

EAST HERTS COUNCIL

THE EXECUTIVE – 4 DECEMBER 2012

REPORT BY THE EXECUTIVE MEMBER
FOR COMMUNITY SAFETY AND ENVIRONMENT

CARDBOARD IN THE ORGANIC WASTE STREAM

WARD(S) AFFECTED: ALL

Purpose/Summary of Report

- To provide background to the issues with cardboard collection and processing in Hertfordshire.
- To consider the options available to address the cardboard issue and increase recycling in the future.

RECOMMENDATIONS FOR THE EXECUTIVE: That:

(A)	the issues associated with cardboard in the organic stream be considered and officers be instructed to bring forward costed options for modifying recycling services in the new year.

1.0 Background

1.1 Hertfordshire's 471,000 households present around 125,000 tonnes of organic waste in wheeled bins for kerbside collection each year. In addition, they take about 12,000 tonnes to Household Waste Recycling Centres (HWRC). Although there are no accurate figures, estimates for the amount of cardboard this includes range between 11,000 – 18,000.

1.2 East Herts Council collects around 16,000 tonnes of organic waste per annum of which perhaps, 1,100 to 1,500 tonnes is card.

1.3 Waste collection and processing in Hertfordshire is co-ordinated by the Herts Waste Partnership (HWP), made up of the 10

districts and the County Council. This body has a Member Board, consisting of the Executive councillors from each authority and an officer structure involving Directors and Heads of Service. The Partnership manages the delivery of the Hertfordshire Municipal Waste Management Strategy, co-ordinates waste and recycling publicity and media (WasteAware) and procures consortium contracts for a range of waste activities including abandoned vehicle collection, the sale of recyclable materials and organic waste processing.

- 1.4 The Herts Waste Partnership successfully achieved its target of recycling and composting 50% of household waste by 2012. It has set an aspirational target of achieving 60% by 2020. The performance of the individual authorities is shown in the table below.

Local Authority	Percentage Recycling		
	2009/10	2010/11	2011/12
Broxbourne	35.5	39.3	39.6
Dacorum	47.3	47.7	46.7
East Herts	41.4	48.3	48.4
Hertsmere	39.4	42.5	46.7
North Herts	48.7	50	49.5
St Albans	49.7	50.2	48.3
Stevenage	31.9	39.1	40.0
Three Rivers	49.5	50.9	60.5
Watford	39.7	40.2	41.2
Welwyn Hat.	34.1	36.5	49.9
Herts CC.	68.9	69.2	67.9
H W P	46.4	48.5	50.4

- 1.5 Given the technical nature of this report a 'Glossary of Terms' is provided at **Essential Reference Paper 'C'**.
- 1.6 The County Council is the lead authority for organic waste processing and has procured four waste processing contracts to treat the garden, food and card waste collected by the district councils. Purpose built facilities were provided under contract at Ridge (near South Mimms) for five districts; and Cottered for two districts (East and North Herts councils). The remaining three

district use existing facilities in the west of the County and in Bedfordshire.

- 1.7 These processing plants used a technology known as 'In-vessel Composting' (IVC) which basically use large enclosed containers to heat treat the organic waste to kill bacteria. This is necessary to comply with the 'animal by-products' regulations and eliminate the risk of the spreading of diseases such as 'Foot and Mouth' and CJD. This is followed by a secondary process, where material is screened, graded and stored until it becomes a compost suitable for use in agriculture. The process is strictly regulated by the Environment Agency and the Animal Health and Veterinary Laboratories Agency (AHVLA), on behalf of the Department for the Environment (DEFRA). Failure to meet environmental standards could result in enforcement action and ultimately suspension of the IVC plants operation. In these circumstances it might be necessary to send organic waste to landfill at a very high additional cost to the tax payer of c. £35 a tonne.
- 1.8 East Herts Council has collected garden waste in brown bins for many years and added food and cardboard from 2009. This significantly reduced the amount of waste sent to landfill which fell from 39,000 tonnes in 2007/08 to 27,700 in 2011/12, whilst property growth has been around 3.9%. It also supported the introduction of the Alternative Refuse Collection Scheme (ARC) in the same year by allowing residents to dispose of food waste every week if they wished in either the black or brown bin.
- 1.9 In 2011 following odour complaints by local residents, The Environment Agency carried out an investigation into the operations at the Ridge site, operated by Agrivert. This resulted in the Partnership revisiting the design of the facilities, the way they were being operated and the mix of materials. Although there were a number of contractual and operational issues to address, an important issue appeared to be the amount of card being delivered in organic waste bins and its impact upon the composting process. At the same time changes to European legislative standard for compost, known as PAS 100:2011, were introduced. This reduced the tolerance for organic material that could be classified as compost, fit to be used in agriculture and also raised questions about contamination levels in IVC processes. Concerns were raised by the Association for Organic Recycling (AfOR) in June 2011. AfOR advised that where local authorities were collecting high levels of card and paper with organic waste this was preventing IVC processes from working

properly. They recommended that whenever possible, paper and cardboard should not be collected with organic waste.

- 1.10 An officer group set up by the Partnership identified that the issues experienced at Ridge were common to many IVC plants in the UK that were allowing card to be processed with food and garden waste.
- 1.11 The amount of card in the organic stream has grown rapidly following its inclusion. Hertfordshire has been extremely successful in diverting this material away from landfill and in addition to the environmental benefits, there have been significant savings to Council Tax Payers.
- 1.12 In addition, there has been a growth in the use of card as retail packaging due to its lightness, cost and ability to be recycled. Unfortunately, a significant proportion of this packaging is now plastic coated or heavily dyed to the extent that it will not break down easily in a composting process.
- 1.13 Recent surveys have shown that waste sent to Hertfordshire's IVC plants can contain as much as 10%-15% card in the summer months and between 50% - 80% in the peak winter months when there is little garden waste. By contrast the non-card contamination is quite low at around 2%. The percentage of card in the mix is the key factor in determining whether the composting process will be successful.
- 1.14 A range of options have been tried by IVC plant operators including picking some card out following delivery ('front end picking'), different types of screening and shredding machinery, holding back garden waste to improve the mix and recirculation of material back into the process. However, these attempts have been only partially successful. The result has been a high level of non-compostable material coming out of the process that must be sent to landfill or incineration. For 2012/13 it is estimated that 8,500 tonnes arising from the Ridge site will be land filled at a cost of around £745,000. Under this contract Hertfordshire County Council is responsible for the cost of disposal of any non-compostable contamination that is delivered to the plant. Other contracts require plant operators to be responsible for the cost of disposal and this impacts upon the viability of the business model and potentially the future of contracts long term. At the Cottered IVC plant operated by Cumberlow Green Farm, problems have been less severe, but several hundred tonnes have needed to be sent to landfill.

- 1.15 Costs to the County Council of disposing of the non-compostable waste may ultimately be borne by district councils through a reduction in payments received for landfill diversion under a funding scheme known as the 'alternative financial model'. As this is a County wide scheme the financial impact on any one district is uncertain.
- 1.16 The Partnership officer group has looked in detail at Hertfordshire's IVC plants, carried out benchmarking with other authorities to consider whether there are alternative approaches. It has concluded that the large volumes of non-compostable card in the winter months present a risk of failure to meet environmental standards, odour issues and difficulties for re-processors in finding outlets for their product. Continuing as we are is likely to mean an ever present risk of suspension of composting operations, diversion of high volumes of non-compostable material to landfill and an unplanned change imposed on collection services.
- 1.17 In the medium term, EU legislative changes may mean that if the product of an IVC plant does not meet the regulatory standards for compost it cannot be used for agricultural use or count towards local authority recycling targets. From a procurement perspective, retaining card in the organic bin is likely to mean contractors are unwilling to bid, place restrictions on the type of material delivered or require higher gate fees, reflecting the risk.

2.0 Report

- 2.1 A key finding of the Partnership's officer group was that it is not viable in the long term for card to be collected and processed commingled with organic waste and a transition plan is needed to move to alternative collection and processing arrangements.
- 2.2 This presents a serious issue for Hertfordshire district councils, all of which are including card in their organic waste collections. Each authority will need to consider how to proceed based on the costs of change and their current collection methods, vehicles and infrastructure. There is no single answer and there may be different solutions depending upon local circumstances.
- 2.3 The main options available to East Herts Council are evaluated at **Essential Reference Paper B**. These range from 'do nothing' to a redesign of recycling collection services with different types of vehicles.

2.4 The options available are summarised in the following paragraphs.

Option 1 - 'Do Nothing'

2.5 The Council could choose to 'do nothing'. However, there is a real possibility that IVC plants will not be able to continue processing brown bin organic waste mixed with card. If there were an unplanned requirement to immediately remove card from brown bins this would take some months to achieve. It would take time to communicate the change to residents and card would continue to be placed in the brown bin until all residents understood and complied with the request. This might mean sending all brown bin material to landfill until the level of card fell to an acceptable level. Clearly this would be undesirable from an environmental perspective.

Option 2 - Cardboard collected in the Black Bin

2.6 The Council could introduce a planned programme of change asking residents to place their card in the black bin. For some residents this will not be a problem as their bin is not currently full. For others, particularly households that produce a great deal of card this could cause bin capacity problems. The Council will not collect overflowing bins for health and safety reasons and residents with excess materials would need to take them to the nearest Household Waste Recycling Centre.

2.7 Both the above options could be achieved at no additional operational cost to East Herts Council but there would be an increase in costs to the County Council from the extra waste sent to landfill. There might be a need for additional expenditure on media and promotion, depending on how quickly residents received and understood the message. This option effectively represents a reduction in recycling service provision and there would be a small reduction in the Council's recycling rate. Some residents may also be disappointed that material previously sent for 'recycling' is going to landfill.

Option 3 - Cardboard Bring Banks

2.8 Alongside asking residents not to place cardboard in the brown bin, the Council could convert its existing network of paper bring banks to allow the inclusion of cardboard. This would result in a net cost around £15,000 per annum. However, for convenience reasons some residents would not wish to use these sites and of the 1,100 to 1,500 tonnes of card collected in the brown bin, it is

estimated that only 200 – 400 tonnes would find its way to banks. The remainder would end up in the black bin and be sent to landfill.

Option 4 - Collecting card with dry recycling – Kerbside Sort

2.9 One option is to change the Council's dry recycling (paper, cans, glass, plastics) collection services to allow card to be included with these materials. While this might seem an obvious solution there are factors which fundamentally impact upon the operational arrangements and costs of adding card. These are as follows:

- Material prices. The effect that mixing material has on the sale price and therefore income. The Council is currently receiving approximately £1,050,300 per annum from 'recycling credits' and the sale of materials and this makes a significant contribution to service costs.
- Vehicle configuration and collection capacity. How materials are collected, in which container, their volume, weight and how they are loaded to the vehicle affects the number and type of vehicle needed and the number of staff to operate them.

Material Prices

2.10 The sale of recyclable material is made under consortium contracts managed through the Herts Waste Partnership. A new contract has recently been let for the sale of paper and a contract for the sale of other recyclables is currently being re-tendered.

2.11 Around 4,200 tonnes of paper is collected each year contributing approximately 63% of the Council's income from recyclables. Mixing in cardboard with paper would result in a significant reduction in the price paid by the reprocessing contractor (around £49 per tonne less) and therefore a loss of income of c.£150,000 per annum.

2.12 Mixing card with other recyclables (cans, plastic and glass) also reduces the value but by a lesser amount depending upon the mix. The Partnership does not currently have prices for 'commingled' materials under its existing contracts and therefore the exact impact is not currently known, however, some basic market testing suggests a loss in income of around £36,500 per annum.

2.13 Extensive analysis has been undertaken by officers under the auspices of the Herts Waste Partnership and this demonstrates

that from a material price perspective alone it is better to keep paper separate rather than mix it with other materials. A Hertfordshire wide consortium contract for commingled material will be tendered shortly through the Partnership and establish firm prices in January 2013.

Vehicle Configuration and Capacity

- 2.14 The Council's contractor is Veolia Environmental Services Ltd, which owns and provides collection vehicles. The recycling 'Kerbsiders' have three compartments (separated by internal doors). Crews separate materials on collection between paper, glass and cans/plastics. The latter are sorted by the re-processing contractor into different metal and plastic types. This kind of collection system is known as '*kerbside sorting*'.
- 2.15 The Council's vehicles are operating close to their capacity and adding cardboard would result in a need for additional contractor resources and therefore higher collection costs.
- 2.16 A key limitation of collecting cardboard with existing kerbsider vehicles is that these are not designed to take large cardboard boxes, even when flattened and if cardboard were added residents would need to break it up to fit in the existing recycling collection boxes. Attempting to load large sheets of card would result in blockages in the vehicle and material blowing away on windy days. St Albans Council is currently piloting the collection of card with Kerbsider vehicles and results should be known shortly.
- 2.17 If the 'kerbside sort' option were chosen, card and paper banks could be provided as described in section 2.8 above. This would provide an outlet for larger cardboard boxes in addition to the Household Waste Recycling Centres operated by the County Council.

Option 5 - Collecting card with dry recycling – Commingled

- 2.18 Another option involves changing the Council's collection arrangements so that materials are collected together in a wheeled bin. This type of collection system is known as '*Commingled collection*'. Rather than residents sorting their recycling into different boxes that the crews then separate on the vehicle, all material is placed together in a wheeled bin and presented for collection. The material is later sorted by the re-processor at a '*Materials Recovery Facility*' (MRF).

- 2.19 Council's throughout the UK operate this system of collection. Some are '*fully commingled*' i.e. all recyclables are collected together or '*part commingled*' i.e. one or more of the materials (usually paper or glass) is kept separate.
- 2.20 At the present time paper has a much higher value when not mixed with other materials and therefore collecting it separately makes financial sense. Neighbouring Welwyn and Hatfield Council launched such a system in March 2011.
- 2.21 Although material prices are lower for mixed materials, this type of collection system is more efficient as wheeled bins can be loaded to the vehicle more quickly than recycling boxes. Fewer vehicles and crews are needed. However, vehicles are more expensive to purchase and run. Whether it is a lower cost overall depends upon the relative material prices for mixed or separated recyclables.
- 2.22 East Herts Council has looked at commingled collection systems in the past, including when the current waste contract was let in 2010. However at that time kerbside sort systems offered better value for money due to limited availability of MRFs and high '*gate fees*'. Most Hertfordshire council's are now considering moving to commingled collection arrangements and this presents an opportunity for a County wide consortium MRF contract which should deliver better prices.
- 2.23 Lower material prices can be offset if more recyclables are collected. Evidence from local authorities that have introduced this type of collection system is that there would be a significant increase in the amount of waste that households recycle. This is because it is easier for residents to place their recycling into a single bin than sort it into boxes and extra materials, such as cardboard, tetrapack cartons and aluminium foil can be added.
- 2.24 East Herts residents are currently recycling and composting around 48% of their waste. It is estimated that '*fully commingling*' would increase this to around 58% and part co-mingling to around 52%. The top performing authorities are achieving around 65%, but this involves collecting food waste weekly, which would require a very significant additional cost with no additional income.
- 2.25 Under a part commingled system, as described above, the Council might reasonably expect to attract a further 2,500 tonnes of recycling per annum. A fully commingled system might achieve as much as 5,000 tonnes extra per annum. This performance has

been achieved by similar shire district councils using these collection systems.

- 2.26 These extra materials may attract additional income from sale of recyclates and East Herts Council would receive a 'recycling credit' from the County Council (for diversion from landfill) of around £40 per tonne. This extra income may offset the lower market price for mixed materials. Which option is the best from a financial perspective depends upon the relative market prices for mix materials with or without paper.
- 2.27 For East Herts a part commingled collection system would involve most residents continuing to have 4 containers for their waste (three wheeled bins and a paper box rather than two wheeled bins and two boxes). A fully commingled system would involve 3 containers (all wheeled bins).
- 2.28 Many will prefer the simplicity of this type of collection system and the extra recycling capacity this gives. However, some residents may not like a third wheeled bin in their garden.
- 2.29 Moving to this type of collection system would result in very significant one off capital investment to supply residents with new 240 litre wheeled bins and replace the existing 10 'kerbsider' vehicles with 8 rear loading 'split bodied' collection vehicles with bin lifts.
- 2.30 At the time of writing this report this is significant uncertainty about the costs of some options because the actual prices the Council would receive for the sale of commingled recyclables is unknown. A variation of only £10 either way could make a difference of £90,000. Firm prices will be known in January, once the Herts Waste Partnership consortium contract for material sales is awarded. This contract will have a number of 'lots' to establish prices for different mixes of materials and the Council will have an opportunity consider the relative costs of different collection systems.
- 2.31 In this context it would be prudent to wait until this information is known before reaching a decision on which option is best for the Council. It is therefore proposed that officers bring forward a further report including detailed costings for each option in the new calendar year.

3.0 Implications/Consultations

3.1 Information on any corporate issues and consultation associated with this report can be found within **Essential Reference Paper 'A'**.

Background Papers

None

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