastructure and capacity constraints, both for collection infrastructure and treatment infrastructure.
 - The need to normalise food recycling behaviour among residents, with calls for support and national communication strategies from the Scottish Government.
- Consideration of system interactions was identified as important to ensure that the final organics policy aligns with any concurrent restrictions on residual waste capacity, to avoid unintended consequences such as leakage into other waste streams and contamination of dry recycling.
- Workshop participants also discussed charging for garden waste services. This is particularly relevant for authorities that currently offer mixed food and garden waste collections.
- Some stakeholders supported mixed organic waste collections in certain circumstances. Stakeholders discussed whether different expectations could apply in different contexts. For example, collections could be mandated for separate food waste in urban areas and mixed organics in rural areas, but none in very rural locations.

- Overall, stakeholders found it difficult to balance the acknowledged benefits of universal food waste collection with their desire for flexibility to tailor services locally.

5.3 Workshop 3 outcomes

The Workshop 2 outcomes (along with further modelling) informed the development of a set of system change proposals for inclusion in the new CoP. In Workshop 3, stakeholders were asked to consider the emerging proposed systems outlined in Table 5-3. They were also asked to consider associated derogations and delays that would be permitted to smooth the transition process. The derogations and delays were designed to ensure that the proposals accommodate the specific challenges faced by local authorities, including those associated with rurality and communal properties, as outlined in the Vision. The level of support for these proposals is explained in Sections 5.3.1. - 5.3.4. A more detailed summary of the findings is provided in Appendix 5.

Table 5-3 Emerging proposed systems presented at Workshop 3

Material stream	Proposal type	Emerging proposals
Residual waste	Proposed system	Provide a maximum of 80 litres per week of residual waste capacity in the short term. Adopt a phased approach, reducing capacity to 70 or 60 litres per week in the longer term.
	Derogations	Communal properties or properties with insufficient space, no recycling, and/or food services in place. Large households, households with additional volumes (e.g. AHP), no frontage, etc.
	Delays	Lack of necessary infrastructure. Terms of existing contracts.
Dry recycling	Proposed system	Provide a minimum of a two-stream recycling collection system, where fibres are separate. <i>Maximum of three weeks between collections.</i> <i>Minimum recycling capacity of 40 litres for paper/card, and 70 litres for metals/plastics/cartons/glass.</i> Accept a defined list of materials for each category of collected material.

Material stream	Proposal type	Emerging proposals
		<i>This would include pots, tubs and trays, cartons, and plastic film in the containers stream.</i> <i>No new expectation to provide separate kerbside collections of glass where they are not already in place.</i> Move towards offering kerbside collection of sWEEE and batteries. <i>Textiles collections are not expected.</i>
	Derogations	Households that persistently contaminate. Two-stream: individual household or low-rise properties with insufficient storage space and communal properties without a practical solution. Batteries/sWEEE: when the service cannot be added to an existing round.
	Delays	Lack of necessary infrastructure. Terms of existing contracts.
Food waste	Proposed system	Local authorities to provide separate food waste collections for UR1-3. <i>This would also apply to any properties where a garden waste/mixed organics service is currently offered.</i> Scottish Government to set a clear timetable for phased expansion of separate food waste collections to UR4-5*. <i>A transition plan may be needed, particularly where necessary infrastructure is lacking.</i>
	Derogations	Properties a 30+ minute drive from the nearest property receiving food waste collection. Island properties that cannot be accessed 28+ days per year. Properties where food waste has been unacceptably contaminated. Properties with insufficient space to house containers.

Material stream	Proposal type	Emerging proposals
	Delays	Lack of necessary infrastructure. Terms of existing contracts.
Garden waste	Proposed system	Local authorities to provide separate garden waste collections for UR1-3, maintaining flexibility to charge. <i>This also applies to any properties where a mixed organics service is currently offered.</i> Scottish Government to set a clear timetable for phased expansion of separate garden waste collections to UR4-5*. <i>Corresponds to the proposed approach to food waste.</i>
	Derogations	Properties a 30+ minute drive from the nearest property receiving garden waste collection. Properties that do not have gardens. Properties that have opted out of a charged service.
	Delays	Lack of necessary infrastructure. Terms of existing contracts.

5.3.1 Feedback on emerging proposals for dry recycling

- There was qualified support for two-stream recycling.
- Some stakeholders raised concerns about the lack of new collection expectations for glass, while others welcomed this, given uncertainty around DRS.
- There was discomfort around separate collections for minor material streams, like sWEEE and batteries, including at kerbside and HWRCs/bring banks. However, stakeholders recognised that separating batteries could help reduce fire risk.

5.3.2 Feedback on emerging proposals for residual waste

- There was strong support for residual waste restrictions, with a preference for a single-phase change to either 70 litres or 60 litres per week.
- Stakeholders wanted the chosen maximum to be practical. They suggested that this could be achieved either by aligning with current bin sizes or justifying the procurement of new bins.

5.3.3 Feedback on emerging proposals for organic waste

- Stakeholders recognised the benefits of expanding food and garden waste collections. However, there were concerns that the costs of expanded services could outweigh these benefits.
- Stakeholders wanted a more evidence-based approach to determining whether organic waste collections represent good value.
- Some argued that households in UR4-5* often have their own arrangements for organic waste, particularly garden waste, without needing kerbside collection. However, it was not clear that these arrangements are universal.
- Local authorities currently operating a mixed organic waste collection service were particularly unsupportive of the proposed measures.
- Concerns were also raised about extending charging for garden waste. These included concerns over demand, diversion to HWRCs, and reduced tonnage compared to free services.

5.3.4 Feedback on emerging proposals for derogations and delays

- There was support for the principle of derogations and delays, but differing views on how extensive they should be. Some stakeholders wanted substantial council autonomy, while others worried that too much flexibility would undermine a nationwide CoP.
- Contamination was a point of contention. Some felt it should be excluded from derogations entirely, with local authorities able to withdraw services to manage contamination. Others worried this could disincentivise behaviour change and penalise many households for the behaviour of a few.
- Stakeholders raised concerns about derogations affecting islands and communal properties across all emerging options.

- Stakeholders expressed a desire for a clearer timetable, so that most authorities would make changes around the same time. However, some were concerned this could create challenges in procuring vehicles and containers.
- Stakeholders acknowledged that designing a methodology for identifying properties eligible for organic waste derogations would be challenging. There was greatest support for a comprehensive assessment or drive-time-based approach.

6.0 Financial analysis

A detailed financial analysis was carried out after Workshop 3. The following proposals were informed by the options appraisal and VfM modelling work described in Section 4.5, as well as the findings from Workshops 2 and 3.

Box 6-1: Emerging proposals following the options modelling and workshops

1. Restricting weekly residual capacity to 60 litres.
2. Moving to a two-stream dry recycling collection system, where fibres are separate. No new expectation for glass collections or minor streams.
3. Separate food and garden collections for UR1-3, with plans for expansion to UR4-5. To maximise the recycling and carbon benefits of separate collections, this proposal will also apply to those operating a mixed organic service.
4. Separate garden waste collections, but with the option to charge a subscription fee.

The main question to be addressed through the modelling was therefore whether the additional costs of free garden waste collections were justified by the benefits within the combined system. The methodology used to conduct the financial analysis followed that used to assess the impact of system design changes (see Section 4.5.2). The methodology and limitations are described in Appendix 2.

6.1 System design

6.1.1 Proposed design

Based on the outcomes of the co-design workshops, two future options were modelled. Options 1 and 2 are summarised in Table 6-1 and described below.

Table 6-1: Proposed Code of Practice system (Options 1 and 2)

Key			
UR1-3	Urban-rural categories 1-3		
UR1-5*	Urban-rural categories 1-5. *Where 95% or more of households are within UR1-5, the service is expanded to include all households.		
MO	Mixed organics (co-collection of food with garden waste)		

Material	Baseline system	Option 1	Option 2
Residual	240-litre wheeled bin	60 litres (Four-weekly)	
	180-litre wheeled bin	60 litres (three-weekly)	
	140-litre wheeled bin	60 litres (240-litre wheeled bin, four-weekly)	
	Communal	No change	
Recycling	All	Separate fibres (paper/cardboard)	
Glass	Separate	Separate	
	Mixed	Mixed	
	Bring	Bring	
Food	Separate UR1-3+	Separate, UR1-5*	
	MO UR1-3+	Separate, UR1-5*	
Garden	Separate £	Separate, charged	
	MO £	Separate, charged	
	Separate free	Separate, free	Separate, charged
	MO free	Separate, free	Separate, charged
	None	Separate, free	Separate, charged
	Community	Community	

6.1.2 Residual waste

Options 1 and 2 specified an effective weekly residual capacity of 60 litres per week for individual/low-rise properties. This can be achieved by providing either a 240-litre wheeled bin collected four-weekly or a 180-litre wheeled bin collected three-weekly. The bin size and corresponding frequency of collections modelled are based on the pre-existing bin stock of each local authority.

This service model was selected following feedback from Workshop 3 that a single, larger change in residual capacity was preferable to two, more gradual changes. A bigger decrease in residual capacity was also preferred, based on the options appraisal explained in Section 4.5.30. A 60-litre limit is the option most consistent with the agreed vision for the CoP on driving recycling and carbon performance both locally and nationally.

Most local authorities are not yet compliant with this proposal. Table 6-2 shows the four authorities currently aligned with the residual capacity limits prescribed under this option, although two aligned with it after the baseline year of 2023. The four-weekly service is the predominant collection scheme offered to individual / low-rise properties, but there may be exceptions for some properties, and it does not apply to communal bin properties.

Table 6-2: Local authorities' current alignment with the proposed 60 litre effective weekly residual waste capacity limit

Local authority	System
Falkirk	Four-weekly residual collections with a 240 litre wheeled bin
Stirling	
Clackmannanshire ¹	
East Ayrshire ²	
Notes	
¹ Clackmannanshire implemented four-weekly collections from October 2023	
² East Ayrshire implemented four-weekly collections from May 2026.	

6.1.3 Recycling and glass

Under both Options 1 and 2, the fibres stream (paper/cardboard) is collected separately from the containers stream. There are some exceptions to this for communal properties, which might not be able to accommodate additional waste containers.

This is already the preferred approach in the voluntary CoP, as shown in Table 6-3 below, and was largely supported by Workshop 3 participants. It is also the preferred approach that emerged from the modelling carried out by Eunomia, as reported in section 4.5.3.1. Again, it should be noted that, where an authority is said to have this collection system in place, this means only that it is the predominant collection scheme offered to individual / low-rise

properties. Some authorities have changed scheme since the baseline year of 2023. Where this is the case, the current system is shown in Table 6-3 and the change highlighted in the notes.

Table 6-3: Local authorities' current alignment with the proposed two-stream dry recycling system

Local authorities with two-stream dry recycling collections			
Number	Two-stream fibres and containers, excluding glass	Two-stream fibres and containers, including glass	Three-stream fibres, containers and glass and multi-stream
1	Aberdeenshire	East Dunbartonshire	Midlothian*
2	Angus*	East Renfrewshire	East Ayrshire
3	Clackmannanshire*	North Ayrshire	East Lothian
4	Dumfries and Galloway	North Lanarkshire	Falkirk
5	Dundee City	Renfrewshire	Moray
6	Fife	South Lanarkshire	South Ayrshire
7	Highland*		Stirling
8	Perth and Kinross*		Orkney Islands (multi-stream, no cardboard)
9	Shetland Islands		
10	West Lothian		
Notes	* Changed system since 2023. Angus previously co-mingled (with glass); Highland, Clackmannanshire and Perth and Kinross previously co-mingled (no glass); Midlothian previous two-stream co-mingled and glass.		

Options 1 and 2 leave glass collections unchanged from the services currently provided by each authority. Although the modelling suggested that separate glass collections would deliver benefits, some stakeholders raised concerns about this in Workshops 2 and 3. These related to the possibility that the DRS might eventually be expanded to include glass, which would reduce the viability of newly introduced separate glass collections creating a risk of poor value for money.

6.1.4 Food waste

Under Options 1 and 2, food waste is separately collected from garden waste. Food waste collections are provided to all households in areas classified as UR1-5* under Scottish Government's Urban Rural Classification. The modelling did not produce a clear preferred option for organic waste. Therefore, priority was given to consistency with the agreed Vision and its emphasis on:

- Maximising the value derived from materials
- Driving recycling performance
- Providing consistent services for households
- Making the right choices easier for households, and easier to communicate

On the whole, stakeholders at Workshop 3 recognised the benefits of expanding food and garden waste collections. In developing Options 1 and 2, it was assumed that the concerns raised by some stakeholders would be addressed through the design of derogations and delays.

Table 6-4 shows current alignment. Service coverage varies from 23% to 100%. While Glasgow and West Dunbartonshire are listed as offering a mixed food and garden service, they also have a separate food waste service for communal bin properties.

Table 6-4: Local authorities' current approach to food waste collections

Number	None	Separate	Mixed food and garden
1	Orkney	Aberdeenshire	Aberdeen City
2	Shetland	Angus	East Renfrewshire
3		Argyll & Bute	Fife
4		Clackmannanshire	Glasgow City
5		Dumfries and Galloway	Moray
6		Dundee	North Ayrshire
7		East Ayrshire	North Lanarkshire
8		East Dunbartonshire	Perth and Kinross
9		East Lothian	Renfrewshire
10		Edinburgh	South Lanarkshire

Number	None	Separate	Mixed food and garden
11		Falkirk	Stirling
12		Highland*	West Dunbartonshire
13		Inverclyde	West Lothian
14		Midlothian	Western Isles
15		Scottish Borders	
16		South Ayrshire	
Notes	*Since 2023, Highland has rolled out weekly, separate food waste to c.27,000 households. It is therefore included in the “separate” class.		

6.1.5 Garden waste

The only difference between the modelled options relates to the garden waste collection service offered. Specifically, it concerns whether the service is a charged, subscription service or a free service. Local authorities that offer a charged service in the baseline continue to do so in both options. However, where no service or a free service is offered:

- In Option 1, a free garden waste collection service is modelled.
- In Option 2, a charged service is modelled. This results in all garden waste collections in Scotland being charged, subscription services.

Table 6-5 shows current alignment. Service coverage varies from 23% to 87%, where non-subscribing households on charged services are excluded from the figures.

Table 6-5: Local authorities' current approach to garden waste collections

Number	None	Free	Charged
1	Aberdeenshire	East Lothian	Aberdeen City
2	Argyll & Bute	Fife	Angus
3	Orkney Islands	Glasgow City	City of Edinburgh
4	Scottish Borders	North Ayrshire	Clackmannanshire
5	Shetland Islands	North Lanarkshire	Dumfries and Galloway
6		South Ayrshire	Dundee City

Number	None	Free	Charged
7		South Lanarkshire	East Ayrshire
8		West Dunbartonshire	East Dunbartonshire
9		West Lothian	East Renfrewshire
10		Western Isles	Falkirk
11			Highland
12			Inverclyde
13			Midlothian
14			Moray
15			Perth and Kinross
16			Renfrewshire
17			Stirling
Notes	Since 2023, East Dunbartonshire has changed to a charged service and Dumfries and Galloway introduced a new charged garden scheme.		

6.2 Results summary

Some of the key modelling assumptions are provided in Box 6-2. The modelling method details of the limitations are described in Appendix 2.

Box 6-2: Modelling assumptions

Financial modelling assumptions

Cost modelling calculates the capital and operational costs for a local authority to run a service in a steady state. Annual operational costs include vehicle maintenance, fuel, staff, container replacement and material net value (bulking, storage, handling and gate fees/treatment/revenue). Capital costs for vehicles and containers are also included, annualised across their respective lifetimes. Spare vehicles, changes to management and supervision, communications and mobilisation and transition costs are not included in costs. The costs of modifying or replacing infrastructure are not costed. An estimate of the cost of changes to collection and treatment infrastructure is provided separately (see section 6.3).

Carbon modelling assumptions

Carbon modelling quantifies the greenhouse gas emissions impact across the collection and disposal process. It does not account for the emissions associated with the production and manufacturing processes. The environmental impact was determined by applying carbon factors from WRAP (2025) *Carbon Waste and Resources Metric v2*. These values represent a consumption-based calculation approach. This means all emissions-generating activity by a country's residents is included, irrespective of the emissions take place. This allows the full scope of emissions generated through waste management to be considered, including energy generation and recycling benefits. The modelling therefore accounts for:

- direct emissions from disposal
- emissions associated with energy use
- benefits associated with energy generation through recovery,
- benefits associated with material displacement (e.g. fertiliser displaced through digestate use, and virgin material replaced through recycled content)

These values should not be directly compared to national inventories, which are typically based on territorial emissions (i.e. those that occur within the country's borders).

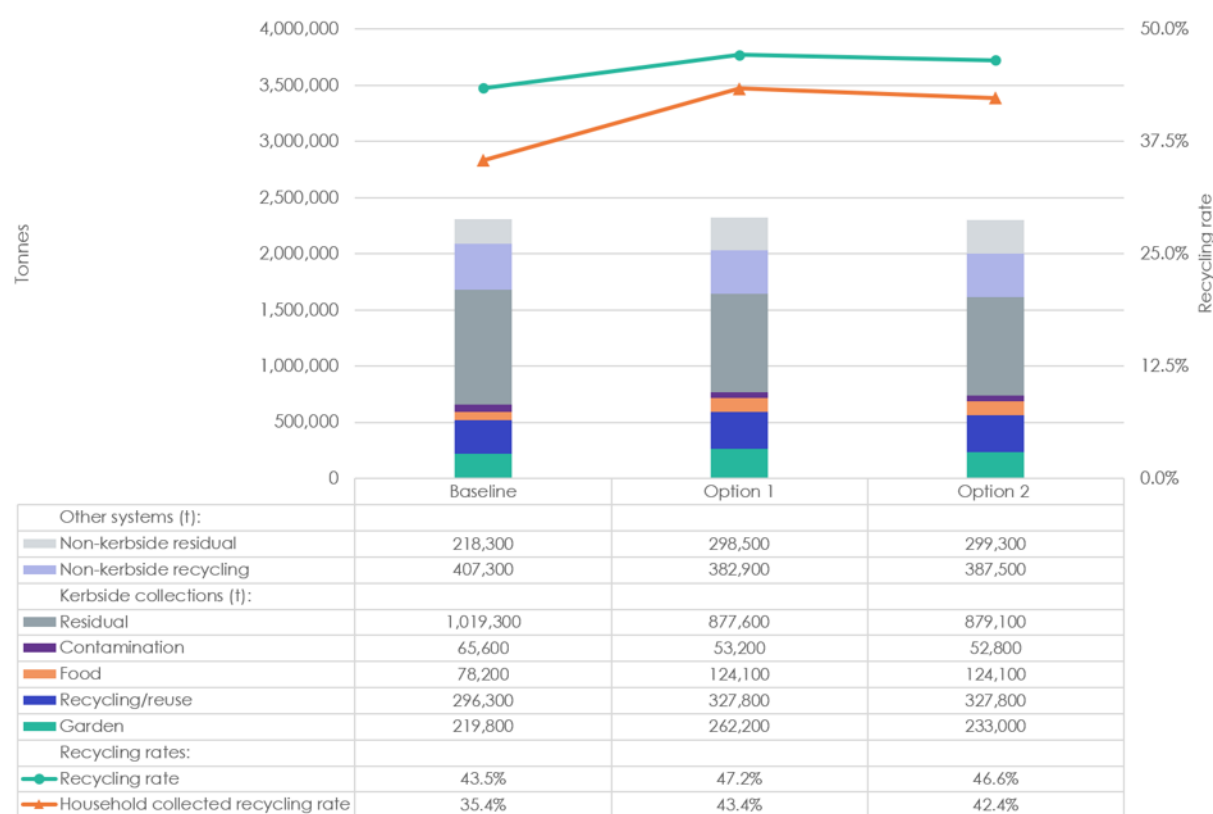
It should also be noted that with the move from landfill to EfW, all residual waste that was landfilled in 2023 was assumed to be sent to EfW. This is to avoid overestimating the benefits of recycling, since the relevant material would be diverted from landfill in future years, regardless of the policy.

Both financial and environmental impacts of each option were assessed as part of the modelling. The headline modelling results are highlighted in Table 6-6 and Figure 6-1. These provide a summary of the recycling rates, marginal system costs, and marginal carbon emissions for Options 1 and 2 relative to the Baseline.

Table 6-6: Headline modelling results showing recycling rate, marginal cost, and marginal carbon emissions

	Unit	Baseline	Option 1	Option 2
Recycling rate	%	43.5%	47.2%	46.6%
Change in recycling rate	%	-	+3.7%	+ 3.1%
Marginal operational cost	£ million	-	- £11.36m	- £28.04m
Marginal carbon emissions	t CO ₂ e	-	- 62,500	- 61,600

Figure 6-1: Summary of headline waste flow results



Recycling

Table 6-6: Headline modelling results showing recycling rate, marginal cost, and marginal carbon emissions

	Unit	Baseline	Option 1	Option 2
Recycling rate	%	43.5%	47.2%	46.6%
Change in recycling rate	%	-	+3.7%	+ 3.1%

	Unit	Baseline	Option 1	Option 2
Marginal operational cost	<i>£ million</i>	-	- £11.36m	- £28.04m
Marginal carbon emissions	<i>t CO_{2e}</i>	-	- 62,500	- 61,600

Figure 6-1 shows that the proposals would cause the household collection recycling rate in Scotland to increase from 35.4% in the Baseline to 43.4% and 42.4% in Options 1 and 2. This is driven by an increase in tonnage recycling of 119,800 and 90,600 tonnes, respectively.

Across both options, the increase in food waste and dry recycling collected for recycling is constant, at 45,900 tonnes and 31,500 tonnes, respectively. This is because both options make the same changes from the baseline in respect of these materials.

For both waste streams, Options 1 and 2 see an increased yield of recycling per household. This is due to limiting effective weekly residual capacity for kerbside properties to 60 litres per week. This limit encourages householders to divert recyclable material away from the residual stream to the correct recycling stream. The tonnage of food waste collected also increases due to:

- An additional 210,000 households being offered a service.
- The additional yield of food waste that results from the material being collected separately, rather than as part of a mixed organic waste stream.

Both options result in lower contamination rates than the baseline. Under both options, all authorities move to a two-stream collection system. The data show that these systems typically have lower contamination rates than co-mingled collections because more non-target material is diverted to the residual waste stream. In Option 1, the higher percentage point increase in household collected recycling rate (8.0 pp) is driven by a greater increase in the tonnage of garden waste collected for recycling. Option 1 results in an additional 42,400 tonnes being collected for recycling. Conversely, in Option 2, the increase in household collected recycling rate is smaller, at 7.0 percentage points. This is because the increase in garden waste tonnage collected for recycling is only 13,200 tonnes.

This difference is due to charged, subscription garden waste services resulting in fewer households using the service than if it were free. As a result, the total tonnage collected for recycling at the kerbside is lower in Option 2 than Option 1.

The household recycling rate, which accounts for both kerbside and non-kerbside waste and is therefore comparable to rates published by SEPA, exhibits a similar pattern. The increase in household recycling rate is greater in Option 1 (3.7 percentage points) than in Option 2 (3.1 percentage points).

The recycling rate change is smaller than the change in the household collected recycling rate. This is mainly because the options only affect household collected waste, which accounts for around three-quarters of total household waste. The improvement in the recycling rate was also slightly diluted because some residual waste was assumed to be displaced from the kerbside to Household Waste Recycling Centres (HWRCs). This was

assumed based on case studies, which showed that reducing the effective weekly residual capacity could lead to households making more use of HWRCs to dispose of residual waste. This assumption in the waste flow modelling resulted in an increase in non-kerbside residual waste of approximately 80,000 tonnes in both options. The approach taken was conservative and the amount of residual waste diverted from the kerbside to HWRCs may be less – especially if measures are put in place at HWRCs to support recycling and minimise waste.

Greenhouse gas emissions

In line with the difference in recycling rates between the options, the marginal carbon benefit is greater in Option 1 than Option 2. In Option 1, approximately 62,500 fewer tonnes of CO₂e are emitted relative to the baseline. In Option 2, the reduction in CO₂e emissions is 61,600 tonnes. This reduction in carbon emissions associated with waste represent a 35.6% and 35.1% reduction relative to carbon emissions in the Baseline in Options 1 and 2, respectively. This reduction highlights the environmental benefit of the changes to kerbside collection systems. These carbon benefits are associated with less residual material being sent to incineration or landfill and more waste being sent for recycling. Option 1 performs better than Option 2. The free garden waste service attracts more tonnage for recycling and thus reduces garden waste in the residual stream compared with a charged service. Both differences mean that carbon emissions are lower in the free garden waste option.

Cost

From a system cost perspective, both options are less expensive across Scotland than the Baseline, with savings of £11.36 million in Option 1 and £28.04 million in Option 2. These cost savings represent the modelled annual operational cost impact of each option. A share of these savings would therefore be seen within the operational budgets of individual local authorities, particularly those modelled as moving to a charged garden service. However, some local authorities would incur increases in costs due to service changes.

The main difference between the options is the wider use of charged garden waste services in Option 2. In the modelling, subscription charges are set at a level that covers garden waste collection costs, generating an addition £16.14 million of revenue. The remaining £0.54 million of annual operational savings in Option 2 stem from minor differences in treatment costs, associated with the diversion of material between the kerbside residual and garden waste streams and HWRCs, and a reduction in container replacement costs.

Table 6-7 shows the capital expenditure that would be required to purchase additional vehicles and container, in each of the options. These costs are annualised and incorporated into the main cost results. However, they are split out here for clarity. Both Options have similar capital costs of approximately £80 million.

Table 6-7: Vehicle and capital costs

Item	Option 1	Option 2
Vehicle capital	£36.92m	£36.38m

Item	Option 1	Option 2
Container capital	£43.17m	£43.17m
Total	£80.09m	£79.55m

The vehicle costs are largely associated with additional food waste and recycling vehicles (£32-33 million) to accommodate the increase in food waste coverage and the introduction of two-stream recycling services, respectively. The remaining £4 million is for garden waste vehicles. The capital costs associated with the garden waste service are slightly lower in Option 2. This is because charged garden services do not attract as many households to participate in the service as a free service. As a result, fewer garden waste vehicles are required, which results in a lower capital spend.

The remaining increase in capital costs in both options is associated with increased container costs. Again, the capital costs are associated with the increase in food waste coverage and the introduction of two-stream recycling collections. Modelling suggests that c.£8.5 million of capital will be required to purchase food waste containers, and c.£24.5 million to purchase additional recycling containers. Around £10 million is required to purchase containers for the residual waste stream in the five local authorities that need to replace their 140 litre wheeled bins to reduce effective weekly capacity to 60 litres.

6.3 Infrastructure costs

Data held by Eunomia indicates that there are currently 121 waste transfer stations (WTS) in use by local authorities across Scotland – although this is subject to some uncertainty, as not all local authorities submitted data containing information about their waste collection infrastructure. Some facilities are owned by the local authority; others are owned by third parties but used by the authority. Some may not be used for all material streams; but it is possible that the changes necessitated by aligning with the new CoP could lead to facilities being used differently.

The collection infrastructure impacts of the proposed Code of Practice take the form of:

- Additional tipping facilities for food waste, if this is not currently collected separately
- Additional tipping facilities for garden waste, if this is not currently collected
- An additional bay so that paper and card can be stored separately from plastic, metal and glass packaging.

An analysis of the current services offered by each authority and the number of WTS that they use shows the following potential need for changes at some sites. The following analysis is based on modelling carried out as follows:

- All depot and WTS identified in the 2023 data request provided were included in the modelling. Data gaps were filled using publicly available data wherever possible (e.g.

SEPA waste site information) and assumptions made elsewhere in the modelling carried out to inform the co-design process.

- The data did not include information on any spare capacity at depots or WTS. It was therefore assumed that they would not generally have spare capacity and that any new operational requirements on them would necessitate changes. We have also assumed that no authorities are already planning to redesign or relocate facilities, which would present the opportunity to incorporate change driven by the CoP at a much smaller additional cost.
- Likewise, the data did not include information on whether there was any undeveloped space at sites. It is not uncommon for a depot or WTS's footprint not to extend to the boundaries of the parcel of land on which it is located, which could allow space for expansion within existing sites. This would avoid the need for relocation to accommodate additional needs.
- All logistical considerations were incorporated into the modelling; however, the outputs were produced at the authority level. The modelling did not allocate increases in staff and vehicles to a specific depot or WTS where an authority uses more than one, and so assumptions had to be made regarding where depot modifications would be needed.
- Costs of changes to collection infrastructure are not uniform and depend on the specific circumstances locally. Eunomia examined a range of recent sources to obtain evidence regarding costs. These included:
 - Data regarding Recycling Improvement Fund support provided by the Scottish Government to Scottish authorities
 - Committee reports from English authorities making changes to transfer stations as a result of the introduction of Simpler Recycling.

This research found a wide variation in costs for each of the types of change contemplated. The cost of new WTSs is particularly variable. Eunomia therefore produced average/typical costs, but these should be treated with caution.

6.3.1 Collections – depots

Table 6-8 details the number of local authorities where the measures taken forward for inclusion in the new CoP would be expected to have an impact on depot arrangements. The number of depots involved, and the modelled number of additional collection vehicle and staff parking spaces required are shown in Table 6-8. The majority of authorities are affected by the changes in one or more ways.

Table 6-8: Local authorities with additional staff or vehicles

Type of change	Number of authorities affected	Depots affected	Additional vehicle parking spaces required	Additional staff parking spaces required
Any	24	69	162	486

The proposed new CoP could have several impacts on depots:

- Increases in the number of vehicles needed to deliver two stream recycling and additional organics services will not be fully offset by a decrease in residual waste vehicle. This will likely mean an increase in parking provision. If there is a large increase in vehicles, on-site workshops could require expansion, but due to a lack of information on how many cases would arise or the costs involved, this was excluded from the costings.
- Increases to the number of staff may mean the depot(s) may need additional staff parking. Additional parking bays were costed for all additional staff, assuming a typical crew size of three per vehicle. This is a high-end estimate, as not all rounds may require a crew of three.
- Sites with significant staff increases may also need welfare facilities upgrades. Where the staff count increased by more than 10 per depot, additional site welfare was provisioned. This was calculated as each additional staff 50m² per 10 staff, with an average rate of £1,350/m².
- Depots may be unable to accommodate expansion. With insufficient information to make this determination, it has been assumed that sites requiring more than 75m² of additional hardstanding would require redesign and those needing more than 150m² will need to be relocated.

Cost estimates, based on the underlying assumptions explained above, are set out in Table 6-9.

Table 6-9: Modelled depot costs

Item	Unit Cost	Units	Cost
Hardstanding	£122.50 per m ²	57 vehicles @ 10m ² per space	£243.3k
Hardstanding	£122.50 per m ²	171 staff vehicles @ 3m ² per space	£115.8k
Welfare facilities	£1,350 per m ²	10 sites with >10 additional staff	£1.2m

Item	Unit Cost	Units	Cost
Redesign	£1.75m per depot with additional hardstanding of more than 75m ²	8	£14.0m
Relocation	£4m ¹⁰ per depot with additional hardstanding of more than 150m ²	2	£8.0m
Total			£23.5 m

The need for redesign or relocation at depots is very uncertain, and so figures are provided only to give an indication of scale. To show the implications of the uncertainty, two sensitivity scenarios were explored.

- If depots that need more than 50m² of additional hardstanding require re-design, the cost would increase to £42.7m.
- If it is only depots that need more than 100m² of additional hardstanding that require re-design, the cost would reduce to £9.6m.

6.3.2 Collections – waste transfer stations

Service changes arising from the new CoP would lead to a need to upgrade waste transfer stations. The waste transfer station impacts of the proposed Code of Practice take the form of:

- One-stream (co-mingled) and two-stream local authorities that currently collect co-mingled and glass will need the ability to tip and store separately collected fibres (paper/cardboard).
- New tipping and bulking infrastructure will be needed in local authorities that are required to introduce a new garden waste collection service and local authorities changing from mixed food and garden collections to separate food.¹¹
- New tipping and bulking infrastructure could also be required in local authorities that are required to extend food collection coverage into new areas if they are impracticably far away from existing tipping infrastructure. This is most likely to occur in very rural areas. While it is likely that new facilities would be required, there may be opportunities to use facilities owned by third parties, or to add tipping

¹⁰ An estimate of relocation costs is particularly difficult. A great deal depends on the cost of land acquisition – in some cases, existing authority land be used but in other cases land must be purchased or leased. The net cost can be reduced if the old WTS can be sold, but the value of such land can vary considerably depending on location and demand. In some cases, the authority may prefer to keep the land for another purpose. Planning and permitting costs can vary considerably, depending on the characteristics of a site and what is nearby. This estimate aims to reflect design and construction costs, a small amount of net additional land cost and a simple planning and permitting process. However, it should be treated with considerable caution.

¹¹ Note that this cost would not arise if food and garden continue to be collected on the same vehicle.

facilities at other sites already used by a council. Within the time and budget available, we cannot quantify these opportunities. However, these possibilities make it extremely difficult to provide an accurate estimate of costs, especially given that modelling outputs were produced at the authority level.

- Additionally, all WTSs are likely to be affected when the residual waste restriction is implemented, as this is expected to lead to an increase in the tonnage of all recycling streams (other than garden waste). This has not been accounted for, as the information available did not allow us to determine how close to capacity any particular WTS may be or to set a threshold at which current capacity may be exceeded.

Each authority might need to accommodate up to three changes at a WTS. The assumptions made regarding each of these changes and the resulting costs are shown in Table 6-10.

Table 6-10: Modelled waste transfer station costs

Item	Unit Cost	Units	Cost
Food waste	£400k per site	18 adding food waste	£7.2m
	£100k per site	20 switching from mixed organics	£2.0m
Garden waste	£35k per site (open bay) ¹²	12	£0.4m
Separate fibres	£100k per site (covered bay) ¹³	7	£0.7m
Re-design	£1.2m per site for authorities needing two or more new bays	17	£20.4m
Total			£30.7m
<i>Additional Re-design</i>	<i>£1.2m per site (if all sites needing an extra bay require redesign)</i>	<i>18 (additional sites requiring redesign)</i>	<i>£21.6m</i>

¹² As far as we are aware, there is no general requirement to use covered bays for garden waste, though it may be required in some cases depending on individual site planning and permit conditions.

¹³ A covered bay would generally be preferred for paper/card to avoid material getting wet and the risk of material escaping due to wind.

Item	Unit Cost	Units	Cost
Total, including additional re-design			£52.4m

Eunomia has assumed that:

- WTS where food waste must be added will incur higher costs, in part due to greater planning and permitting costs, than sites where a mixed organics service is being replaced by a separate food and garden service.
- WTS do not have spare bays, or ones that could be repurposed e.g. because two bays are being used for the same material.
- Capacity cannot be obtained from third party WTS operators. This would incur a fee for tipping at the site but would avoid the need for capital investment.
- A WTS might often be able to accommodate one new bay without major redesign.
- Where new bays are needed for both separate fibres and garden waste, a more substantial re-design would be needed to accommodate the additional storage

On this basis, the investment required would be £30.7 million. However, these are broad-brush assumptions. To reflect this uncertainty, we have also calculated the cost if every site needing one additional bay were to require a re-design. This would lead to extra costs of £21.6 million, leading to a total investment of £52.4 million.

In some cases, a WTS may have no unused space within the parcel of land it occupies, and no flexibility to redesign its layout to accommodate additional bays. In these circumstances, re-location may be required. It is estimated that for each waste transfer station relocation, an additional £1.8m cost would be incurred. As discussed in relation to relocation of depots, this cost should be treated as highly indicative, because the cost of relocation can vary considerably depending on factors such as land values, the complexity of planning/permitting and the level of construction costs incurred.

6.3.3 Overall cost and number of authorities affected

Taking the figures for depots and WTSs together, the central estimate of costs would be £23.5 million for depots plus £30.7 million for transfer stations, leading to a total of £54.2 million. However, if more collection infrastructure than anticipated were to require relocation rather than simpler redesign, the cost could increase significantly. While we have endeavoured to make reasonable estimates, a more reliable figure could only be produced through a detailed site-by-site analysis.

Table 6-11 shows the number of local authorities potentially affected (subject to the data limitations discussed above) by alignment with new CoP collection system changes and therefore requiring collection infrastructure changes.

Table 6-11: Waste transfer station requirements by local authority

	Separate fibres	Garden waste	New food waste	Food waste (currently mixed organics)	Number of local authorities	Number of WTSS
No change					10 + Highland	26
1 change	•				2	3
		•			1	6
			•		Highland	9
				•	9	13
2 changes	•	•			1	4
		•	•		2 + Highland	15
	•			•	4	5
	•		•		0	0
3 changes	•	•	•		1	18
	•	•		•	1	4
Authorities	9	7	5	14		
Sites	20	29	18	20		

Ten authorities' collection infrastructure would be unaffected by the proposal. 12 authorities would have to make one change, while seven would make two changes. Only two would have to make three changes. Highland Council is the most complex, as the service it offers varies across its geography. Therefore, some areas would require no change while others would experience up to two.

6.3.4 Treatment

In addition to collection infrastructure, extending separate food waste collections would result in a greater amount of separate food waste being collected in areas that do not currently have separate collections. Restrictions on weekly residual waste capacity would also result in more material being collected in some areas that already have food waste collections in place. The resulting material will require treatment.

The carbon modelling carried out assumes that the food would be separately collected and kept separate from garden waste. The modelled treatment method was via anaerobic digestion (AD) plants; but to realise these benefits the necessary treatment would need to be in place.

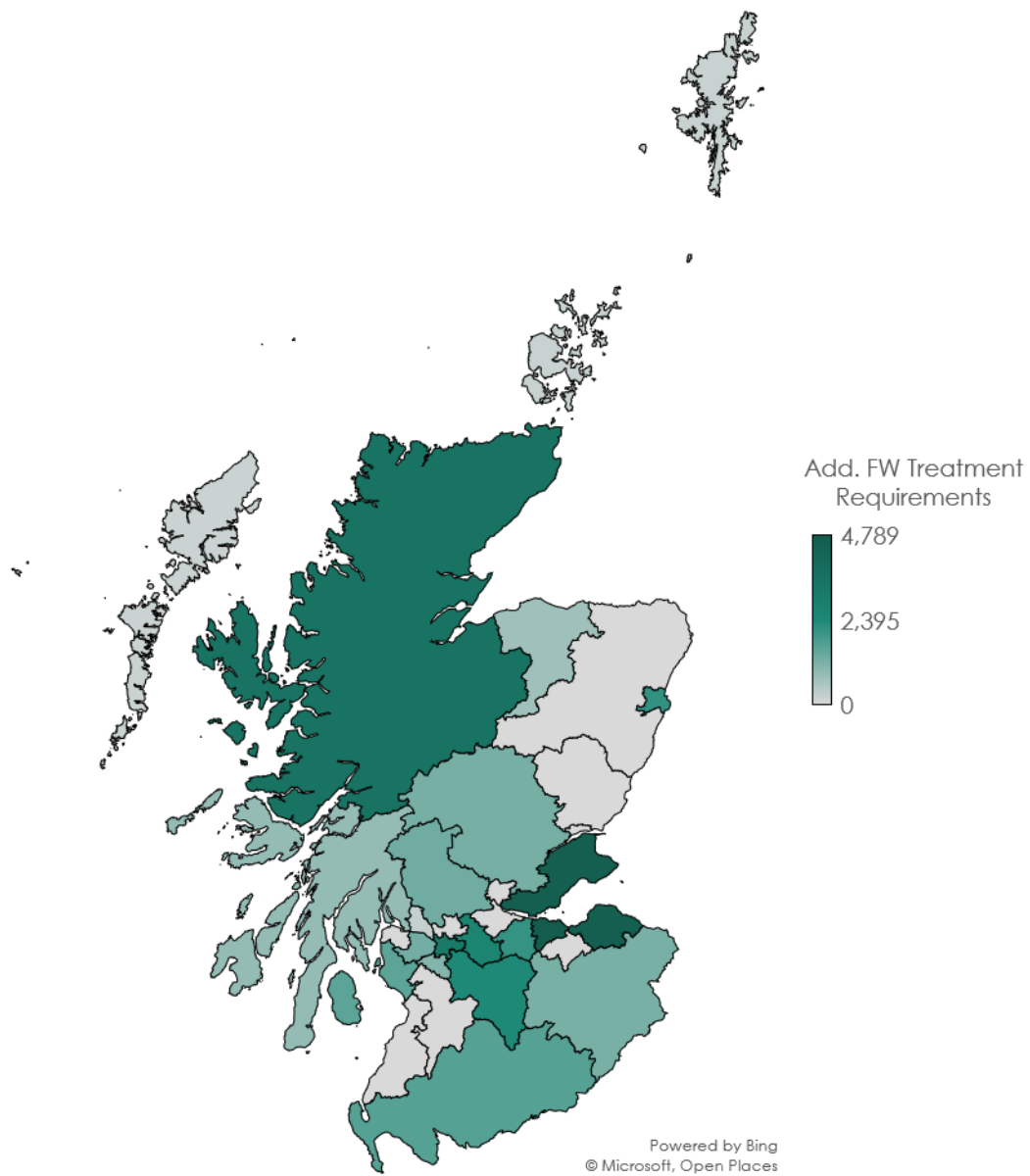
Alternatively, additional separately presented food could be mixed with garden waste. This would allow the additional food waste to continue to be treated via in-vessel composting

(IVC) in areas that currently have mixed organics collections, or in areas where new treatment capacity is required but where AD capacity is impractical to construct.

The modelling undertaken for this project shows that the baseline tonnage of separate food waste was approximately 77,500 tonnes. The changes proposed would increase that tonnage by 30,000 tonnes due to new services, and by 42,000 tonnes per annum overall – an increase of 54% on current tonnages. Figure 6-2 shows the additional capacity requirements that are likely to arise in each local authority area.

There are currently 10 AD plants in Scotland that are used by local authorities. All but two of these are in the central belt of Scotland, with the others being in the Western Isles and near Aberdeen. Without additional research that is beyond the scope of this project, it is not possible to know whether these facilities have any significant spare capacity; in any case, to provide a practical outlet for food waste collections outside the central belt, facilities would need to be developed that were suitably located for use by authorities in other parts of the country.

Figure 6-2: Additional food waste treatment requirements



The need for additional capacity is distributed across Scotland, including in highly dispersed areas such as the Highlands and Borders. AD plants would need to be located at sites where they have access to the gas or electricity grid so that the gas they produce can be used beneficially. This is not the case for IVC facilities, where the principal output is compost.

A full analysis of where additional capacity would need to be constructed and how the locations could be optimised to balance haulage costs and capital costs would require an in-depth study. However, recent construction of large AD facilities provides an indication of the cost range to treat the additional separate food waste that would result from the implementation of the new CoP:

- The 100,000 tonne per annum facility for agricultural waste at Bangley Quarry, East Lothian has a quoted cost of £30 million.¹⁴
- A 50,000 tonne food waste facility at Parley, Bournemouth, has a quoted cost of £15.6 million.¹⁵

Anaerobic digester costs vary, and the cost per tonne of treatment capacity tends to be greater when the plant is smaller. There are no examples of recent construction of small-scale AD plants for municipal food waste that would provide a good benchmark for a facility with a capacity of 5-10,000 tonnes per annum. Instead, small AD plants tend to be built for on-farm applications, and it may be that the cost for food waste treatment would be somewhat different. Based on farm-related costs, a plausible estimate for such a facility would be £3-5 million. If 6 facilities were required (2 x 10,000 tpa, 4 x 5,000 tpa) the cost might be in the range of £18-30 million. The cost per tonne could be reduced if it was possible to combine food waste treatment with treatment of farm waste at a larger facility.

However, much of the capital cost might well be met through private sector investment, provided that the Scottish Government and the local authorities affected can provide sufficient certainty of future feedstock and gate fees to enable a private operator to invest with confidence. Alternatively, the cost could be reduced by allowing mixing of separately presented food and garden waste at the point of collection, so that existing IVC capacity could be used instead of some of the new AD capacity.

7.0 Code of Practice

In this section we explain the key changes to the current voluntary CoP that have emerged from the modelling co-design process for inclusion in the proposed new CoP. Many of the proposals are very similar to the existing voluntary CoP's contents, and so the scope of the changes is relatively narrow. Consequently, there is strong evidence that the new Code is

¹⁴ Brown, S (2024) Anaerobic digester at Bangley Quarry, near Haddington, near completion, *East Lothian Courier*. Available at: <https://www.eastlothiancourier.com/news/24416374.anaerobic-digester-bangley-quarry-near-haddington-near-completion/>

¹⁵ Diprose, A (2024) Work begins on £15.6 million anaerobic digestion plant converting food waste into energy, *Bournemouth One*. Available at: <https://news.bournemouthone.com/77647/>

both practical and deliverable in the Scottish context. The service standards and expectations are not radical or untested interventions; rather, they build on established practices that are already being implemented effectively by many local authorities and service providers, providing confidence that they can be adopted more widely with positive results.

This section further discusses the supporting policies needed to enable progress towards the implementation of the new CoP. The approach taken in the proposed approach is to state the desired service model clearly, but to explain the circumstances under which authorities may temporarily derogate from the expectations of the CoP. It is thus proposed that all parts of the CoP would apply to all authorities and all property types (see Table 7-1 for the property categories used in the voluntary code) unless there is a specified derogation or reason for delay that applies.

Table 7-1: Property categories

Group	Voluntary CoP household category
1	Households with access to the kerbside (“kerbside properties”)
2	Households without access to kerbside or with shared containers (“communal bin properties”)
<i>Households that are different, challenging, or remote:</i>	
3	Rural properties
4	City centre properties
5	Islands
6	Difficult access properties

This section further discusses supporting policies that are needed in order to enable the new CoP to be effective (such as communications to encourage behaviour change), remaining areas of stakeholder concern and how the effectiveness of the new CoP could be evaluated.

7.1 Content of the new CoP

7.1.1 Residual waste

- The voluntary CoP includes a limit of 80 litres per week of residual waste capacity for kerbside properties as part of its desirable content. **Alignment with the new CoP should require that local authorities provide an effective weekly residual capacity of no more than 60 litres per week for individual/low-rise properties.**

- The CoP should specify that this does not extend to:
 - communal bin properties
 - Properties that do not have a collection of food waste (as defined in the Waste (Scotland) Regulations 2012 – i.e. including collections via a mixed organic service)

Otherwise, no distinction should be made between rural, city centre, difficult to access properties etc and other properties in respect of the residual waste capacity restrictions.

- There are no requirements on Councils regarding how the capacity restriction is achieved. This continues the approach of the voluntary CoP, which states that “Councils may determine the frequency of collection, size of container and method of collection for non-recyclable waste” provided that they are aligned with the volumes limits set.

Additional opportunity

The 60-litre limit that is proposed is relatively low. An increasing number of authorities across the UK now have a 60-litre limit, but very few authorities have a lower one. Many councils have used the savings made from reduced residual waste collections to fund improvements in recycling collections. If alignment with the CoP requires a reduction in residual waste capacity to 60 litres but does not set ambitious recycling standards at the same time, it may be more difficult to introduce recycling improvements in the future as the opportunity to offset their cost through residual waste savings will have been largely used.

7.1.2 Dry recycling

- The result of co-design workshops was consensus that dry recycling should be delivered through a two-stream method that separates fibres from containers to reduce contamination and deliver better quality. The voluntary CoP already specifies that most properties, except islands, should receive separate collections of paper/card and metal/plastic/cartons. It is proposed that **the new CoP extends this to also cover island properties, except where a derogation applies.**
- The voluntary CoP specified that most properties should receive separate glass collections or alternatively have access to bring site containers within the community for communal use. The modelling undertaken showed that there would be recycling and environmental benefits to separate household glass collections, though at a relatively high cost compared to other interventions. Some stakeholders supported this. However, a larger number of stakeholders were concerned that investing in separate glass collections would be unwise if glass bottles might in future be brought into the DRS. The co-design consensus was therefore not to stipulate in the Code how glass should be collected by local authorities. Due to the strong unsupportive opinions expressed and the justifications given for stakeholders holding that

position, it is not suggested that the CoP should add new expectations relating to glass.

- The voluntary CoP states that, for all property types, “Separate containers for glass shall be provided to each property or alternatively within the community for communal use.” Where communal or community containers (bring banks) are used, authorities were required to demonstrate that this was “achieving the same quality and quantity of glass that would otherwise be collected from kerbside collection.” It is therefore proposed that **the new CoP retains similar language to the voluntary CoP regarding equivalent outcomes for quantity and quality to kerbside collection.** This provides the flexibility to make changes if a future decision on the scope of the DRS makes current glass collections impractical. However, it also controls the risk that the new CoP could lead to a reduction in services.
- The voluntary CoP stipulates the following weekly minimum capacity for dry recycling for each property. It is proposed that these should be **retained in the CoP**, subject to one modification to improve practicability. Stakeholders expressed the view that 4-weekly collections of metals/plastic/cartons from 240 litre bins worked well but would be prevented if a minimum weekly capacity of 70 litres per week was required. This change is reflected in the table below.

Table 7-2: Suggested weekly dry recycling container capacity requirements

Material	Voluntary CoP Capacity	New CoP Capacity
Paper/Card	40 litres per week	40 litres per week
Metals/Plastics/Cartons	70 litres per week	60 litres per week
Glass	20 litres per week (or 10 litres per week if provided through containers in the community)	20 litres per week (or 10 litres per week if provided through containers in the community)

- Expanding the range of materials collected for recycling could lead to marginal improvements in recycling rate and may have wider benefits. For example, stakeholders recognised that separate collections of batteries and small WEEE could help reduce waste fires. However, the recycling gains would be modest. Further, many local authority stakeholders were concerned regarding the cost and practicality of collecting additional materials on their current vehicles. Consequently, **it is not proposed that collection of any additional material types (small WEEE, textiles, batteries) should be in the CoP.** However, the CoP will not prevent local authorities from collecting additional materials for recycling if they choose.
- Based on the feedback from stakeholders at Workshop 2, there should be no stipulations regarding the frequency of dry recycling collections, which are included as desirable contents of the voluntary CoP.

Additional opportunity

The majority of stakeholders engaged during the co-design process had significant reservations regarding expanding glass collections. However, doing so remains one of the biggest opportunities to increase recycling in Scotland.

The modelling carried out for this project found that introducing separate glass collections would increase Scotland's household recycling rate by 0.5 percentage points, while also delivering a carbon saving. This would increase if introduced in combination with residual waste restrictions.

The rationale for not moving forward with separate glass collection is that glass might in future be included in a DRS, rendering the investment wasted. The Scottish Government made clear through the co-design process that no changes to the scope of DRS would be considered until at least 2030. There has been no indication that the UK Government is eager to make this change UK-wide. Wales has pushed to include glass in the DRS but is taking a phased approach in combination with reuse trials. The glass industry is opposed to glass being included in a DRS. This led to some uncertainty from stakeholders involved in the process when looking at long-term outcomes.

Despite this uncertainty, other UK nations have introduced separate glass. Simpler Recycling recently required English authorities that previously relied on brick banks to introduce household glass collections. Glass can be mixed with other containers, or as part of a co-mingled stream, subject to a TEEP (Technically, Environmentally and Economically Practicable) test. All Welsh authorities collect glass, as do Northern Irish authorities (though not all have universal coverage).

7.1.3 Food waste

- A considerable amount of the discussion at workshops 2 and 3 related to arrangements for organic waste. Food and garden waste both offer significant opportunities to increase recycling in Scotland. This could be achieved both by widening availability of these services and by encouraging better use of existing services.
- **The workshop discussions did not arrive at a consensus.** While there was recognition of the modelled benefits of wider and more consistent service provision for organic waste recycling, authorities were concerned about the infrastructure and operational cost of providing separate food waste services. There were also concerns regarding the overall environmental benefits of providing these services to rural and island properties. **This report therefore reflects the position as of August 2026, while further discussion with stakeholders were ongoing. The outcomes of those discussions are set out in a separate document found in Appendix 8.**
- Regarding separate food waste collections (which include mixed organics collections) the voluntary CoP largely restates the requirements of the Waste (Scotland) Regulations 2012. The Regulations limit the requirement to separately collect food

waste to non-rural areas, using the Scottish Government Urban Rural Classification. This makes separate collection mandatory for properties in UR1-3, but not for UR4-6. The voluntary CoP adjusts the requirement to recognise the need for flexibility in how food waste services may be provided to city centre properties and encourages wider provision where practicable.

- This report concerns discussions of extending food waste collections to UR4-5. However, additional engagement with stakeholders regarding implementation has taken place. This indicated that the new CoP should extend (subject to derogations) the current best practice set out in the voluntary CoP and requirements of the Waste (Scotland) Regulations to also cover **all properties in UR4**.
- The coverage must include any properties that already have separate food waste collections (defined, in line with current practice, to include those that receive mixed organics collections).
- The voluntary CoP allows that, where food is collected in the same container as garden waste, the Council is not required to separate the materials. This means that where residents present food and garden waste mixed in the same container, this is an acceptable alternative to separate presentation. Though there was not consensus, it was proposed that **the CoP should remove this allowance** and instead set out an expectation of separate presentation of food waste and garden waste, even where the two materials are then mixed upon collection. This is aligned with the Regulations, which say that a mixed food and garden container is only permissible under certain circumstances. These are “where an authority is satisfied that the amount of food waste that will be collected is not significantly less than would be collected” using a separate container. Research evidence has previously shown that mixed organics containers generally lead to lower yields, though several local authorities indicated that they disagreed with this assessment. A separate container would help with more consistent messaging on food waste and make it easier to introduce separate food waste rounds at a later date. However, the need to purchase additional containers means there would be an additional cost compared with mixing materials in a single container.
- The voluntary CoP stipulates a minimum of 20 litres of weekly capacity for food waste for each property, which should be **retained in the CoP**.
- The Scottish Government should set a clear timetable for phased expansion of separate food waste collections beyond UR1-3 as described above.

The rationale for this change is that unless food waste collection is offered, it will not be practical to reduce residual waste collection frequency or effective capacity, which will result in more authorities derogating from the residual waste capacity restriction. The alternative would be to meet the residual restriction by using smaller containers rather than a lower collection frequency. The data on which the modelling is based shows that this would reduce the effectiveness and increase the cost of the residual waste restriction.

Separate presentation of food waste would increase capture rates to a level similar to full separate collection, in line with the requirements of the Waste (Scotland) Regulations 2012.

This will help to increase recycling in Scotland, but without the urgent need for new vehicles, transfer stations or AD treatment capacity. This reduces the cost of the intervention, although it also slightly reduces the environmental benefits. Extending the requirement to additional rural properties adds substantially to the amount of food waste that will be captured.

This approach also avoids the risk that separating food waste might lead to wider use of charged garden services by councils. This would reduce garden waste yield and undermine the benefits of increased food waste capture.

The proposed CoP requirements are summarised in Table 7-3.

Table 7-3: Summary of proposed CoP expectations as of August 2026

Property Type	Service	Voluntary CoP	New CoP
UR1-3	Separate receptacle for food (mixed organics container allowed if food yield is comparable)	Same as Waste (Scotland) Regs requirement. Clarifies that communal containers are acceptable for some properties in city centres or with difficult access. Desirable that food waste collections should be weekly.	Separate food container, even if collected as mixed organics (subject to derogations). Food waste collections should be no less than fortnightly.
UR4-6	No requirement	Where food waste service provision is not legally required and not practical, offer advice on home composting	Must provide separate food containers to UR4. No requirement – UR5-6 Food waste collections should be no less than fortnightly.

Additional opportunity

Local authority stakeholders engaged during the co-design process had significant reservations regarding expanding food waste collections to more rural areas. It is appreciated that providing services in very remote rural areas is challenging and expensive. However, doing so remains one of the biggest opportunities to increase recycling in Scotland.

The modelling carried out for this project found that requiring separate food waste services in UR1-5 (plus UR6, where this is fewer than 5% of households) would increase Scotland's household recycling rate by 0.3 percentage points, while also delivering a carbon saving. This would increase if introduced in combination with residual waste restrictions.

The proposal to only require separate containers in UR4 significantly reduces the modelled benefits. It does address the fact that not all properties in UR1-3 currently receive food waste collections. However, 2021 data shows that only 2.6% of the population live in UR4 properties, compared with 12.1% in UR5 and 5.5% in UR6. There are also authorities that have already extended their food waste collections to cover some UR4 properties. The effect of adding only UR4 properties to the CoP will therefore be significantly less than the modelled benefit of adding UR4-5 – probably less than 0.1 percentage points.

Furthermore, it may be problematic to introduce residual waste restrictions where no food waste service is in place. Limiting the food waste collection requirement to UR4 therefore also decreases the effect that can be achieved through residual waste restrictions. It would leave 17.5% of Scotland's population in areas where food waste collections do not have to be provided, and where the boost in recycling from reduced residual waste capacity will be missed.

7.1.4 Garden waste

- The voluntary CoP makes no requirements regarding the collection of garden waste, and states that councils may make their own plans for the collection of garden waste. The new CoP should instead set out expectations regarding the collection of garden waste. However, as with food waste, the **co-design process did not reach a consensus on the approach to garden waste collections**. Following stakeholder feedback, additional modelling of organics options was undertaken, with the outputs published in a separate report included in Appendix 8.
- Alignment with the new CoP should require that local authorities offer collections of garden waste, using separate containers from food waste:
 - **To all properties that have gardens**, unless the household is situated in an isolated or inaccessible place such that the costs would be unreasonably high.
 - **On a subscription or charged-for basis, if the council wishes.**
- It is proposed that alignment with the new CoP should require collections of garden waste to be no less than four-weekly; but should allow garden waste services to be

suspended or the collection frequency reduced over the winter months (typically December, January and February). During these periods, food waste services would need to continue, regardless of whether food and garden waste are presented in separate containers or collected on the same vehicle.

7.1.5 Additional materials

The voluntary CoP includes a desirable element for household collections that says councils should consider how to collect additional materials. It suggests doing this by ensuring some collection vehicles are equipped to receive additional streams. The suggest items are:

- small Waste Electrical and Electronic Equipment (WEEE)
- Textiles
- Batteries
- Absorbent Hygiene Products (AHPs), which include nappies

At the workshops, stakeholders expressed significant concerns about the practicality of requiring councils to take steps to collect any of these materials. The Scottish Government also shared conclusions from a consultation on kerbside textile collections in 2025 that generally opposed local authorities having responsibility to collect textiles. The modelling work showed that the recycling benefits of requiring these materials to be collected would be very modest. **It is therefore not proposed that alignment with the new CoP should require collection of additional materials.** However, the CoP could continue to encourage councils to consider how additional materials could be collected alongside their other services, ideally using the same vehicles (e.g. through adding cages or lockers to vehicles).

7.2 Implementation of the new CoP

Summarising the conclusions of section 7.1, the new CoP is proposed to include the policies presented in Table 7-4.

Table 7-4: New CoP policy summary

Material stream	New CoP content	Key exclusions (other than derogations)
Residual waste	Weekly effective capacity not to exceed 60 litres	Does not apply to communal bin properties Does not apply to properties that do not receive a food waste collection

Material stream	New CoP content	Key exclusions (other than derogations)
Dry recycling	Containers to be provided to keep paper/card separate from other dry recyclables Weekly effective capacity to be provided: 40 litres for paper/card; 60 litres for metals/plastics/cartons	None
Food waste ¹⁶	Separate containers for food waste to be provided to all properties in UR1-4 Weekly effective capacity to be provided: 20 litres	Food waste may be collected on the same vehicle as garden waste
Garden waste	Separate containers for garden waste to be offered to all properties that have gardens Authorities may charge for garden waste collections	If offered on a subscription basis, separate containers need not be provided to non-subscribers Garden waste may be collected on the same vehicle as food waste

Each of these proposed interventions was discussed at the Workshops. However, there was not a full consensus on most interventions (other than regarding residual waste). It was therefore necessary to draw out a set of proposals that avoid stakeholders' most serious concerns while still advancing the vision.

A significant aspect of the concerns expressed at Workshops 2 and 3, particularly by local authorities, was that there should be flexibility in how the CoP is implemented. The rationale for flexibility is to allow changes to be implemented economically and without unnecessary disruption for households.

While the vision emphasises the need for improved consistency in service provision, it is recognised that in some cases this will pose challenges. The implementation process should allow councils scope to implement changes in a timetable that recognises when it would be practicable and cost effective to make changes. There may also be households that cannot practicably receive certain services, or where services need to be withdrawn due to issues such as contamination.

¹⁶ This requirement was fully assessed through the subsequent organics modelling undertaken following the co-design process. The results are presented in a separate report, included in Appendix 8.

7.2.1 Overarching principles

Local authorities may require different transition periods to align with the Code, recognising they are at different starting points. Some councils may have a temporary or long-term reason not to align with part of the CoP from the proposed implementation date, e.g. due to current space constraints at a depot or transfer station. In such scenarios, there will need to be a transition period and Scottish Government support to aid with the transition.

Implementation should not take longer than necessary. While recognising that implementation will take time, a local authority should review its transition plan at regular intervals and engage with the Scottish Government as required.

Encourage partial progress. If an authority is not able to fully align with the new Code quickly, it should be encouraged to explore ways to partially align until full alignment can be achieved.

7.3 Advisory supporting policies

This section outlines advisory supporting policies that could be developed and implemented by local authorities and the Scottish Government to help support alignment with the new CoP.

Table 7-5: Summary of policies

Supporting Measure	Description
Greater consistency in local authority waste policies	Ensuring each authority has policies (ideally, with a high degree of consistency between them) covering topics such as: • Recycling contamination • Excess waste • Communications • Bin colours
HWRC residual policy	A common approach at HWRCs to avoid kerbside capacity reduction displacing residual waste to HWRCs. e.g. driving behaviour change through monitoring, on site sorting and staff engagement to support recycling.

Supporting Measure	Description
Bulky waste policy	More consistent approach to bulky waste services across Scotland, including approach to charging, accessibility and ease of booking.
List of wastes	Common definitions of what materials go in each recycling stream
Scottish Government review of local authority enforcement powers	To allow LAs to enforce against households that are not using the systems correctly.
Behaviour change and communication programme	To encourage the behaviour change required of residents. This includes clear messaging on the benefits of service change and how to use new services.
Scotland-wide infrastructure plan	To ensure sufficient capacity for bulking, haulage and processing recyclables, especially organics.
Transitional funding programme	To support the purchase of new containers and other supporting local authority infrastructure.

7.3.1 Advisory local authority supporting policies

Councils should implement policies that assist in making the provisions of the CoP effective and consider local policies that support implementation of the CoP, even if these are not directly required by the Code. The voluntary CoP already includes a number of requirements regarding policies, and while these were not discussed in detail in the co-design process, it would clearly be a step backward if these policies were not continued; and there should be little effort involved for councils to maintain policies that should already be in place. Others have emerged through the co-design process.

Table 7-6: Advisory local authority supporting measures

Supporting Measure	Description
Residual waste policies	To support the effective implementation of residual waste restrictions, councils should develop policies regarding: • Restricting collection of residual waste that does not fit in the bin (requiring that the waste must fit inside the bin with the lid closed, not allowing the collection of waste placed beside the bin) • Acceptance of mixed residual waste at HWRCs, aiming to encourage sorting of waste for recycling if it is to be taken to a HWRC. A policy on excess waste is already a requirement of the voluntary CoP, and the detail of the requirements should replicate the voluntary CoP's provisions. Regarding HWRC policies, some stakeholders raised possible sensitivities in how they might affect users. Local authorities would benefit from guidance from the Scottish Government regarding the approach to limiting residual waste at HWRCs. These might include: • Large households • Households with additional residual waste volumes (e.g. AHP) – unless a separate AHP service can be provided • Properties with insufficient space for recycling containers and where recycling sacks or on-street provision are not practicable (e.g. due to lack of pavement or street space sufficiently close to the property) A policy on excess waste is already a requirement of the voluntary CoP and the detail of the requirements should replicate the voluntary CoP's provisions.

Supporting Measure	Description
Dry recycling policy	To support the effective implementation of dry recycling services, councils should develop policies to address contamination. A policy on contamination is already a requirement of the voluntary CoP and the detail of the requirements should replicate the voluntary CoP's provisions. This should include good practice elements (e.g. for communals, restricting lids to prevent incorrect items, putting recycling bins in a different location from residual) and training for staff on how to apply the policy. It should also include an escalation process through communication and enforcement that can ultimately result in (temporary) suspension of recycling services.
Bin colour policy	Local authorities should have a policy regarding colours of new bins/sacks, aligned with a central policy developed by the Scottish Government. Stickers may be used to create colour consistency where new containers are not practicable. This is an opportunity to create greater consistency. A requirement concerning consistent colours for containers was included in the voluntary CoP, but colours were not specified. Making this requirement mandatory was discussed during co-design workshops, but the cost of replacing bins across Scotland and consequent waste generated was seen to far outweigh the benefits
Communications policy	Each authority should provide clear communication of its waste service to citizens covering the types of waste that are acceptable and unacceptable (e.g. no asbestos, sharps etc.) in non-recyclable waste and bulky waste collections and instructions or advice is given on what to do with those wastes that are not accepted, including where to seek further information.

Supporting Measure	Description
Bulky waste and special waste policy	The voluntary CoP included a requirement for councils to communicate to citizens regarding the types of waste that are acceptable and unacceptable (e.g. no asbestos, sharps etc.) in non-recyclable waste and bulky waste collections. It also says they should give advice on what to do with those wastes that are not accepted. Bulky waste was not discussed in depth during the co-design process and was subject to separate discussions between local authorities and the Scottish Government as part of a parallel review of charging for services. The discussion of bulky waste policies highlighted the challenges of providing a simple service when operating in a highly regulated environment, but there was support for: • Encouraging reuse (both through bulky waste collections and at HWRCs) • Standardising charges for bulky waste collections. Measures to increase reuse should also be adopted at HWRCs.
List of wastes	The voluntary CoP includes a standard specification for core materials, stating which materials should be included in each material stream. Many stakeholders felt that consistency in the materials collected would support public understanding across local authorities and act as a prerequisite for behaviour change, potentially helping to reduce contamination in recycling bins. This indicated support for the inclusion of a similar standard specification in the new CoP. However, one stakeholder was concerned that Tetra Paks may be included on the list for plastics (as it is in the voluntary CoP). They currently had an exemption to collect cartons with paper and card, and they were concerned that moving away from this approach could be confusing for residents.
Mandatory standards for bin storage at new builds	This is out of scope for the CoP, but reform to local planning rules may be a separate complementary measure, especially if supported by the Scottish Government developing a national policy.

7.3.2 Scottish Government supporting policies

The Scottish Government should support delivery of the new CoP. This should include co-ordinating a national approach to the local authority policies described in section 7.3.1. The Scottish Government will also need to provide capital and revenue funding to support the changes that authorities will need to make.

Table 7-7: Scottish Government supporting measures

Supporting Measure	Description
Transitional funding programme	To support the purchase of new containers and other supporting local authority infrastructure to enable the collection and bulking of additional materials.
Behaviour change and communication programme	To encourage the behaviour change required of residents. This includes clear messaging on the benefits of service change and how to use new services. There was strong support from stakeholders for a national communications programme to support behaviour change to increase recycling. Stakeholders thought communications should be linked with other policy areas, such as EPR, so that messaging is clear and consistent.
Scotland-wide organics infrastructure plan	To ensure sufficient capacity for processing additional food and garden waste collected as a result of the new CoP.
Delivery of local authority enforcement powers	To allow LAs to enforce effectively against households that are not using the systems correctly.

Supporting Measure	Description
Scotland-wide approach to local authority policies	To create a common set of rules regarding: • Materials to be accepted in each recycling stream. Some items may now be able to be accepted that were not acceptable when the voluntary CoP was agreed – such as toothpaste tubes, plant pots, aluminium foil and foil trays. • Contamination – the challenge of contamination and the risk that new CoP measures could exacerbate it was raised repeatedly during the co-design process. This concern could be addressed in part by making sure all councils have consistent approaches to managing contamination, possibly supported by revised enforcement powers • Side waste – to ensure that residual waste restrictions are not evaded • Receipt of residual waste at HWRCs – to ensure that residual waste restrictions are not evaded • Bin colours, while ensuring that any rules are not unduly financially burdensome in requiring containers to be changed prematurely
Mandatory standards for bin storage at new builds	In order to enable local authorities to implement local planning rules requiring adequate space for waste containers in new developments, stakeholders called on the Scottish Government to either develop a set of standard requirements that could be incorporated into local planning guidance; or to change national planning policy to incorporate such requirements, so that the requirements would have to be followed by authorities. This would assist in ensuring that developers take the requirements on board. This may be out of scope for the CoP but may be considered as a separate complementary measure.

7.4 Evaluating the effectiveness of the CoP

The Scottish Government will wish to evaluate how effective the new CoP has been once it is introduced. In this section we suggest considerations that the Scottish Government may wish to employ in its evaluation.

7.4.1 Effectiveness in increasing consistency

One of the key aims of the new CoP is that more households should have access to the same comprehensive set of waste services. The Scottish Government should therefore monitor:

- The number of local authorities that have aligned with the standards set out in the Code for 90% or more of households.
- The overall percentage of households that receive the services set out in the new CoP.

7.4.2 Timeliness in increasing consistency

The CoP will have been effective if it is able to achieve increased consistency in a reasonable timeframe. If derogations and delays persist, the effectiveness of the CoP will be limited.

The Scottish Government should therefore establish expectations regarding whether and how quickly, through the development of new collection and treatment infrastructure, it may expect to remove the principal reasons for derogations. It should then monitor whether the number of derogations that it is allowing are reducing in line with the expected timeline.

7.4.3 Effectiveness in increasing recycling

The Circular Economy (Scotland) Act 2024 intended for the CoP to result in increased household recycling to help the Scottish Government meet its recycling targets. The Scottish Government should therefore monitor whether the introduction of the new CoP is associated with:

- an increase in the household recycling rate
- an increase in dry material sent for recycling (due to reduced residual waste capacity)
- an increase in food waste sent for recycling (due to reduced residual waste capacity and expanded food waste coverage)
- an increase in garden waste sent for recycling (due to reduced residual waste capacity and expanded garden waste coverage)
- a decrease in household residual waste, looking at the combined tonnage at HWRCs and door-to-door collections.

7.4.4 Effectiveness in improving recycling

Contamination is recognised as a factor limiting the performance of household recycling. Some stakeholders expressed concern that reducing residual waste capacity might increase contamination; and there were calls for more communication and enforcement to tackle the problem. However, the expectation to separate dry recycling into at least two streams is expected to reduce contamination.

The Scottish Government should therefore monitor the amount of contamination in dry recycling and food waste that is reported by local authorities through WasteDataFlow; and should also review the data collected by SEPA regarding the inputs received at MRFs. If the new CoP is effective, the contamination percentage would be expected to reduce.

7.4.5 Attitudes to and understanding of recycling

A goal of the CoP and its emphasis on consistency is to make it easier for householders to understand what to recycle and which containers to use. This is in turn expected to result in more positive attitudes towards recycling. The Scottish Government should therefore seek to monitor household understanding and attitudes to check whether the CoP is having the desired effect.

