Briefing Paper to Joint Waste Management Board – October 2017

Precis Report for the WRAP Study on Holistic Savings

1. Background

In April 2016, work funded by the Local Government Association (LGA) and undertaken by the Government funded agency 'Local Partnerships' recommended that Staffordshire Waste Partnership (SWP) undertake four key actions:

1. Develop a formal mechanism to share waste data;
2. Review options that incentivise the diversion of household waste from the residual stream;
3. Review residual waste disposal arrangements in Staffordshire;
4. Submit an Expression of Interest to receive WRAP support to assess future collection options under the 'Framework for greater consistency in household recycling[1]'.

These recommendations have been progressed by SWP officers via two WRAP funded projects in 2016 and 2017. The first project concluded in January 2017, and assessed a range of different collection options including reduced frequency of residual waste collection and separate weekly collection of household food waste. The work concluded that a reduction in residual collection frequency did not result in significant savings, but that the addition of a separate food waste collection, when introduced as part of the introduction of a charge for the collection of garden waste, **'has the potential to reduce costs and increase recycling rates'** when compared with the services presently delivered.

Whilst this first WRAP funded options modelling work identified the potential financial benefits, significant questions remained regarding the wider implications of charging for garden waste collections with a potential separate food waste collection (including those highlighted by the initial Local Partnerships' report):

1. How can the benefits of such a service change be equitably allocated across the two tiers of local government in a manner that incentivises diversion from the residual stream?
2. What would be the impact of any such changes on the Waste Disposal Authority's receipt of PFI credits[2] from DEFRA?
3. What would be the impact of such a service change on the county's residual waste disposal facilities?
4. What would be the impact if charges for the collection of garden waste were to be introduced without a food waste collection service?

To address these questions, further WRAP support was secured by the SWP in April 2017 and the following summary provides Members with an outline of the key findings of this work.

[1] http://static.wrap.org.uk/consistancy/Read_more_about_the_framework.pdf
[2] PFI Credits are now known as Waste Infrastructure Credits

2. WRAP 2017 Project

Detailed cost and performance modelling has been conducted on three main options:

- **Baseline** – Current collection services (assumes no authority has moved to charge for garden waste collections).
- **Preferred Option** – Weekly food waste collection in dedicated vehicles and the introduction of a charge for garden waste collections.
- **Counterfactual** - the introduction of a charge for garden waste collections (no food waste collected separately except for Newcastle-under-Lyme)

The modelling has included sensitivity analysis on several key factors, which were discussed and agreed separately with each authority. These factors include the projected uptake of households on the charged for garden service, the level of charge per household for the garden waste service, the quantity of garden waste collected and the quantity of food waste collected. A combination of these factors were used to create three sets of assumptions for the Preferred and Counterfactual options.

Low sensitivity | Standard assumptions | High sensitivity

3. Option key for results

The following key is used to identify the options and sensitivities modelled.

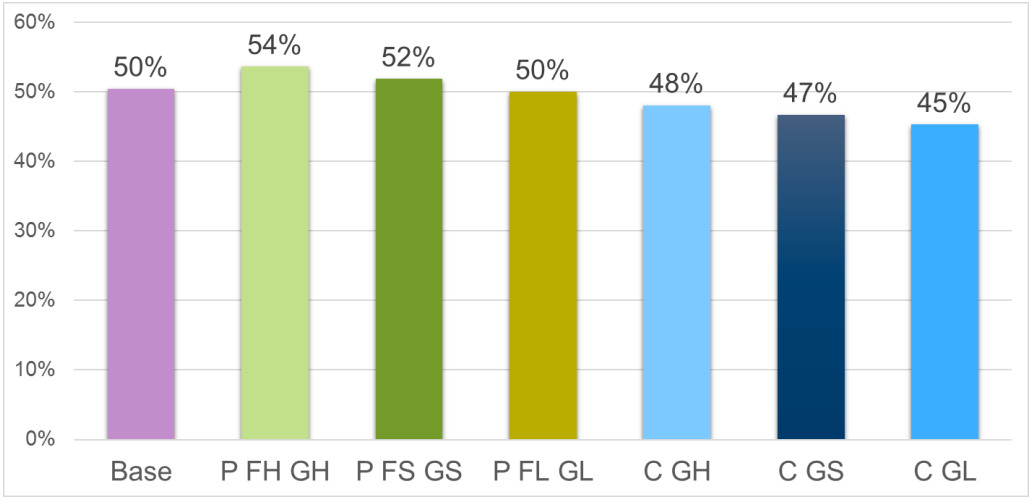
Base	*Current level*
P FH GH	*Preferred Option: Food - High tonnage assumptions & garden high tonnage assumptions*
P FS GS	*Preferred Option: Food - Standard tonnage assumptions & garden standard tonnage assumptions*
P FL GL	*Preferred Option: Food – low tonnage assumptions & garden low tonnage assumptions*
C GH	*Counterfactual Option: Garden high assumptions & No Food collected*
C GS	*Counterfactual Option: Garden standard assumptions & No Food collected*
C GL	*Counterfactual Option: Garden low assumptions & No Food collected*

The analysis is first discussed with regard the two-tier system (collection and disposal authorities) with a later section for the one Unitary Authority (Stoke-on-Trent) that all form the Partnership.

4. Two-tier system Performance results

Error! Reference source not found. shows how the overall recycling rate varies across the options for the two-tier system authorities.

Figure 1 Partnership recycling rate



The 'Preferred Option' (Weekly food waste collection in dedicated vehicles and the introduction of a charge for garden waste collections) is likely to either increase or maintain recycling rates as the food waste collected can offset the garden waste tonnage not collected once charging is introduced.

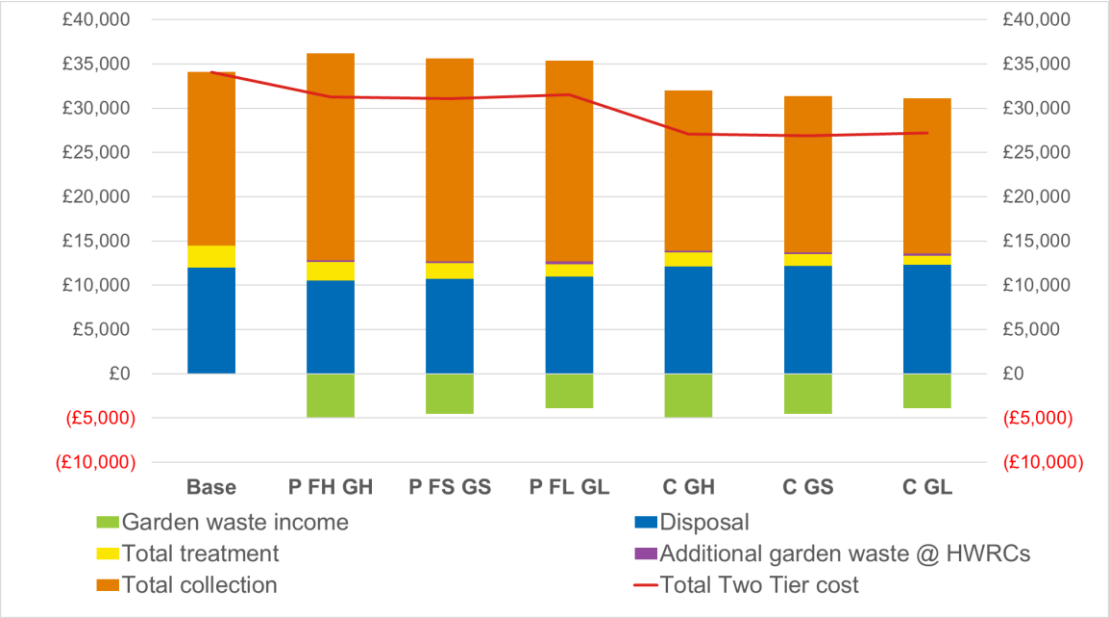
The introduction of charging for garden waste where no food waste is collected (the 'Counterfactual Option') results in a decrease in recycling rate across the Partnership as fewer members of the public put out garden waste for collection and find ways of avoiding the charge through activities such as home composting. Additionally, more garden waste will be deposited directly at the HWRCs as more members of the public will deliver the materials directly. This is included in the analysis.

Table 1 and Figure 2 show the 'whole system' costs of the options for the two-tier authorities (excluding Stoke-on-Trent. N.B. The costs of the options for Stoke are discussed in Section 8). The modelling has included collections costs (taken from the previous WRAP study) and included all treatment and processing costs/income for dry recyclate, mixed garden and food waste, separate garden waste and separate food waste. The residual disposal costs and treatment costs of any additional garden waste going to the HWRCs have also been included within the analysis. The income for the charged for garden waste is included but Disposal Credits (commonly known as Recycling Credits) are excluded at this stage to give a clearer picture of overall 'whole system' public sector costs.

Table 1 Two-tier 'whole system' costs for options (£,000)

Total Partnership Costs	**Base**	Preferred Option: Food & charged for garden			Counterfactual Option: Charged for Garden & No food collections		
		P FH GH	**P FS GS**	**P FL GL**	**C GH**	**C GS**	**C GL**
Total collection	£19,600	£23,400	£22,900	£22,700	£18,100	£17,700	£17,500
Total treatment	£2,500	£2,100	£1,800	£1,400	£1,600	£1,300	£1,000
Garden waste income	£0	-£4,900	-£4,500	-£3,900	-£4,900	-£4,500	-£3,900
Disposal	£12,000	£10,500	£10,700	£11,000	£12,100	£12,200	£12,300
Additional garden waste @ HWRCs	£0	£200	£200	£300	£200	£200	£300
Total Partnership cost	**£34,100**	**£31,300**	**£31,100**	**£31,500**	**£27,100**	**£26,900**	**£27,200**
Difference to Base	**£0**	**-£2,800**	**-£3,000**	**-£2,600**	**-£7,000**	**-£7,200**	**-£6,900**
WCA costs	**£22,100**	**£20,600**	**£20,200**	**£20,200**	**£14,800**	**£14,500**	**£14,600**
WDA costs	**£12,000**	**£10,700**	**£10,900**	**£11,300**	**£12,300**	**£12,400**	**£12,600**

Figure 2 Two-tier 'whole system' costs for options (£,000)



All options generate an overall 'whole system' saving across the two-tier authorities, but it should be noted that across the options there is variation in where those savings sit (WCA v WDA) and in the scale of saving. The Counterfactual options (charged for garden waste service only) create the greatest 'whole system' savings compared to the current situation due to;

- reduced garden waste collection costs (less households using the scheme and lower tonnage than current service),
- reduced garden waste treatment costs and additional income from charging for garden waste collections.

However, it should be noted that WDA costs **increase** for the Counterfactual options due to greater material entering the residual waste stream and additional garden waste delivered to the HWRC network. This option is also likely to see a reduction in the overall payment of disposal credits (commonly knowns as recycling credits) compared to the current situation due to less material diverted from the residual waste stream. This issue and alternative options to the current arrangements for the payments of disposal credits are discussed in greater detail in the next section.

It should also be noted that additional costs projected within the HWRC network have been assumed on a worst-case scenario. In reality, the impact on the HWRC network will depend on the volume of garden waste delivered.

The Preferred Option of food waste collections and a charged for garden waste collection results in 'whole system' savings for the two-tier authorities compared to the current situation due to;

- reduced garden waste collection costs (less households using the scheme and lower tonnage than current service), reduced garden waste treatment costs and
- additional income from charging for garden waste collections;
- the additional income generated through the garden waste service helps to offset the additional collection costs of collecting food waste;

The Preferred option results in **reduced** costs for the WDA due to the removal of food waste from residual collections, which is greater than the increased costs of the additional garden waste entering the HWRC sites. This option is also again likely to see a reduction in the payment of disposal credits (commonly knowns as recycling credits) compared to the current situation due to less material diverted from the residual waste stream, however the introduction of food collections helps offset this to degree. Disposal credits are discussed in greater detail the next section.

5. Disposal Credits

The cost analysis presented in Table 1 shows the 'whole system' costs excluding disposal (recycling) credits for the two-tier authorities, however any significant change in service provides an ideal opportunity to update the disposal credit scheme in a manner that is supportive of both the WCAs and WDA. The example below (Table 3) shows the impact of applying the current disposal credit regime and rates to the modelled options. The overall saving is apportioned differently between the WCAs and WDA depending on performance.

The quantity of disposal credits varies across the options and shows a drop compared to the current level. The reduction in garden waste collected by introducing a charged for approach results in reduced disposal credits, this is offset in part by paying recycling credit for food waste.

The final report (to be issued in due course) will explore alternatives to the current arrangements for the payment of disposal credits such as reduced disposal rates for garden waste (for example, where the WDA only covers disposal costs where a WCA introduces a charge for collection), capped values based on a tonnage of garden waste, capital support to new services (food collections) and present a range of worked examples. Disposal credits are an

important aspect of two-tier working and establishing a method that is acceptable to both the WCAs and WDA, whilst at the same time resulting in overall savings, will be pivotal for any service changes.

Table 2 Two-tier whole system costs for options including the current arrangements for the payment of disposal credits (£,000s)

Total Partnership Costs	Base	Preferred Option: Food & charged for garden			Counterfactual Option: Charged for Garden & No food collections		
		P FH GH	P FS GS	P FL GL	C GH	C GS	C GL
Disposal credits across all authorities	£8,900	£8,800	£8,000	£7,200	£7,600	£6,900	£6,200
WCA costs + Disposal credits	£13,200	£11,800	£12,200	£13,000	£7,200	£7,600	£8,400
Saving to Baseline	£0	-£1,400	-£1,000	-£200	-£6,000	-£5,600	-£4,800
WDA costs + Disposal credits	£20,900	£19,500	£18,900	£18,500	£19,900	£19,300	£18,800
Saving to Baseline	£0	-£1,400	-£2,000	-£2,400	-£1,000	-£1,600	-£2,100
Whole system costs	£34,100	£31,300	£31,100	£31,500	£27,100	£26,900	£27,200
Saving to Baseline		-£2,800	-£3,000	-£2,600	-£7,000	-£7,200	-£6,900

6. Waste Infrastructure Credits and wider risks

The study has also assessed the wider implications of both the 'preferred option' and the 'counterfactual'. Waste Infrastructure Credits (WICs, previously referred to a PFI credits) are a key issue, as where there is a significant change from the Final Business Case submitted, it will be scrutinised by Defra and could lead to the reduction or removal of credits, significantly impacting on residual treatment costs. The Waste Infrastructure Delivery Programme (WIDP) have confirmed that anything which compromises the recycling target is likely to be considered as a significant variation by Defra and will, as a minimum, require a detailed revised recycling plan to be submitted and potentially a detailed Variation Business Case. Should this not demonstrate the projected achievement of the original target through a revised methodology, the current level of WICs, amounting to £5 million p.a., could be reduced or removed.

7. Risk assessment

The key risks of the three main options are identified in Figure 3 and presented in a simple high level Red, Amber Green risk assessment. Red signifying a major potential risk, Amber medium risk and Green minimal risk or benefits.

Figure 3 Risk matrix for two-tier authorities

No	Description	Option		
		Baseline	Preferred Option (Food waste collections and chargeable garden waste service)	Counterfactual (chargeable garden waste service)
Strategic issues				
1	Impact on recycling rate and achieving National 50% target	No change in recycling rate (<50%)	Likely increase in recycling rate (~52%)	Likely decrease in recycling rate (~47%)
2	Further detailed analysis of whole system costs fails to demonstrate achievement of sufficient overall savings	No change in whole system costs	Some savings predicted	Significant potential savings (N.B. assumes no removal of Waste Infrastructure Credits)
3	DEFRA refuses to accept revised Recycling Plan or Variation Business Case	No change – Revised Recycling Plan not required. However, the current recycling rate is below 50%.	Shows likely increase in recycling rate so likely to be accepted	Significant decrease in recycling rate allows for greater potential for rejection and revised plan required. Additional methods of increasing recycling rates may be required.

No	Description	Option		
		Baseline	Preferred Option (Food waste collections and chargeable garden waste service)	Counterfactual (chargeable garden waste service)
4	Waste Infrastructure Credits withdrawn	No change	Increase or minimal change in recycling rate likely to prevent reduction or removal of credits	Significant decrease in recycling rate is in contravention of Business Plan to secure Waste Infrastructure Credits. Significant risk of credits being removed or reduced.
Operational issues				
5	Garden waste capacity issues at HWRCs	No change	Increased garden waste going to HWRCs	Increased garden waste going to HWRCs
6	Increased waste requiring residual treatment	No change in residual tonnage	Some garden waste entering residual bins but overall reduction in residual tonnage due to food waste collected separately.	Some garden waste entering residual bins and increase in food waste within residual from removal of mixed food and garden waste collections.
7	Impact on existing collection service and infrastructure	No change	Potential impact on outsourced collections contracts and infrastructure (bulking capacity likely to be required).	Potential impact on outsourced collections contracts.
Political				
8	Change in political leadership (national or local) creates a change in priorities or required collection / disposal methodologies	Changes in policy or priorities are difficult to predict but the lack of a food waste collection and no charging for waste streams makes the option neutral. However, the introduction of compulsory food waste collections represents a risk to the status quo	Changes in policy or priorities are difficult to predict but introduction of compulsory food waste collections is a possibility and as such this option offers reduced risk. The charging for waste streams maybe be politically unacceptable to different administrations.	Changes in policy or priorities are difficult to predict but the charging for waste streams may be politically unacceptable to different administrations. The lack of a food waste collection could be an issue in the future should it be made compulsory.
9	Difficulty in agreeing and implementing a new disposal credit allocation.	Historic approach allocates credits by tonnage, makes no allowance for actual collection costs. With no change in service, agreeing a revised approach likely to be easier.	Service changes may require an updated approach to 'credit' allocation. Range of approaches available and variance in 'credit' levels across the authorities may cause a perception of inequity.	Service changes may require an updated approach to 'credit' allocation. Range of approaches available and variance in 'credit' levels across the authorities may cause a perception of inequity.
10	Reputational damage	No change	Introducing charging may cause some reputation risk	Introducing charging, having a reduced recycling rate and the potential loss of Waste Infrastructure Credits may cause serious reputation risk

8. Stoke-on-Trent City Council – Unitary system

The situation for Stoke on Trent City Council needs to be considered independently. As a Unitary authority, the council is responsible for both the collection and disposal aspects of waste management. This avoids disposal credits and helps simplify the decision-making process for any potential service change. Analysis of the options is shown in the following chart and table and indicates similar trends to those of the two-tier authorities. Depending on the uptake of the charged for garden waste scheme and level of food waste tonnage collected, then the Preferred

Option will have similar recycling rates as present. However, the introduction of a charged for garden waste collection is likely to result in a drop-in recycling rates.

All the options result in cost savings when compared to the current service, with the greatest potential saving from introducing a charged for garden waste collection service only. Under the Preferred Option, Stoke-on-Trent would be able to introduce a food waste collection in conjunction with a charged for garden waste service and still make cost savings.

Several of the risks identified in Figure 3 for the two-tier authorities apply to Stoke-on-Trent but ones that relate to Waste Infrastructure Credits and Disposal credits are less critical. Although it is acknowledged that any loss in Waste Infrastructure Credits would have an impact on the Partnership and thus Stoke-on-Trent.

Figure 4 Stoke-on-Trent recycling rates for options

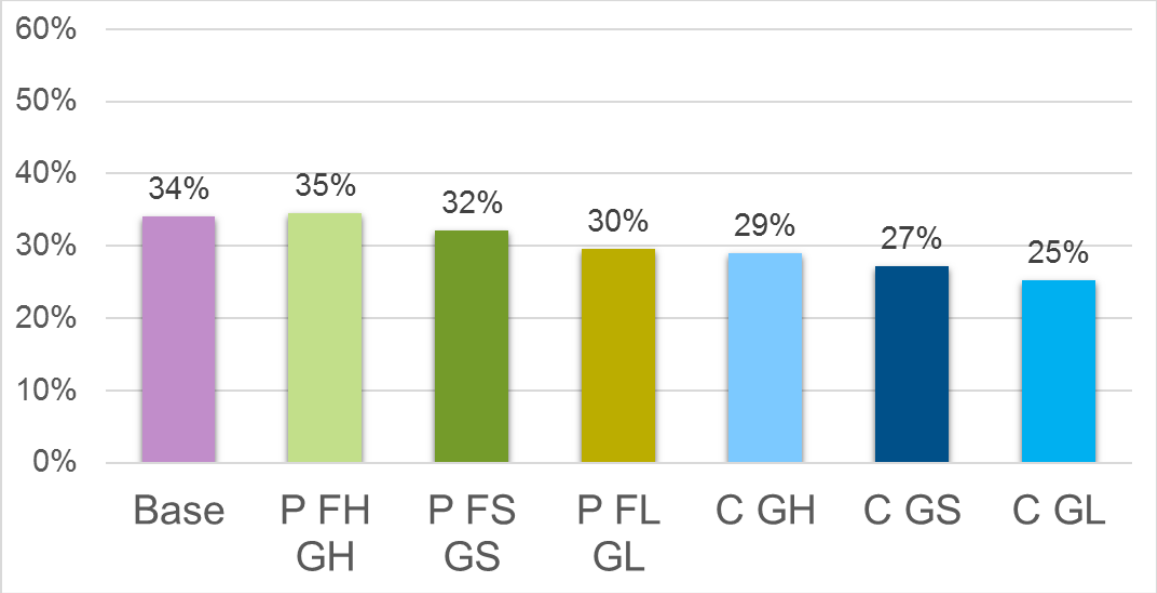


Table 3 Stoke-on-Trent whole system costs for options

Stoke-on-Trent	Base	Preferred option: food & charged for garden			Counterfactual option: charged for garden & no food collections		
		P FH GH	P FS GS	P FL GL	C GH	C GS	C GL
Total collection	£2,990	£3,870	£3,870	£3,540	£2,710	£2,710	£2,420
Total treatment	£2,220	£1,910	£1,820	£1,730	£1,790	£1,710	£1,640
Garden waste income	£0	-£860	-£730	-£500	-£860	-£730	-£500
Total collection costs	**£5,210**	**£4,920**	**£4,960**	**£4,770**	**£3,640**	**£3,690**	**£3,560**
Difference to Base		**-£290**	**-£250**	**-£440**	**-£1,570**	**-£1,520**	**-£1,650**
Residual Disposal	£3,160	£2,960	£3,020	£3,090	£3,240	£3,240	£3,250
Additional garden waste @ HWRCs	£0	£70	£90	£110	£70	£90	£110
Total disposal costs	**£3,160**	**£3,030**	**£3,110**	**£3,200**	**£3,310**	**£3,330**	**£3,360**
Difference to Base		**-£130**	**-£50**	**£40**	**£150**	**£170**	**£200**
Total collection and disposal	**£8,370**	**£7,950**	**£8,070**	**£7,970**	**£6,950**	**£7,020**	**£6,920**
Difference to Base		**-£420**	**-£300**	**-£400**	**-£1,420**	**-£1,350**	**-£1,450**

9. Impact on residual facilities

The options explored will have varying impact on waste going to the residual facilities used by the Partnership. The separate collection of food waste should reduce residual waste quantities. As part of the project tonnage projections will be provided to help estimate and plan for residual treatment across the Partnership.

10. Findings

The analysis has identified there are potential whole system costs savings across the two-tier authorities in the region of £3million for the Preferred Option (charged for garden collection and food waste collection) and £7million for the counter factual (charged for garden collection). However, as identified by the high-level risk assessment, there are a range of significant additional factors that need to be considered, in particular the reduction in recycling rate and the potential withdrawal of Waste Infrastructure Credits.

For Stoke-on-Trent, all the options result in cost savings (£0.3milltion to £1.4million) when compared to the current service, with the greatest potential saving from introducing a charged for garden waste collection service only. Several of the risks identified for the two-tier authorities apply to Stoke-on-Trent but ones that relate to Waste Infrastructure Credits and Disposal credits are less critical.

Across the whole Partnership it appears that food waste collections, in conjunction with a charged for garden waste service, can be introduced and still enable cost savings.

11. Recommendations

Following review of the final report, it is recommended that the following three items are integral to the success of any system changes:

1. the Partnership identify if there is a consensus on whether the preferred option or counterfactual is to be taken forward for further investigation;
2. once an informal decision on the option has been made, a further detailed discussion with Defra regarding the Waste Infrastructure Credits should be undertaken to understand the potential implications and seek guidance to develop a recycling plan and/or a detailed Variation Business Case; and
3. begin work on negotiating a revised disposal (recycling) credit approach.

Following progress on the above, it is recommended that the next stage should include a study to identify a strategy for transition to any proposed new service. Areas this may cover are:

- Procurement of any new collection and treatment contracts (jointly or individually?);
- Contractual issues – assess variations to present contracts;
- Mobilisation and timescales – understand how each WCA may implement proposed changes;
- Communications – ensure effective promotion and communication activities are included to aid successful roll out and uptake;
- Development and roll out of a new disposal credits approach.

There may be opportunities for funding to support this next phase, such as WRAP, particularly if the service to be taken forward is one which incorporates the separate collection of food.