

FAREHAM

BOROUGH COUNCIL

Report to Streetscene Scrutiny Panel

Date **28 January 2021**

Report of: **Head of Streetscene**

Subject: **REFUSE & RECYCLING COLLECTION MODELLING**

SUMMARY

The report sets out several models for the collection of recycled materials that are in line with the requirements set out in the Government's Resources and Waste Strategy.

RECOMMENDATION

The Members of the Panel are invited to scrutinise the refuse and recycling collection models set out in the report.

INTRODUCTION

1. In December 2018, the UK Government released the 'Our Waste, Our Resources: A Strategy for England' (known as the Resources and Waste Strategy, or RaWS). RaWS sets out key objectives for dealing with waste at a national level and suggests ways in which these objectives might be achieved.
2. The focus of RaWS is moving towards a circular economy by maximising the value of resources and minimising waste, with the aim of achieving a 65% recycling rate by 2035.
3. RaWS covers a range of proposals including, Deposit Return Scheme (DRS), Extended Producer Responsibility (EPR) and Consistency in Household Recycling Collections.
4. A report was presented to the Streetscene Scrutiny Panel in March 2019 that outlined the Governments consultation on the Resources and Waste Strategy. Comments from the panel members were incorporated into a formal response from the Council on the four consultations published by DEFRA in relation to RaWS.
5. Consistency in Household Collections focuses on how municipal recycling in the UK can be modernised in order to improve the quantity and quality of household recycling collected at the kerbside.
6. The precise collection arrangements are still unknown, with further consultations expected summer 2021, but it is evident that co-mingled recycling collections, that currently operate in Fareham, won't deliver the ambitions outlined in RaWS.
7. Officers have considered alternative collection arrangements in line with the requirements set out in RaWS and prepared some high-level cost models. These are summarised in the report and give an indication of the potential implications for the future of waste and recycling collections in Fareham.

BACKGROUND

8. The Government's aim is to make household waste and recycling collections across the country consistent in order to make recycling simpler and easier for residents. There is a requirement for separate collections of dry recyclable materials to help improve the quality of recycling collected at the kerbside.
9. Fareham currently collects dry mixed recycling at the kerbside, as a co-mingled collection, which is then sorted at the Portsmouth MRF. Unfortunately, the MRF cannot take glass or plastic pots, tubs and trays.

10. RaWS specifies a core set of dry materials to be collected at the kerbside. Each recyclable waste stream must be collected separately unless it is not technically or economically feasible to do so or where there is no significant environmental benefit in doing so. These include:
 - Glass
 - Metal
 - Paper & card
 - Plastic (including pots, tubs and trays)
11. In addition, there is a requirement for a weekly collection of food waste and fortnightly collection of garden waste. RaWS suggests that the collection of garden waste could be free of charge.
12. In conjunction with the modelling of new collection arrangements, Hampshire County Council (HCC), as the Waste Disposal Authority (WDA), are investigating how it can provide appropriate infrastructure to meet the requirements of RaWS.
13. This includes proposals for a new food waste processing plant and a twin stream Materials Recovery Facility (MRF). Plans to create a new Super MRF that could sort co-mingled dry recyclable materials, including glass, has been shelved by HCC as it is not considered financially viable.
14. The final decision regarding waste and recycling collections in Fareham will be dependent on both central government guidelines and the level of infrastructure provided by Hampshire County Council.

COLLECTION MODELS

15. Integrated Skills Ltd (ISL) have been employed by the Council to assist with the collection round re-balancing exercise. The data compiled to create the new rounds has been used as the basis for modelling several collection options. These include:
 - Separate Weekly Food Waste
 - Twin Stream Dry Recycling (Containers & Fibres)
 - Kerbside Sort
 - Fortnightly Residual Waste
 - Fortnightly Garden Waste

Food Waste

16. Food waste can be collected as either:
 - A standalone service; includes two containers (caddies) per household – a smaller one for internal use and a larger one for external use. Liners can be used for the smaller internal caddy.

- Or mixed with garden waste; collected in a wheeled bin. This has implications on disposal infrastructure, meaning garden waste could not be sent for open windrow composting as with the current system. It also means that garden waste collection could no longer be charged for. This is not the option favoured in the RaWS.

Twin Stream

17. Twin stream recycling involves collecting dry mixed recycling in two separate streams:
 - Householders are provided with two containers for their dry recyclable materials.
 - The main intention is to keep glass and fibres (paper and card) separate, as glass can bind with the fibres and reduce their quality
 - Generally, the two streams of recyclables would be collected on the same vehicle in two separate compartments
 - Apart from the separation of the two streams, any further sorting required is completed post-collection (i.e. at a MRF).
18. Kerbside sort requires residents to separate their recycling into different containers for paper, cardboard, cans and plastics, glass and food. These are then manually loaded onto a specialised vehicle with various compartments for each recycling stream.
 - Multiple recycling containers of varying sizes are provided to residents. They could be a mix of boxes and bags
 - Materials are usually collected weekly on a single multi-compartment vehicle.
 - Some element of kerbside sorting may be required by the collection crew
 - When the material is offloaded from the vehicle, the waste transfer facility needs to be able to store multiple material streams separately while awaiting onward transport for reprocessing.
 - Note: a kerbside sort vehicle could also collect food waste.
19. The main benefits of twin stream and kerbside sort recycling, compared to co-mingled dry recycling collections, is they can help to achieve lower levels of contamination and a higher quality of recovered material.

MODELLING ASSUMPTIONS

20. The data collected from the round re-balancing exercise has been used to calculate round sizes for each of the collection options. The model then calculates the number of properties for each round, the time it takes for collections and the mileage covered. This then determines the number of collection vehicles required and the crew size. Costs are then applied for staff, fuel, maintenance and an annualised cost for purchasing the collection vehicles required.
21. The model then calculates a baseline operational cost for each collection option. These costs are indicative and do not include, tipping costs, crew absence cover, cost of purchasing containers or internal recharges. However, the high-level cost models do give an indication of the potential cost of introducing new collection arrangements.
22. The following provides an outline of the assumptions made when producing the different models.
23. **Households** - currently Fareham Borough Council collects waste and recycling from 51,362 properties.
24. **Participation and Set-out Rates**- Waste and recycling collections are made available to all households but not all will participate. Fareham's current recycling participation rate is approximately 75% and residual waste 93%. However, the model assumes 100% for recycling and residual waste, 80% for food waste and 40% for garden waste.
25. **Vehicle Costs** - The purchase cost of the vehicles are spread over a period of 10 years to account for depreciation. Therefore, the annual cost applied to the model is one tenth of the vehicle cost.
26. **Vehicle Maintenance** – An allocation has been made for the annual cost of maintenance and replacing tyres, based on the size of the vehicle.
27. **Fuel** – The annual mileage covered by the collection vehicles for each model has been multiplied by the market average cost of fuel.
28. **Tipping** - Currently Fareham delivers waste and recycling to the Veolia facilities in Portsmouth. Future infrastructure (such as food waste processing plants) maybe located elsewhere in Hampshire. The round times in the model are based on the time it takes for crews to travel to the Portsmouth facility.
29. **Crew Costs** – The cost includes basic salary and overheads for employing a driver and loader. No allowance has been made for overtime, training or absence cover.

MODELLING RESULTS

Weekly Food Waste Collection

30. The Waste Composition Analysis undertaken by Project Integra partnership (PI) in 2018 identified 7.5% of material in Fareham's residual waste stream could have been recycled via the kerbside recycling service. Food waste accounted for 35.4% of lost recyclable material with the majority being avoidable food waste (28.6%).
31. The food waste collection model is based on the main method of collecting food waste already in operation in many authorities across the UK. The RaWS requires a separate weekly collection in which householders present a 23-litre caddy for collection which is then loaded onto a dedicated 7.5T food waste vehicle.
32. Residents are supplied with a 7-litre caddy, to be stored in the kitchen, in which to collect food waste. The RaWS has stated that these collections will be provided to all households including flatted properties, who would empty their kitchen caddies into a larger communal food waste bin.
33. To carry out weekly food waste collections across the borough requires five 7.5T food waste vehicles, each with a crew of one driver and two loaders. The indicative baseline costs for delivering this service is £555k per annum.

Twin Stream Recycling Collection

34. Twin stream recycling collections would be carried out fortnightly and would replace the co-mingled recycling collection currently operated in Fareham. Households would present two containers, one containing fibres (paper and card) and another for containers (plastics, glass and metal). The type of container used can be standard wheelie bin, plastic box or large sack (sometimes favoured for paper and card).
35. The most efficient collection method is using split body RCVs where both recycling streams can be collected simultaneously. Split body RCVs have two compartments that keep the two recycling streams separated.
36. The alternative is to use conventional RCVs and have separate collections of fibres and containers. While this may be less efficient, for Fareham it could reduce the start-up costs as existing RCV's can be utilised rather than purchasing new split back vehicles.
37. A total of six split body RCVs would be required to service all the normal access properties in the Borough as well as a narrow access vehicle that would collect the two recycling streams separately by visiting these properties twice a week. Seven crews would be required to service all properties. The indicative baseline cost for twin stream recycling collection with a split back vehicle is £831k per annum.
38. Separate collections of fibres and containers would require eight vehicles as well as the narrow access vehicle that would collect the two recycling streams separately by visiting these properties twice a week as above. Eight crews would be required to

service all properties. The indicative baseline cost for twin stream recycling with open back RVC is £1.025m.

Kerbside Sort Collection

39. Kerbside Sort requires the greatest separation of recyclable materials by both residents and collection crews. While it is a more complex collection method it achieves the highest quality of recyclable materials with the lowest levels of contamination but does have a longer service time.
40. Residents are supplied with a variety of containers (often stackable crates) in which to store each recyclable material (paper, cardboard, plastics, metal, food waste and glass). These are presented weekly at the kerbside for collection and the crews then manually load each crate into the various compartments on a specialised RCV.
41. Kerbside Sort collections are operated weekly as food waste is collected at the same time as the dry recycling streams. Therefore, although residents are required to sort their recycling to a greater degree, they receive more collections and store their recycling for a shorter amount of time. Kerbside sort also removes the need for separate glass and food waste collections.
42. Fareham would require 12 specialised kerbside sort vehicles with one driver and two loaders to deliver a weekly collection service across the Borough. This includes one small vehicle to carry out the NAV round. The indicative baseline cost for kerbside sort collections is £1.268m per annum.

Residual Waste Collection

43. Residual waste collection has been modelled to provide a baseline cost to enable like for like comparisons between different collection arrangements. Residual waste requires five 26T RCV's with a crew of one driver and two loaders plus a smaller NAV vehicle with one driver and one loader. The indicative baseline cost for fortnightly residual collections is £661K per annum.

Garden Waste

44. The model for garden waste collection is based on a wheeled bin service with a participation rate of 40%. This requires three RCV's with one driver and one and a half loaders plus a NAV vehicle with one driver and one loader. The one and a half FTE reflects the need to have two loaders during the growing season when weights are high but only one in the winter when weights reduce.
45. Although the garden waste collection service in Fareham will be chargeable, no income has been included in the model which only accounts for the gross cost of the service. The indicative baseline cost for fortnightly garden waste collection is £395k per annum.

FINDINGS

46. The table in appendix A provides a summary of the different collection arrangements with the number of vehicles required and a base line cost for each recycling stream. A model for the current collection arrangements has been included in the table with the same methodology applied to provide a base line cost comparison. While this is not an accurate reflection of the current budget for providing the service, it does enable a high-level cost comparison to be made against the other collection arrangements.
47. It can be clearly seen from the total cost of all the new collections, that there is a substantial increase in the cost of providing alternative collection arrangements.
48. The addition of a weekly food waste collection requires an additional five vehicles and five crews and would cost £555K. The twin stream recycling, using a split back RCV, adds an additional £230k to the total cost of service with the twin stream collection using single back RCVs nearly double the cost of the existing co-mingled dry mixed recycling collection.
49. Kerbside sort collection has one of the highest costs of an individual service at £1,268,253 as it requires 12 dedicated vehicles with a driver and two loaders for each. However, because they combine food waste collections with dry recycling collections, the overall costs are slightly lower than twin stream recycling collections.

IMPLICATIONS

50. **Fleet Management** - The vehicle operator licence required to run the Council's fleet would need to be extended should any additional recycling collections be introduced. Currently the Council has capacity for 30 HGV's and have 30 vehicles listed on the licence already. Additional Fitters would need to be employed to service and repair the extra vehicles.
51. **Depot Capacity** - There is currently very limited capacity at the Broadcut Depot to accommodate the extra vehicles required to run the extended recycling collections. Therefore, consideration will need to be given to how and where vehicles and equipment are stored.
52. **Processing Facilities**- Kerbside sort and twin stream recycling collections will require new processing facilities as existing infrastructure is unable to deal with these collection arrangements. There are currently no food waste processing facilities for household food waste in Hampshire. Food waste collected by Eastleigh and Portsmouth is currently deposited in containers at the Portsmouth MRF, which serves as a transfer station, before being taken by road to a food processing plant in Dorset.
53. HCC are currently undertaking feasibility works for the provision of dry recycling and food processing facilities which will require significant capital investment to deliver.

Early indications are that infrastructure for Kerbside Sort materials requires a significant number of new bulking and transfer stations in Hampshire which is likely to be cost prohibitive.

54. **New Burdens** – The government has indicated that any additional funding required to deliver the new collection arrangements will be covered by new burdens funding. However, it is likely that there will be stringent criteria that will need to be met, particularly with the quality of the materials collected, in order to obtain funding to cover all the additional costs.

CONCLUSION

55. There is still uncertainty about the configuration of future collection arrangements, but the position should become clearer in the summer of 2021 when the government is due to publish the next round of consultations.
56. In the meantime, work is ongoing with Hampshire County Council and the Hampshire waste collection authorities, as part of the Project Integra Partnership. This work is considering a more detailed appraisal of different collection options, the feasibility of providing the required processing infrastructure and a review of the current partnership arrangements.
57. Although the cost modelling in the report is only high-level, it does give an indication of the extra funding and resources that will be required. It also illustrates the scale of change will be required and the implications for the Council and the residents of the Borough.

Appendices: Appendix A – Summary of Collection Model High Level Costs

Background papers: None

Reference papers: None

For further information on this report please contact Mark Bowler (Ext. 4420)

Appendix A

Summary of Collection Model High Level Costs

Material	Current Collections Baseline Cost		Twin Stream (Split back RCV)		Twin Stream (Single back RCV)		Kerbside Sort Recycling	
	Service Cost	Vehicles	Service Cost	Vehicles	Service Cost	Vehicles	Service Cost	Vehicles
Separate Food Waste	N/A		£555,000	5	£555,000	5	N/A	
Recycling	£661,000	5	£831,000	7	£1,025,000	8	£1,268,253	12
Residual Waste	£661,000	5	£661,000	5	£661,000	5	£661,000	5
Garden Waste	£395,000	3	£395,000	3	£395,000	3	£395,000	3
Glass Collection	£140,000	1	N/A		N/A		N/A	
Total Cost of Service	£1,857,000		£2,442,000		£2,636,000		£2,324,253	
Vehicles Required		14		20		21		20