

CONFIGURATION OF THE NEW WASTE MANAGEMENT SERVICE CONTRACT

1 SUMMARY

- 1.1 The purpose of this report is to outline the results of modelling undertaken on behalf of Essex County Council using the Kerbside Analysis Tool, which provides a cost-benefit analysis of different types of waste collection systems.
- 1.2 This information will be of assistance in determining the configuration of the new Waste Management Service Contract.

2 INTRODUCTION

- 2.1 The system design modelling project was agreed by the Thames Gateway Waste Management Joint Committee and the Waste Management Board to be a valuable way of increasing Biological Municipal Waste (BMW) diversion from landfill through kerbside collections. The modelling will assist in determining whether there is a business case for building Transfer Stations and/or Material Recycling Facilities, (MRFs). In addition, the models will assist Waste Collection Authorities by providing robust data, which will assist in the determination of the system and performance targets which will form the basis of service plans underpinning the Inter-Authority Agreement and the funding formula.
- 2.2 AEA Energy and Environment carried out the modelling, using two modelling methods, to assess the whole system costs of household waste collection, treatment and disposal options. The Kerbside Analysis Tool was used to model the kerbside collection costs of household waste. The outputs from this modelling were fed into the AEA's "Wasteflow" model and the overall costs of the entire waste management system to the Waste Disposal Authority and the Waste Collection Authority were then calculated between 2005-06 and 2032-33.
- 2.3 The models took into account key dates when potential changes are planned in the waste management infrastructure. The key years are:-
 - 2008-09 New collection schemes are assumed to commence in Rochford;
 - 2011-12 Essex Mechanical Biological Treatment plants, MRF's and Anaerobic Digestion plants become operational; and
 - 2013-14 Solid Recovery Fuel plant becomes operational.
- 2.4 In order to undertake the analysis, certain assumptions had to be made about compliance with 2005/06 BVPI targets, waste growth, range of materials and the infrastructure.

- 2.5 The model required detailed information about types of vehicles used, the number of operational staff involved in the delivery of the services, the locations where refuse had been landfilled along with tonnages. Similar information was collected for recycling, including where the recyclable material was processed. Veolia ES (Serviceteam), the Councils refuse and recycling contractor and Greens Recycling both provided valuable assistance with information on the costs involved in delivering their services, which were used to form part of the baseline data.

3 THE OPTIONS

- 3.1 The options to be modelled were suggested by the Waste & Resources Action Programme (WRAP), who identified the options that would provide the most significant increase in recycling and landfill diversion, whilst taking value for money into account. The options were agreed by all Essex authorities, although it was noted that there are a number of potential variations to the choices selected.
- 3.2 The options selected were based on alternate weekly collections (AWC):
- Option 1 Fortnightly kerbside sorted dry recyclables, AWC garden and refuse and a separate weekly kitchen waste collection;
 - Option 2 Fortnightly kerbside sorted dry recyclables, AWC mixed organics (kitchen and garden waste) and refuse;
 - Option 3 Fortnightly co-mingled dry recyclables, AWC garden and refuse and a separate weekly kitchen waste collection; and
 - Option 4 Fortnightly co-mingled dry recyclables, AWC mixed organics (kitchen and garden waste) and refuse

The dry recyclable materials modelled were the same for both the kerbside sorted and the co-mingled and included:-

- Paper and magazines
 - Other paper
 - Card
 - Other card
 - Glass mixed
 - Foil containers
 - Aluminium cans
 - Steel cans
 - Plastic bottles; and
 - Other dense plastics.
- 3.3 Consideration was also given to the development and use of transfer stations to reduce the down time of drivers and operators on the refuse and recycling

collection teams. The use of transfer stations ensures that the first point of delivery is nearby and this allows the crews to work more effectively, as some of the facilities that materials would be delivered to are a considerable distance away. The cost of developing and operating the transfer station was assumed to fall on Rochford District Council.

4 THE COSTS

- 4.1 The model included the whole system costs in 2016/17, when all the new infrastructure will be in place, are shown in the table in the Appendix. It also takes into account penalties under the Landfill Allowance Trading Scheme (LATS). These are penalties imposed by Government for exceeding target levels of BMW sent to landfill. Our target is to reduce BMW from 22 to 7 kilo tonnes between 2005 and 2019.
- 4.2 The model identified that LATS penalties would be incurred in the period 2007-08 to 2013- 2014 after which the combined effect of the Mechanical Biological Treatment (MBT) and Solid Recovery Fuel (SRF), plants will reduce the tonnage of Biological Municipal Waste to below the level where LATS penalties will be incurred.
- 4.3 To avoid penalties between these two dates, ECC will needed to purchase LATS allowances from other Waste Disposal Authorities or find other options to increase diversion from landfill.
- 4.4 The model includes the following waste disposal and collection elements:-
- Kerbside collection costs;
 - Bulking and haulage costs;
 - Material processing costs;
 - Costs related to the transfer station;
 - Income from sale of recyclable materials
 - LATS, and
 - Recycling credits.

5 THE RESULTS

- 5.1 Compared to the baseline model there are increased levels of recycling and composting associated with all the options modelled. This is due to the number of households receiving garden collections, and the greater range of recyclable materials collected, as well as the introduction of kitchen waste collection.
- 5.2 Option 4 has the lowest costs due to the mixed organic collection and the co-mingled dry recycling collections being more efficient for the Council, however, the model shows that this delivers the lowest recycling and LAT's performance of all the options.

- 5.3 The model shows for every option an initial cost increase in 2008-09 as new collection methods are introduced. Options 1 and 3 have a considerably higher costs where a separate kitchen and garden collection takes place at approximately £250,000
- 5.4 However when new facilities become available in 2011-12 there is a significant decrease in costs for dry recyclables especially in Options 1 and 2.
- 5.5 In considering Waste Collection Authorities (WCA) costs only, separate organic collections are the most expensive options costing £260,000 more than a mixed organic collection (kitchen and garden waste together), however, they create the greatest increase in the recycling rate. Kerbside sorted cost is higher, but produces a better recycling rate.
- 5.6 In the long term, the baseline has the lowest costs but with a significantly lower recycling rate. Collecting co-mingled dry recyclables is overall cheaper than kerbside sorted as there is a high collection, bulking and haulage cost with the latter system.
- 5.7 The results suggest that there is a direct correlation between WCA costs and performance, the higher cost options leading to a better performance. Adding a transfer station increases the costs for each option, however transfer stations reduce traffic movements both within the district and to the final disposal facilities.
- 5.8 The figure in the attached Appendix shows the recycling rates that could be achieved, ranging from 18 – 22 per cent for the baseline model, to 42 per cent for Option 1, Kitchen only – garden only and kerbside sorted dry recyclables.

6 OTHER FACTORS TO CONSIDER

- 6.1 It should be noted that the modelling does not take account of a range of other factors that will impact on the district such as the potential for new regulations that further penalise poor performing councils in terms of recycling, broader environmental considerations, public perception, ease of use and sustainability.
- 6.2 There is evidence that weekly kitchen waste collection alongside AWC is more acceptable to the public.
- 6.3 The modelling used does not allow for construction delays in the MBT plant planned for 2011-12. If the plant were not operational by this date, there would be additional LATS penalties imposed.

7 CONCLUSION

- 7.1 All the options perform better than the baseline with regard to the recycling rate and significantly better against the LATS targets. The transfer station

options are the most expensive. All perform better than the baseline with regard to BMW diversion in the interim. Changes in the method of collection and a wider range of materials will significantly improve Rochford's performance in recycling in future years and help reduce the impact of LATS penalties in Essex.

- 7.2 Options 2 and 4 involve fortnightly collection of kitchen waste which it is suggested would be unacceptable to local residents.

8 RECOMMENDATION

- 8.1 It is proposed that the Sub-Committee **RESOLVES**

To consider the options set out in the report and use this information to inform the specification for the new Waste Services Contract.

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Background Papers:-

System Design Modelling – Rochford District Council Report by AEA Energy & Environment.

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Figure 5.2 Rochford's whole system costs in 2016/17

