**EXETER CITY COUNCIL**

**SCRUTINY COMMITTEE – COMMUNITY**
**6 SEPTEMBER 2011**

# ECONOMIC AND ENVIRONMENTAL IMPACT OF INTRODUCING A SEPARATE KERBSIDE COLLECTION OF GLASS IN EXETER

## 1. PURPOSE OF REPORT

1.1 This report explores the economic and environmental impacts of introducing a separate kerbside glass collection service and compares it to the present system of bring banks for glass in Exeter; it is brought to this committee for consideration.

## 2. BACKGROUND

2.1 Currently mixed recycling is collected fortnightly from each household in Exeter. Exeter City Council's (ECC) Material Reclamation Facility (MRF) at Exton Road sorts the following materials: paper, card, aluminium and steel cans, aerosols and all types of plastic household packaging (bottles, trays, bags, wraps, yoghurt pots etc). Glass is not, and cannot, be included in this mix as the MRF is not designed to process it, the equipment would be damaged, and the glass would contaminate other recyclates. Therefore to collect glass from each household necessitates the introduction of a separate collection service.

2.2 At present glass is collected for recycling through a network of ECC glass banks at 70 sites across the city, and separately at Devon County Council Household Waste Recycling Centres. This report only considers glass deposited for recycling in ECC banks, as glass taken to other sites does not belong to ECC.

2.3 Glass is collected in colour separated containers to maximise income and to ensure that the clear and brown glass enters 'closed loop' recycling. This means that the glass is sent for recycling not used as an aggregate replacement, which is the current main destination for green or mixed glass.

2.4 The majority of glass bring banks (and all paper banks) are serviced by ECC's own specialised vehicle which takes the materials to a bulking up facility at Exton Road. The remaining glass bank sites, where ECC's glass vehicle cannot access, are serviced by Devon Contract Waste. This glass belongs to ECC and is delivered to Exton Road.

2.5 There is also a very limited kerbside glass collection run by GreenSense, a private company that was established before ECC introduced recycling services.

## 3. GLASS AS A RECYCLATE

3.1 Glass is a valuable recyclate for a number of reasons. It has an intrinsic value as a commodity to be melted down and re-used as glass, or can be crushed and used in abrasives manufacture or as a aggregate. However, being a heavy material, it is important to take glass out of the waste stream so that landfill charges are reduced and recycling credits are increased (currently credits stand at £48 per tonne).

3.2 After transport costs, mixed glass has a value of between £0.00 - £0.99/tonne (least valuable), whereas colour separated glass currently has values per tonne of £14.48 (clear), £9.45 (brown) and £0.00 - £0.99/tonne (green). Hence the collection system

chosen has clear implications on the value of the glass yield, but the majority of the income is derived from the £48 per tonne recycling credit.

## 4. THE OPTIONS FOR KERBSIDE COLLECTION

### Mixed v. colour separated

4.1 Glass can be collected at the kerbside by two methods – manually separating the glass into 3 colour streams at the kerbside into a stillage vehicle with separate compartments, or collecting it mixed without any colour separation. Both systems require specialised vehicles and crews manually handling the glass.

### Fortnightly v. Monthly collections

4.2 Glass is dense and relatively easy to store, and could therefore be collected on a fortnightly or monthly basis. A reduced frequency of collection (eg monthly) lowers the cost of collection as fewer vehicles / crews are required.

### Containers and storage issues

4.3 For colour sorting of glass, open top containers are needed to enable the collection crew to see and sort the material.

4.4 For a mixed collection, wheeled bins would enable mechanised lifting but unfortunately would be too large for the average household. Vehicles with lifting equipment are more expensive and their design does not allow for the option of loading from open top containers. Exeter has a mixed system of refuse/recycling collections and is not suitable for a 'one size fits all' collection system. The best option, even for mixed glass would be open top containers.

4.5 Storage would be a problem for many households who already have limited space for their existing containers and of course monthly collections would exacerbate this. Presentation of containers full of glass on busy pavements in the city centre may be an issue if interfered with by passers-by.

## 5. POTENTIAL INCREASE IN GLASS AVAILABLE FOR COLLECTION

5.1 A waste audit of Exeter's refuse and recycling was undertaken in 2006 by Network Recycling. This report indicated that on average each household was throwing away (not recycling) 19kg of glass each year. Not all of this 19kg can be recycled and the recent light weighting of glass containers must also be factored in. Analysis by other local authorities who collect glass from the kerbside indicates that between 5% - 30% of glass still remains in the landfill waste. Applying this to ECC's tonnage would result in an estimated 600 extra tonnes (* Note 1) being available for recycling if kerbside collection was introduced. This extra tonnage would provide extra income from its sale and from recycling credits. It would also add about 1.5% to the recycling rate.

## 6. SAVINGS FROM REDUCED TONNAGE SENT TO LANDFILL

6.1 The 600 tonnes of additional glass collected for recycling would also represent a saving in landfill costs, although the responsibility of Devon County Council the cost is borne by the Exeter city council tax payer.

## 7. ENVIRONMENTAL AND ECONOMIC IMPACT

7.1 The environmental impact of introducing a kerbside collection of glass has both positive and negative aspects. On the negative side the additional vehicles required for the collection represent an increase in the carbon footprint of the recycling service, and add to the pollution already generated by the refuse/recycling vehicles already in operation. In addition, the extra costs of running such a scheme are high.

7.2 Unless the glass is collected 'colour sorted' (the more expensive option) the glass has no real value as there is currently a surplus of green and mixed glass in the UK. It is likely that mixed glass will be turned into aggregate and so will not be used as a resource (in place of virgin materials) for future glass production. Whereas, if kept separate, the clear and brown glass have a strong UK market and will be recycled again and again – one of the most important qualities of glass packaging.

7.3 The positive aspect of a kerbside scheme would be that around 33% more glass would be recycled and residents would not need to take their bottles and jars to bring-banks, however, the extra income derived from this additional glass fraction is compares poorly with the cost a scheme.

7.4 The economic impact of introducing a kerbside collection of glass is summarised in the table below, but it can be seen that even the cheapest option of a monthly mixed glass collection would cost an additional £367,241 per annum, with capital costs of £609,750 in the first year.

| | **Present System *** | **Fortnightly sorted glass** | **Fortnightly mixed glass** | **Monthly sorted glass** | **Mixed monthly glass** |
|---|---|---|---|---|---|
| Estimated tonnes collected | 1,820 | 2,420 | 2,420 | 2,420 | 2,420 |
| Revenue costs (including capital charges and DCC cost for landfill) | £112,918 | £785,764 | £585,786 | £685,775 | £485,797 |
| Income | £100,613 | £133,782 | £118,556 | £133,782 | £118,556 |
| Net Revenue Cost | £12,305 | £651,981 | £467,230 | £551,992 | £367,241 |
| Initial Capital Outlay | £0 | £842,400 | £687,300 | £764,850 | £609,750 |

* Note 2

## 8. OTHER IMPACTS OF INTRODUCTION OF A KERBSIDE GLASS COLLECTION

8.1 The estimated savings on ceasing to service and maintain the glass banks is based on removing the specialised collection vehicle and staff member. As the paper banks are serviced by the same vehicle they would have to be removed as well. These banks collect approximately 6% of the total paper recycled by ECC, but as paper is already collected from the kerbside the removal of these banks in unlikely to have any significant impact on the quantity of paper collected. Paper and Glass banks would still be available at Tesco's and DCC's Recycling Centres

## 9. SUMMARY

9.1 As shown in the table above there is a clear economic advantage is continuing with the present bring bank system for glass collection in Exeter. The present system sorts the glass into its colour fractions which enables it to be recycled for the greatest environmental benefit (and economical). Any change to the system should not undermine this principle.

9.2 To introduce a kerbside collection that derives the greatest environmental benefit means sorting the glass into its colour fraction at the kerbside, the most expensive option, with annual revenue costs of £651,981 and initial capital costs of £842,400 for a fortnightly collection.

9.3 In conclusion it would appear that maintaining the current extensive system of bring banks for glass, and expanding that system where appropriate to meet demand, is a more viable proposition in economical and environmental terms.

## 10. RECOMMENDED

That Scrutiny – Community comments on this report.

HEAD OF ENVIRONMENTAL HEALTH SERVICES

S:PA/LP/ Committee/911SCC12
3.8.11

COMMUNITY & ENVIRONMENT DIRECTORATE

**Local Government (Access to Information) Act 1985 (as amended)**
**Background papers used in compiling this report:**

**Notes:**

**1.**

- Glass light weighting effect reduces packaging by estimated 15% since 2006. 19kg – 2.85 = 15.15kg.
- Defra's Waste Strategy Unit estimates that only 95% of glass can be recycled
- 50,700 households x 15.15 kg = 768 tonnes x 95% = 729 tonnes
- Assume 80 % of available glass is recycled. 768 x 80% = 614 tonnes ( rounded to 600)

**2.**

- 2010/11 total tonnage (inc Greensence) was 2179 tonnes
- Annual reduction in tonnage is about 3%
- 2179 x 97% = 2113
- Removal of ECC banks from Tesco = approx 300 tonnes/annum
- 2113 - 300 = 1813 tonnes (rounded up to 1820 on the table)