

AGENDA MANAGEMENT SHEET

Name of Committee

Cabinet

Date of Committee

12th October 2006

Report Title

The Recycling of Plastics at Recycling Centres

Summary

The report details options for recycling plastics. It is proposed to continue recycling plastics bottles. If other plastics are separated out then, for these to be recycled, they are likely to require export outside Europe. In the UK the other plastics will be used as a fuel.

For further information please contact

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Would the recommended decision be contrary to the Budget and Policy Framework?

Yes/No

Background Papers

WRAP, UK Plastic Bottle Recycling Survey 2006, March 2006.

CONSULTATION ALREADY UNDERTAKEN:-

Details to be specified

Other Committees

.....

Local Member(s)

(With brief comments, if appropriate)

.....

Other Elected Members

Councillor K Browne
Councillor Mrs E Goode } for information
Councillor Mrs J Lea

Cabinet Member

(Reports to The Cabinet, to be cleared with appropriate Cabinet Member)

Councillor M Heatley – I support the recommendations and hope that this will lead to full collection and recycling of plastics throughout the Authority in the future.

Chief Executive

.....

- Legal I Marriott – comments incorporated.
- Finance
- Other Chief Officers
- District Councils
- Health Authority
- Police
- Other Bodies/Individuals

FINAL DECISION **YES/NO** (*If 'No' complete Suggested Next Steps*)

SUGGESTED NEXT STEPS :

Details to be specified

- Further consideration by this Committee
- To Council
- To Cabinet
- To an O & S Committee
- To an Area Committee
- Further Consultation

Cabinet - 12th October 2006

The Recycling of Plastics at Recycling Centres

**Report of the Strategic Director for
Environment and Economy**

Recommendation

That:-

1. We continue to collect plastic bottles High Density Polyethylene (HDPE) and Polyethylene Terephthalate (PET) at Warwickshire's nine Household Waste Recycling Centres for recycling.
2. Where the cost of handling other grades of household plastics are similar to those for plastic bottles, that these are exported to China for recycling.
3. We review the options for recycling all plastic polymers in 12 months time.

1. Introduction

- 1.1 Plastic bottles High Density Polyethylene (HDPE) and Polyethylene Terephthalate (PET) have been recycled within Warwickshire for some years (**Appendix A** provides a summary of the common household plastic polymers).
- 1.2 About 120 tonnes of bottles are recycled at Household Waste Recycling Centres (HWRCs) each year together with a further 75 tonnes collected by the District Councils. This is a small element (only 0.5%) of the dry material recycled but it generates considerable interest and comment.
- 1.3 In December 2005 a new Contractor, H.W. Martin Waste Ltd, took over the management of six of Warwickshire's HWRC's and introduced a mixed plastic recycling service for HDPE, PET, Polypropylene (PP) and Low Density Polyethylene (LDPE).
- 1.4 Shortly after its introduction an investigation into the markets and final destination of this mixed plastic material was carried out by the Waste Management Team following queries from a local Waste Resources Action Programme (WRAP) representative. The investigation revealed that not all of the materials were being recycled, some were being landfilled.

- 1.5 A decision was made to return to collecting plastics bottles only whilst markets for the other types of plastic were thoroughly investigated. Following this change more than 100 complaints were received in one month requesting that the service be reintroduced.
- 1.6 In response to these complaints two different options for recycling plastic at Warwickshire's HWRCs have been identified.

2. Option One – Plastic Bottle Recycling

- 2.1 There are well established markets in the UK for separating out plastic bottles which are primarily made of either HDPE or PET.
- 2.2 These types of plastics can be separated out at source, but in the UK there are plants which use infra-red detection technology to separate the HDPE, PET and other polymers. Recovered HDPE and PET then require different treatment methods to be returned to a suitable form to be reused.
- 2.3 HDPE is used to make rigid products such as pipes, toys and decking/fencing. PET is used to manufacture polyester fibre for a range of applications such as clothing, carpets and insulation material.

3. Option Two – Mixed Plastic Recycling

- 3.1 There are companies that will buy mixed plastics and two companies within the Midlands have been investigated.
- 3.2 **Sita Suez – Enstone, Oxfordshire**
 - (i) The Sita depot in Enstone accepts mixed plastics either loose or baled.
 - (ii) The plastics are bulked at the site and taken to the Plastics Recovery Plant in Preston (photographs available on request). The Preston facility is one of the largest plastic sorting and grading sites in the country containing infra-red detection technology which separates the HDPE, PET and other plastics.
 - (iii) Once separated, the PET is bulked and sent to various destinations for reprocessing and recycling into polyester fibre. The HDPE is sent for reprocessing into toys, buckets, pipes and boards. Both materials may be exported to China.
 - (iv) The other post-consumer polymers which typically include carrier bags (LDPE) and food containers (PP, PS) are bulked and sent to the Castle Cement kiln in Peterborough to be used as a fuel (replacement for coal).
 - (v) Oxfordshire County Council offer a mixed plastic collection service both at their HWRCs and kerbside collection. This material goes to Sita at Enstone to be processed via the Preston Plant.

- (vi) Plastic bottles collected at the Burton Farm Recycling Centre in Stratford-upon-Avon are taken to the Sita facility to be recycled. None is used as a fuel.

3.3 Jayplas – Loughborough, Leicestershire

- (i) The Jayplas Depot in Loughborough accepts mixed plastics either loose or baled (photographs are available of the operation).
- (ii) The Depot has an 80,000 square foot production facility which has three on-site bespoke recycling lines. Clean single polymer plastic can be fed through the lines to produce granules used in the blown film industry to produce plastic bags. The polymer used is dependant on the specific requirements of the customer.
- (iii) Mixed polymer loads received at the plant are bulked and sent to the Jayplas facility in China where it is both manually and mechanically sorted. The separated polymers can then be fed through machines in China, similar to those in England, or sold to other reprocessors.
- (iv) A number of authorities including Leicester City Council, Tamworth Borough Council and Northampton Borough Council recycle their plastic bottles through Jayplas. Both Rugby Borough Council and H.W Martin Waste also use them.
- (v) Jayplas state that they offer a complete tracking service from the point of collection to the end user (as raw material) therefore ensuring that all material is being recycled in an ethical and legal manner.

4. Advantages and Disadvantages of the Different Processing Options

The table below summarises the advantages and disadvantages of the options.

RECYCLING OPTION	ADVANTAGES	DISADVANTAGES
Plastic Bottles Only (various companies)	Well established markets Choice of reprocessor Easily auditable markets	All other plastics going to landfill or energy recovery (incineration).
Sita - Enstone	Can accept all household plastics Reduction to landfill Easily auditable	Approximately 35% of the plastic collected is being used as a fuel rather than recycled.
Jayplas - Loughborough	Can accept all household plastics Increased recycling/ reduction to landfill	Material exported outside of Europe and therefore more difficult to audit.

5. Other Considerations

- 5.1 The companies highlighted may not be the only companies offering the services discussed.
- 5.2 Alongside this investigation, ways of effectively and efficiently bulking plastic materials collected at HWRCs are being considered in order to reduce the cost of hauling such a light material. If this proves feasible other options could be considered.
- 5.3 As part of Warwickshire's Waste Strategy and through the Warwickshire Waste Partnership, the Warwickshire Districts are considering kerbside collection of plastic as part of their long-term plans. District Councils may not wish to collect mixed plastics due to cost implications.
- 5.4 The WRAP has recently published a report on the recycling of plastics bottles. The report briefly mentions the recycling of other plastic items. With respect to the latter, some schemes are described as running smoothly but others are

experiencing problems. The main problems cited are: the lack of end markets in the UK, reluctance to export material and an unstable market.

- 5.5 Plastic materials collected for recycling have different values dependant on the polymers. HDPE and PET tend to fetch a higher revenue when collected alone than when mixed with the other polymers.
- 5.6 It may not be financially viable to collect mixed polymer plastics at all sites within the County due to the increased costs of transporting the material long distances and the loss of revenue.

6. Options for a Way Forward

6.1 There are several ways forward:

- (i) That we continue to only collect plastic bottles (HDPE and PET) at Warwickshire's nine HWRCs for recycling.
- (ii) That dependant on contractual agreement we collect the other household plastics for use as a fuel in Cement kilns.
- (iii) That, as part of (ii), we advertise this new service fully with new signage highlighting the benefits of plastics as a fuel material over the negative effects of sending plastic material to landfill sites.
- (iv) That where the costs of handling other grades of household plastics are similar to those for plastic bottles, these are exported for recycling. The likely outlet is in China.

6.2 With respect to (ii), some residual waste is already being used to produce energy by sending it to the Coventry Energy from Waste plant. Quantities are currently limited by a Cabinet decision but they will need to increase in the future to ensure we achieve our landfill diversion targets. The waste processed will include some of the non-recycled plastics and other materials. In this respect non-recyclable plastics are no different from the other materials incinerated. The benefits of either the public or commercial operations specifically separating out non-recyclable plastics for use as a fuel are therefore questionable.

6.3 With respect to the export of mixed polymers outside of Europe, there are concerns that the recycling process would be difficult to audit. If this option was pursued it would need to be closely monitored ensuring that all legal and ethical concerns are considered.

JOHN DEEGAN
Strategic Director for Environment and Economy
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Warwick

29th September 2006

Cabinet - 12th October 2006

The Recycling of Plastics at Recycling Centres

Common Household Plastic Polymers

Code	Description	Applications	Recycled Products
PET (1)	Polyethylene Terephthalate	Pop and water bottles, oven and microwave proof food trays	Polyester fibre for carpets, clothing and insulation material
HDPE (2)	High Density Polyethylene	Milk, juice and detergent bottles	Pipes, toys, decking and fencing
PVC (3)	Polyvinyl Chloride	Windows, doors, carpet backing	Less widely recycled due to Chlorine content can be used to make other PVC products
LDPE (4)	Low Density Polyethylene	Carrier bags, black bags, squeezable bottles	Wheelie bins, compost bins, plaswood* products
PP (5)	Polypropylene	Margarine tubs, yoghurt pots and food containers	Pallets, brushes, plant pots and seed trays
PS (6)	Polystyrene	Drinking cups, packaging	Insulation, plant pots and seed trays
Other (7)	A different polymer or a mixture of one or more the above polymers	Various	Various

* Plaswood is a material made from a mixture of recycled plastic and recycled wood forming an alternative to wood products i.e. garden furniture and fencing.