

SOUTH CAMBRIDGESHIRE DISTRICT COUNCIL

REPORT TO: Strategic Waste and Recycling Review Task and Finish Group 10th September 2009

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REVIEW OF REFUSE AND RECYCLING SERVICE CONFIGURATION

Purpose

1. This report is the second of three reports forming the strategic review of the Council's Integrated Recycling and Refuse Collection Service (the Service).
2. It follows on from the first report, namely the Review of Refuse and Recycling Service Performance, presented to the Strategic Waste and Recycling Review Task and Finish Group (the Group) on 2nd July 2009.
3. This report informs the Group of matters that have been considered in relation to the future configuration of the Service and recommends an optimum service configuration that best meets the previously Member agreed priorities and outcomes.

Background

4. The first report considered the performance of the Service, outlining:
 - Current configuration
 - Performance against a range of performance measures
 - Strengths, weaknesses, opportunities and threats
5. The Group agreed that the future configuration of the Service should aim

"To obtain the best quality of service that the Council can afford"

whilst attaining a number of benefits and outcomes, listed below in priority/ weighted order:

- *A cost effective and efficient service*
 - *A high level of customer satisfaction/perception*
 - *Providing future flexibility to respond to external influences*
 - *Minimising environmental impact.*
6. In addition a number of factors¹ contributing to the above benefits and outcomes should be considered in the evaluating of the configuration options and in particular:
 - (i) Increasing capture rates
 - (ii) Improving on the dry recycling rate
 - (iii) Reducing the cost of collection through changes to collection configuration
 - (iv) Ensuring high quality recycled material is delivered to the re-processors/end market, thereby reducing the risk of rejection, price reduction and effects of market volatility

¹ Paragraphs 71, a-k of the stage 1 Refuse and Recycling Review Report

- (v) Ensuring that future health and safety risks are considered and either eliminated or reduced so far as is reasonably practicable
- (vi) Maintaining flexibility to respond to change and external influences

Considerations

7. This report focuses on the dry recycling and kitchen food waste elements of the integrated waste management service. It is not proposed to change the current method for storage and collection of residual and green waste. However, some changes are offered where these have a direct influence of the performance of the dry recycling or kitchen food waste element of the scheme.
8. A research, options and evaluation methodology has been adopted in the production of this report.
9. An extensive literature review of good practice relating to relevant collection and treatment technologies has been undertaken. Visits have been made and discussions held with other local authorities; operators of Material Recycling Facilities (MRF); material re-processors and vehicle and container manufactures to research different collection and treatment configurations. Differently configured collection vehicles have been trialled and three resident consultation workshops held to inform development of a number of options.
10. The good practice review considered in detail:
 - Characteristics of a good kerbside recycling scheme
 - Kerbside collection systems
 - Material processing systems
 - Collection system variables
11. A list of potentially viable options was then developed and evaluated against the factors listed in paragraph 6 above, from which an options short list was produced, re-evaluated against the factors and against the required benefits and outcomes.
12. The resultant options were then financially modelled and subjected to sensitivity analysis.

Good Practice Review - Characteristics of a good kerbside recycling scheme

13. The Waste Resources Action Programme (WRAP) has undertaken extensive research into the characteristics of a good kerbside recycling scheme².
14. The report concludes that a good service is one that achieves good yields through:
 - High participation rates – the number of households who regularly use the service as a percentage of those provided with the service
 - High material recognition (capture) rates – the amount of targeted material collected e.g. paper, as a percentage of the total amount available to be collected
 - Low contamination rates – the amount of non-targeted material collected as a percentage of the total quantity of recyclable material collected (Also, mixture of incompatible materials e.g. paper with crushed glass and or kitchen waste)
15. The report also concludes that a successful scheme:

² Kerbside Recycling: Indicative Costs and Performance, June 2008 (WRAP)

- **Is easy to use** – minimising the effort required for residents to use the service; providing residents with an appropriate method of containment (taking account of materials to be collected, storage, type of housing stock, ease of setting out); providing residents with adequate capacity, maximising the range of materials targeted
- **Is flexible** – to meet local circumstances (e.g. socio-demographic); changes over time (e.g. increased quantities of recyclable materials as a result of increased participation or recognition rates); changes to meet public demand (e.g. increase in range of materials targeted with associated implications on number and capacity of containers, collection vehicles, bulking/sorting arrangements)
- **Manages Health and Safety Risks** – applying to both operatives and service users

16. These characteristics are consistent with those agreed by the Group arising out of the first report by which options will be evaluated.

Good Practice Review - Kerbside collection systems

17. There are essentially three alternative types of kerbside recycling collection system:

- Kerbside sort** (current SCDC service) – materials are sorted at the kerbside into the different compartments (usually max 5) of a specialist multi - compartment collection vehicle. The collected materials are then delivered to processors or a bulking station for onward transportation to processors.
- Two stream co-mingled** – residents are provided with two recycling containers, each collecting different materials, usually a single stream in one e.g. paper, and co-mingled materials in the other e.g. cans, glass, plastic bottles. The single stream and co – mingled materials are collected by the same vehicle, but kept separate in two compartments. The single stream material is then delivered to a processor or a bulking station for onward transportation to a processor, as with kerbside sort. The co-mingled material is delivered to a Materials Recovery Facility (MRF) or a bulking station for onward transportation to a MRF.
- Single stream co-mingled** – Materials are collected, co-mingled, usually from a single container, in a single compartment collection vehicle. The co-mingled material is delivered to a Materials Recovery Facility (MRF) or a bulking station for onward transportation to a MRF.

18. Table 1 summarises some of the advantages and disadvantages of each system

Table 1 - Kerbside Collection Systems, Advantages and Disadvantages		
Kerbside Collection System	Advantages	Disadvantages
Kerbside sort	<ul style="list-style-type: none"> • Low contamination rates • Low risk of material rejection by processors • High quality materials • Higher potential income from materials to offset collection costs • MRF not required 	<ul style="list-style-type: none"> • Specialist vehicles required • Vehicle inefficiencies – capacity limited to that of first compartment to fill up normally volume rather than weight. • Material not compacted to improve payload therefore more vehicles required. • Large vehicles required to maximise payload – potential access difficulties • Greater management/control required of H&S risks (slips, trips, strains, falls, lifting and moving vehicle injuries) • Less flexible – difficulty adding new materials unless co-mingled (max compartments) • Excludes collection of food waste (cross contamination) • No additional materials processing costs (MRF transportation & gate fee £/tonne) • Low productivity – manual sort • Limits the storage / collections containers that can be used • Not the easiest storage system for residents
Two stream co-mingled	<ul style="list-style-type: none"> • High quality single stream material • Potential income from sale of single stream material • Easier management of H&S issues e.g. hydraulic lifting • Greater vehicle efficiencies - easier to balance capacities / weights of two compartments • Less specialised vehicles required • Added flexibility – ability to add new materials to co-mingled stream (subject to capacity of vehicle and ability of MRF to separate out) • Reduced exposure to 	<ul style="list-style-type: none"> • Additional materials processing costs (MRF transportation & gate fee £/tonne) • Potential risk of contamination / costs • Potential for reduced quality and value of co-mingled materials • Increased risk/cost of rejected loads if contamination level too high. • MRF required to sort co-mingled materials • Range of co-mingled materials restricted by those accepted by MRF

Table 1 - Kerbside Collection Systems, Advantages and Disadvantages		
Kerbside Collection System	Advantages	Disadvantages
	market volatility via MRF contracts <ul style="list-style-type: none"> • Not limited to using boxes for storage – easier to system use • Higher participation and capture rates 	
Single stream co-mingled	<ul style="list-style-type: none"> • Easier management of H&S issues e.g. hydraulic lifting • Increased number of collections (not constrained by compartment capacities/weights) • Standard vehicles required • Added flexibility – ability to add new materials to co-mingled stream (subject to capacity of vehicle and ability of MRF to separate out) • Reduced exposure to market volatility via MRF contracts • Not limited to using boxes for storage – easier to system use • Higher participation and capture rates 	<ul style="list-style-type: none"> • Higher additional processing costs (MRF gate fee £/tonne) • Reduced quality of co-mingled materials • Greater exposure to market volatility • Higher potential contamination • Highest risk of rejected loads • Least suitable for glass & paper collection – need to be kept separate if high quality paper is required. • MRF required to sort co-mingled materials • Range of co-mingled materials restricted by those accepted by MRF

Good Practice Review - Material processing systems

19. Recyclable materials collected by kerbside recycling collections have to be processed into a form suitable for recycling. The availability, proximity and cost of suitable post collection processing facilities are therefore key considerations in the choice of kerbside collection system.
20. Processing facilities, in their simplest form, often consist of no more than bays for the deposit and storage of material, which is then loaded into larger bulk haulage vehicles for onward movement to a re-processor (often referred to as 'bulking facilities'). Sometimes simple treatment is included to increase the payload of the haulage vehicle; this can include shredding and / or baling.
21. Bulking facilities are relatively low technology and can be sited closer to the point of kerbside collection, reducing travelling costs and collection vehicle and crew down time, but they can incur additional haulage costs for onward movement to a re-processor. With such facilities however it is easier to maintain the high quality of kerbside sorted materials.

22. MRFs are essentially similar, albeit larger facilities, which use more extensive technologies e.g. physical screens (trommels), magnetic extraction, eddy current separation, manual sorting, to separate co-mingled materials into different streams, which are again then bulked up for transport to recycling re-processors.
23. The fee charged by MRFs (the Gate Fee) is dependent upon a number of factors including the range and quality of materials processed, and the degree of co-mingling and contamination, all of which affect the degree of processing required and the end markets.
24. As the value of the recovered materials can be offset against the MRF Gate Fees, it is essential to minimise contamination at the point of collection in order to reduce the degree of processing required.
25. This is particularly so with high value materials such as paper, which UK re-processors have to import because of a lack of sufficient material of the required quality available on the UK market.³ Wrap's view is that demand for high quality paper from within the UK is therefore likely to grow.
26. Although MRF operators have advised that they are capable of removing glass from paper, it is questionable whether this can be done to meet the highest specification required by paper mills in order to command the best price. Paper mills and materials re-processors therefore recommend keeping paper separate from glass and other potential contaminants e.g. food residues, throughout the collection and processing phases.
27. They have also recommended keeping paper and card (e.g. breakfast cereal packets) separate, again in order to meet the highest paper specifications.
28. In terms of the availability, proximity and cost of suitable MRFs, all essential considerations, WRAP (WRAP Gate Fee Report 2008) is of the view that there is no shortage of adequate MRF capacity, primarily as an identified trend towards co-mingled collections accelerates. This is supported by the very positive experience of a number of RECAP partner authorities, which recently tendered for MRF capacity.

Good Practice Review - Collection System Variables

29. There are a number of other, albeit interdependent, variables that have been considered, namely existing and new materials, storage containers, participation and capture rates and resident consultation.

(a) Existing Materials

- (i) Paper - this constitutes approximately 21% of the total waste stream by weight,⁴ of which 54% is being captured by the current kerbside box for recycling, 30% by the green bin for composting and 16% in the black bin. As no recycling credit is payable on material captured in the green bin this represents a significant lost opportunity for what is one of the most valuable materials. This is particularly relevant given the overall reduction in the paper materials market due to changing reading habits and reduction in the grams per square metre (gsm) of

³ WRAP – Choosing the right recycling collection system

⁴ Source: SCDC waste analysis 2007/8

newsprint. It is essential however to keep paper free of contamination e.g. glass and food residue, in order to maximise its value.

- (ii) Kitchen Food Waste – this constitutes approximately 20% of the total waste stream, of which only 25% is being placed in the green bin. The remaining 75% of all food waste is being put in the black bin, representing a significant recycling opportunity.
- (iii) Garden Waste - this constitutes approximately 21% of the total waste stream, of which over 96% is being placed in the green bin.
- (iv) Card - this constitutes approximately 7% of the total waste stream, of which over 80% is being placed in the green bin. There is an opportunity to switch card from the green bin, which does not attract recycling credits, to a recycling container, keeping it separate from paper. Although the card would then have to be sorted, either at the kerbside or at a post collection facility (bulking station or MRF) it would then attract a recycling credit, which may outweigh any sorting costs.
- (v) Glass - this constitutes approximately 7% of the total waste stream, of which the current kerbside box is capturing 90%. Re-processors do not differentiate between glass collected separately and co –mingled; indeed there are operational advantages in co – mingled collections as the other materials e.g. plastic bottles, reduce the degree of glass breakage so reducing wear on collection vehicles.
- (vi) Plastic Bottles - this constitutes approximately 1% of the total waste stream, of which 85% is being captured by the current kerbside box. Although high volume/low weight, the introduction of plastic bottles into the kerbside box scheme in October 2008 saw an increase in other materials (glass; 6.5%, cans; 8.1% October 2008 - July 2009).

(b) Potential New Materials

- (i) Hard Plastic Packaging (pots, tubs and trays) - this constitutes 4% of the total waste stream and is consistently the material most widely quoted by residents as needing to be recycled.⁵ MRF and re - processing capacity is now available within the UK, which makes sorting, and re – processing a viable option. As with plastic bottles this material is high volume/low weight and has implications for storage container type and capacity.
- (ii) Cartons (Tetra-pack type) - this constitutes less than 1% of the total waste stream and is again a material widely quoted by residents as needing to be recycled. Whilst the experience of other councils is that this material is not sustainable on its own, there is adequate MRF capacity to make recycling cartons, co – mingled with other materials, a viable option.
- (iii) Textiles - this constitutes 1% of the total waste stream. The council's network of textiles recycling banks is currently being expanded. This material is also the focus of 3rd sector door- to – door recycling efforts.
- (iv) Batteries - this constitutes less than 1% of the total waste stream. The EU Batteries Directive has resulted in a number of compliance schemes, providing kerbside collection receptacles and collection from a centralised point free of charge. Recent resident consultation also showed support for the collection of batteries at the kerbside⁵.
- (v) Plastic Film (food and other wrapping) - this constitutes 2.7% of the total waste stream. WRAP has recently commissioned a trial reprocessing other plastic types, including plastic film and has concluded that end markets do exist. This was announced at a WRAP conference at Peterborough in June 2009, at which they launched a competition to access a £2M fund to encourage private sector infrastructure development. Although there is no viable recycling opportunity for plastic film at this time, it is considered likely that plastic film re-processing facilities will become available in the future. Any kerbside scheme should therefore have the flexibility to add materials in the future. This has implications for storage container type and capacity

(c) Storage Containers - table 2 below compares the advantages and disadvantages of alternative storage containers:

- (i) The 'Inner Caddy' has been designed to fit within a 240 litre wheeled bin enabling the lid to fully close and addresses the problem of how to separate materials e.g. paper, within a wheeled bin. It has ergonomic lifting handles enabling it to be lifted out of the bin and has been designed to pivot on the rim of the wheeled bin before lifting, making the entire process easier and safer. The 40 litre size also complies with the Health and Safety Executive's (HSE) recommendation that the volume of boxes should not be greater than 40 litres.

⁵ Source: CELLO mruk Recycling and Waste Focus Groups August 2009

- (ii) Trials and Manual Handling Assessments have been undertaken by the Council's Safety Advisor for various combinations of containers, including the inner caddy and existing green box and form the basis of subsequent health and safety evaluation.

Table 2 - Advantages and disadvantages of alternative storage containers

Container	Advantages	Disadvantages
55 litre kerbside box	<ul style="list-style-type: none"> • Materials can be stored separately, maintaining material quality • Capital investment not required 	<ul style="list-style-type: none"> • Ease of use – residents required to sort and separate materials, lift boxes • Limited capacity per box – multiple boxes required to provide additional capacity • Health and safety: Increased manual handling, repeated bending and lifting by operatives – high risk of injury • Health and safety: hand sorting of kerbside sort, increased risk of injury (sharps) • Health and safety: size of box (55 litres) above HSE recommended maximum size. • Flexibility – capacity may restrict the addition of new materials • Littering on windy days
Wheeled bin 120/140/240/660 litres	<ul style="list-style-type: none"> • Ease of use – wheeled bin easy to move • Ease of use – residents not required to sort materials • Health and safety: eliminates manual handling relating to boxes for residents and crews • Flexibility - Additional capacity for all current/future recycling streams • Smaller footprint 	<ul style="list-style-type: none"> • Contamination of co-mingled material (paper, glass, food residue – cans) • Capital Investment required

40 litre Inner caddy (for use inside wheeled bin)	<ul style="list-style-type: none">• Enables separation of paper within bin, reducing risk of contamination, maintaining paper quality• Health and safety; reduces manual handling – no bending, improved lifting –reduced risk of injury.• Health and safety; 44 litre Inner Caddy complies with HSE recommend	<ul style="list-style-type: none">• Capital Investment required
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(d) Participation and recognition/capture

- (i) The overall recycling/composting rate is a function of participation and recognition/capture rates. Where participation rates are very high, but recognition/capture rates variable, as is the case with the current Service, it is most effective to target recognition/capture rather than participation.
- (ii) It is clear therefore that any scheme needs to take measures to increase recognition/capture rates particularly targeted at specific materials e.g. kitchen food waste and paper.
- (iii) A recent Wrap report⁶ reported that capture rates for separately collected food waste weekly ranged from 43% – 77% with an average of 59% across the trials. Waste analysis carried out in 2007/08 in Cambridge City showed a kitchen food waste capture⁷ rate of 37%. This rate is considerably higher than South Cambridgeshire's food waste capture (25%). The collection services are identical with the key difference being the promotion of kitchen caddies, provision of kitchen caddies with all green bin requests and the availability of paper caddy liners. Carrying out similar activities in South Cambridgeshire could achieve similar, if not greater, capture rates.

(e) Resident consultation

- (i) CELLO mruk, an independent market research organisation, was commissioned to carry out a series of focus groups with representative samples of residents in the district to explore what they liked and disliked about the current recycling service.
- (ii) Four focus groups were held in August 2009. A total of 38 residents attended the groups (the optimum number of members for a focus group is recognised to be 8 or 9)
- (iii) In summary⁸, the main things attendees liked were:
 - The fact that collections were made at the kerbside
 - The collections were regular and collected on time
 - The service was easy
- (iv) Attendees didn't like:
 - Not being able to recycle plastics
 - Boxes are too small
 - No lids for boxes to stop them filling with water
- (v) In terms of improvements:

⁶ Wrap, June 2009. Evaluation of separately collected food waste trials June 2009

⁷ Resource Futures, March 2008. Final report on kerbside waste analysis Cambridgeshire and Peterborough Waste Partnership

⁸ Source: CELLO mruk Recycling and Waste Focus Groups August 2009

- Attendees were keen to see an increased number of materials, particularly plastics and thought that the more materials were collected at the kerbside, the more they would recycle
- Attendees also felt that it would make the scheme a lot easier to use and simplify things if all dry recycling could be put in one box or bin

Good Practice Review – Summary

30. The good practice review highlighted that there is no one solution to fit all. There are a number of factors, many interdependent, which need to be considered. However, a number of points are apparent:

- (a) Recycling schemes need to be easy for residents to use; flexible in terms of current and future capacity; have the ability to add materials in the future; manage health and safety issues for residents and collection crews
- (b) There are three main alternative schemes:
 - (i) Kerbside sort
 - (ii) Two stream co – mingled
 - (iii) Single stream co - mingled
- (c) The availability of suitable post collection re-processing facilities is a key consideration. Suitable MRF capacity is likely to be available for a range of materials including hard plastics and cartons
- (d) The quality of materials is key to maximising income and mitigating the effects of market volatility. There are opportunities to increase the quality and quantity of paper collected, providing a potentially valuable income stream, providing it can be kept free of contamination e.g. glass and food residue
- (e) There is a demand from residents and an opportunity provided by new MRF capacity to add new materials to the Service e.g. hard plastics and cartons
- (f) There is a need to target specific materials, increasing capture rates, particularly kitchen food waste in order to maximise recycling and composting rates

Service Options

31. Table 3 below outlines the various service options considered.

Table 3 – Service Options

Service Option	Waste Type	Containers	Frequency	Pros	Cons	Outcome
Option 1 Residual and Green Wastes	Residual, Garden, card and Kitchen (Divert card to dry recycle)	Black 240lt bin Green 240 lt bin	AWC AWC	<ul style="list-style-type: none"> Base service Diversion of card to dry recycle container may increase recycling credits but incur gate fee at MRF 		Carried forward for inclusion in all costed options
Option 2 Residual and Garden and Kitchen Wastes	Residual waste Garden waste Kitchen Food waste	Black 240 lt bin Green 240 lt bin Food Caddy	AWC AWC Weekly	<ul style="list-style-type: none"> Captures more food waste Fewer odour/ fly complaints Effectively weekly collection for food waste MRF not required 	<ul style="list-style-type: none"> Additional container Additional cost Recycling not contained to same week Different vehicles required Committed to existing vehicles via lease beyond 2010 Take up uncertainty and ability to collect residual waste with existing number of vehicles No recycling credit for processed waste On its own will not hit recycling target or comply with recycling legislation 	<p>Consider food caddy trials when vehicle leases expire.</p> <p>Priorities achieved (if stand alone option)</p> <ul style="list-style-type: none"> None <p>Priorities not achieved (if stand alone option)</p> <ul style="list-style-type: none"> Increased capture rates Improved dry recycling rate High quality material Health and Safety Flexibility 65% recycling target

Table 3 – Service Options

Service Option	Waste Type	Containers	Frequency	Pros	Cons	Outcome
Option 3 Recycling – kerbside sort	Paper, Glass, Plastic bottles and Cans	2 x 55 litre boxes	AWC	<ul style="list-style-type: none"> • High quality material • Low contamination rates • Low risk of rejection • Higher potential income from material sale • MRF not required • No capital investment 	<ul style="list-style-type: none"> • Risk of contamination of paper within boxes. • Health and safety issues for residents and operatives • Box above HSE recommended size • Limited capacity • Littering • Material types expansion limited • Specialist large vehicles • Vehicle inefficiencies • Reduced flexibility • Low productivity • Unlikely to meet 65% recycling target 	<p>Carried forward as base line for costing</p> <p>Priorities achieved</p> <ul style="list-style-type: none"> • High quality material (partially) <p>Priorities not achieved</p> <ul style="list-style-type: none"> • Reduced cost • Increased capture rates • Improved dry recycling rate • Health and Safety • Flexibility • 65% recycling target
Option 4 Recycling – 2 stream co-mingled	Paper Other dry recyclables	55 litre box 55 litre box	AWC	<ul style="list-style-type: none"> • High quality material • Partial sorting • Income from sale of paper • Low 	<ul style="list-style-type: none"> • Health and safety issues for residents and operatives • Box size above HSE 	<p>Priorities achieved</p> <ul style="list-style-type: none"> • High quality material <p>Priorities not achieved</p>

Table 3 – Service Options

Service Option	Waste Type	Containers	Frequency	Pros	Cons	Outcome
				contamination rates <ul style="list-style-type: none"> • Low risk of rejection • Higher potential income from material sale • No capital investment 	recommended size <ul style="list-style-type: none"> • Limited capacity • Littering • Material types expansion limited • Vehicle inefficiencies • Reduced flexibility • Unlikely to meet 65% recycling target 	<ul style="list-style-type: none"> • Increased capture rates • Improved dry recycling rate • Health and Safety • Flexibility • 65% recycling target

Table 3 – Service Options

Service Option	Waste Type	Containers	Frequency	Pros	Cons	Outcome
Option 5 Recycling – single stream co-mingled	Paper, Cans, Glass, Plastic bottles plus cardboard, hard plastic (pots, tubs and trays) and cartons (tetra packs)	240 wheeled bin	AWC	<ul style="list-style-type: none"> • Easier management of HandS issues e.g. hydraulic lifting • Increased number of collections (not constrained by compartment capacities/weights) • Standard vehicles • Added flexibility – ability to add new materials to co-mingled stream • Not limited to using boxes for storage – easier to system use • Higher participation and capture rates 	<ul style="list-style-type: none"> • Higher additional processing costs (MRF gate fee) • Reduced quality of co-mingled materials • Higher potential contamination • Highest risk of rejected loads • Least suitable for glass and paper collection – need to be kept separate if high quality paper is required. • MRF required to sort co-mingled materials • Range of co-mingled materials restricted by those accepted by MRF • No income from sale of paper • Greater exposure to market volatility • Additional bins to purchase • 	<p>Priorities achieved</p> <ul style="list-style-type: none"> • Increased capture rates • Improved dry recycling rate • Health and Safety • Flexibility • 65% recycling target <p>Priorities not achieved</p> <ul style="list-style-type: none"> • High quality material

Table 3 – Service Options

Service Option	Waste Type	Containers	Frequency	Pros	Cons	Outcome
Option 6 Recycling – single stream co-mingled	Paper, Cans, Glass, Plastic bottles plus cardboard, hard plastic (pots, tubs and trays) and cartons (tetra packs)	2 x 55 litre boxes	AWC	<ul style="list-style-type: none"> No additional containers necessary. Low risk of rejection No capital investment 	<ul style="list-style-type: none"> Health and safety issues for residents and operatives Box size above HSE recommended size Limited capacity Littering Material types expansion limited Reduced flexibility Unlikely to meet 65% recycling target High risk of contamination of paper within boxes. Higher processing costs. Decreased value of recycle No income from sale of paper 	<p>Priorities achieved</p> <ul style="list-style-type: none"> None <p>Priorities not achieved</p> <ul style="list-style-type: none"> Increased capture rates Improved dry recycling rate Health and Safety Flexibility 65% recycling target High quality material
Option 7 Recycling – 2 stream co-mingled	Paper Cans, Glass, Plastic bottles plus cardboard, hard plastic (pots, tubs	40 litre Inner Caddy 240 wheeled bin	AWC	<ul style="list-style-type: none"> High quality of material (paper). Easier management of HandS issues 	<ul style="list-style-type: none"> Additional bins and caddies to purchase – Capital Higher additional 	<p>Priorities achieved</p> <ul style="list-style-type: none"> Increased capture rates Improved dry recycling rate

Table 3 – Service Options

Service Option	Waste Type	Containers	Frequency	Pros	Cons	Outcome
	and trays) and cartons (tetra packs)			<p>e.g. hydraulic lifting</p> <ul style="list-style-type: none"> • Standard split vehicles required • Added flexibility – ability to add new materials to co-mingled stream • Reduced exposure to market volatility via MRF contracts • Not limited to using boxes for storage – easier to system use • Higher participation and capture rates • Ease of use by residents • High storage capacity • Reduced footprint of 2 boxes • Income from sale of paper • Reduced 	<p>processing costs (MRF gate fee) over kerbside sort</p> <ul style="list-style-type: none"> • Reduced quality of co-mingled materials • MRF required to sort co-mingled materials • Range of co-mingled materials restricted by those accepted by MRF 	<ul style="list-style-type: none"> • Health and Safety • Flexibility • 65% recycling target • High quality material (paper) <p>Priorities not achieved</p> <ul style="list-style-type: none"> • None

Table 3 – Service Options

Service Option	Waste Type	Containers	Frequency	Pros	Cons	Outcome
				processing costs over single co-mingled		

32. Table 4 below shows the costs of the options.

Table 4 - Costed Options							
	B and G	Band G +	k/side sort	paper + mix	co-mingled	co-mingled	wheeled bin
	W/Bins	food caddy	2 boxes	2 boxes	wheeled bin	2 boxes	paper caddy
	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	Option 7
Number of Rounds	13	+2	11	7	7	7	7
Crew size	Dvr + 2	Dvr + 2	Dvr + 2	Dvr + 2	Dvr + 2	Dvr + 2	Dvr + 2
Vehicle lease costs ²		£66,000		£308,000	£231,000	£231,000	£308,000
Vehicle running cost ³		£52,000		£182,000	£182,000	£182,000	£182,000
Staff costs ⁴		£158,466		£554,632	£554,632	£554,632	£554,632
additional oncosts ⁵				£0	£0	£0	£0
Processing costs ⁶		£0		185,955	£397,530	£335,580	247,905
recycling credit ⁷		£0	-£373,060	-£370,576	-£438,987	-£370,576	-£438,987
paper sales ⁸				-269,325	£0	£0	-269,325
Net budget book	£2,348,680						
Contract budget price			£1,307,841				
additional revenue collection cost to add to option 1		£276,466	£934,781	£590,686	£926,175	£932,636	£584,225
total annual service cost			£3,283,461	£2,939,366	£3,274,855	£3,281,316	£2,932,905
							£1,065,000 ¹
Wheeled bins					£1,149,000		£1,149,000
County Contribution					-£500,000		-£500,000
Inner Caddy							£270,000
Kitchen caddy		£270,000					
Container distribution		£70,000		£0	£70,000	£0	£90,000
total funds required		£340,000	£0	£0	£719,000	£0	£1,009,000

footnotes

- 1) price if ordered by 31/12/09 (£84k saving) else £1.149m to April 2010 then £1.26M
- 2) conventional rcv = £33k and split body rcv = £44k per annum
- 3) Includes fuel, tax, ins and minor repairs
- 4) assumes lowest scp in scale and current rates of pay
- 5) indicative amount from accountancy section
- 6) Indicative cost of £35 per tonne includes bulking, transport and MRF gate fee
- 7) assumes current recycling credit rate £38.65 per tonne
- 8) currently have contract for sale of paper at £63 per tonne

33. Table 4 above compares various criteria for each of the service options. Figures for options 1 and 3 are based on the current budget. Recycling credits, paper sales and processing costs are based on the material tonnages estimated for 2009/10 relevant to the individual options. Vehicle and staff costs are based on the current property

count of 60,000. No allowance has been made in the table for housing growth as official predictions are not currently available given the uncertainty in the housing market. The best estimate is a possible increase of 2,000 properties by 2011.

34. The option achieving all the required criteria for a new service and providing the greatest reduction in cost against current levels of expenditure is option 7 (the use of a 240 litre wheeled bin with an Inner Caddy collected by a split-bodied vehicle), the preferred option, which has been carried forward to table 5.
35. Table 5 below shows the comparison between base and preferred option costs projection over 5 years. Background to the costs are:
- **Collection Costs** – this is the total cost of the existing wheeled bin service with the current kerbside scheme (No Change) or the new kerbside scheme (Preferred Option).
 - **Recycling Rate** – The current rate (based on 1st quarter) has been used as a starting point. The 4% rise after one year is based on the experience of other councils. The plateau at 26% reflects the caution in achieving higher end recycling rates without further additional material (plastic film) and increased kitchen food waste capture.
 - **Inflation** – no allowance has been made, current costs have been used;
 - **Recycling credits** – are currently subject to an agreement which needs to be re-negotiated for post 2010 therefore existing rate as been used for each year;
 - **Staff Costs** – current rates of pay have been used but an increase of 1 spinal column point each year is shown for progression up the grade. It should also be noted that salaries may change when the new JE scheme is introduced post June 2010.
 - **Option 1** is the current budget which includes all the peripheral services such as bulky waste, bin delivery, clinical collections etc.
 - **Option 3** is the existing kerbside scheme and therefore detailed contractor costs are not known.
 - **Processing Costs** – enquiries have been made to establish the best price but this has coincided with a tender to supply a MRF for Huntingdon DC, Fenland DC and Cambridge City councils. Suppliers have therefore been reluctant to provide detailed costs. The procurement Officer placed an official advert seeking indicative costs. The lowest of the two responses received has been used (£15 p/tonne gate fee) with the known bulking and haulage cost of £20 p/tonne.
 - **Paper Sales** – The figure used is the current price obtained in a 5-year contract with Aylesford Newsprint for trade paper recycling (the specification is exactly the same as for domestic paper). It is anticipated that the price will be affected upwards when the new Palm paper mill opens in Kings Lynn later this year.
 - **Support Officers** – these are required to provide advice, guidance and general support at the start of the new scheme to increase participation and capture.
 - **Start-up Costs** – this allows for additional publicity and awareness costs.
 - **Hard to Reach Properties** – A small collection vehicle and an additional driver will be required to serve the 70 properties receiving a weekly service and the 700 properties that have wheeled bins but severe access problems for standard collection vehicles. The cost of this element of the service has been shown separately.
 - **Finance Charges** – The sum of £50k has been allowed to offset the interest lost in using £1.009M for container purchases and represent a 5% interest rate. Other options are being explored to reduce this amount.

Table 5 - 5 year Projection					
	Oct-10	Oct-11	Oct-12	Oct-13	Oct-14
No Change					
Collection costs	£3,656,521	£3,656,521	£3,656,521	£3,656,521	£3,656,521
Dry Recycling rate	20%	20%	20%	20%	20%
Recycling credits	-£373,060	-£373,060	-£373,060	-£373,060	-£373,060
net cost	£3,283,461	£3,283,461	£3,283,461	£3,283,461	£3,283,461
Preferred option 7					
Collection costs	£3,363,312	£3,376,947	£3,390,696	£3,404,448	£3,418,393
Dry Recycling rate	20%	24%	25%	26%	26%
Recycling credits	-£438,987	-£526,784	-£548,733	-£570,683	-£570,683
Processing costs	247,905	297,486	309,881	322,277	322,277
Income from sales	-269,325	-323,190	-336,656	-350,123	-350,123
2 support officers	£50,000	£52,632			
additional depot	£30,000	£30,000	£30,000	£30,000	£30,000
start up costs	£25,000	£25,000			
Hard to reach props	£65,000	£65,000	£65,000	£65,000	£65,000
finance charges *	£50,000	£50,000	£50,000	£50,000	£50,000
net cost	£3,122,905	£3,047,090	£2,960,188	£2,950,919	£2,964,864
Indicative Cost Savings	£160,556	£236,371	£323,273	£332,542	£318,597
sale of vehicles	£20,000				

* Financing charge may be reduced as a result of finance options being explored

All costs are full year (12 months) effects.

Projection Sensitivity

36. **Property numbers** -The affect of the recession on the planned housing growth has meant that predictions for growth are not currently available. Spot-hiring a vehicle and employing agency staff for the day could deal with an increase of 1,000 properties in one area, equating to one day's work. Given the current deferment in providing an vehicle and extra crew (MTFS), it is considered likely that a further crew will be required by year 2 at an additional cost per annum of £135k, at current costs, for all options.
37. **Recycling Rate** – if the anticipated increase to 24% in year two is delayed this would reduce the cost saving in 2011 by up to £88k (if no growth is achieved). A variation in the recycling rate of 1% equates to + or - £22k. Based on the experience of other councils it is considered likely that the recycling rate would increase.
38. **Recycling credits** – if the new arrangement for the amount of recycling credit increases the current value by 1% this would increase the payments by £5k.
39. **Processing Costs** – if a local MRF is provided, whereby the need for bulking and transport is removed, with a gate fee of £15 per tonne the cost saving would increase by £107k in the first year. A variation in the Gate Fee of £1 equates to + or - £6k. If the gate fee doubled to £30 per tonne the effect would be a £106k decrease in cost saving.

40. **Paper Sales** - if the paper price were to halve the cost saving would reduce by £128k. This is not considered likely due to the additional new paper mill opening in Kings Lynn by the end of 2009.
41. **Paper Sales and Processing Costs** – if a rise in processing costs coincided with a decrease in the paper price then for every £1 change the cost saving would reduce by £11k. If the processing cost and paper price were both £49 per tonne there would be a cost saving of £1,544.

Other Incentives to Enhance Dry Recycling

42. Already mentioned is the need to increase both resident participation in the recycling scheme and the amount of material captured. Government has recently tried to encourage councils to take part in trials for 'pay as you throw' schemes. The RECAP partners provided a joint response to this initiative at the time. The Portfolio Holder does not favour such an approach. However, there are other measures that could be taken, that do not entail additional expenditure, detailed below.
43. **Wheeled bin collection frequency** - In order to achieve a high-end recycling rate, it is vital that residents are encouraged to place kitchen food waste in the green-wheeled bin and dry recyclates in the appropriate recycling containers. Currently too much of these materials is placed in the residual black wheeled bin. By keeping the green-wheeled bin on a fortnightly schedule and moving the Black wheeled bin to monthly residents will be required to maximise all recycling. However society is unlikely to accept this as a variable option.
44. **Residual Waste Bin Contamination** – Currently if the wrong material is placed in the green waste wheeled bin it is not emptied. The crew seals the lid with 'contamination tape' and places a card through the letterbox of the property concerned explaining the reason for non-collection. The resident is required to remove the contamination and re-present the bin for emptying at the next schedule collection. The effect of this has been a high quality of green waste and no loads rejected by the operators of the In-vessel Composter.
45. If material of a type that is collected by the council in another container as recyclable is placed in the residual (black) Wheeled bin this could also be regarded as contamination and the bin left un-emptied as per the green bin. A warning system could be issued (Yellow and Red cards before the bin is left to assist residents).
46. **Use of Existing Boxes** - The existing boxes will attract a residual value of circa £0.50 each subject to the price of raw material. The cost of collecting the existing 55 litre boxes would outweigh the residual value. The opportunity could be given for residents to deposit unwanted boxes at Cambourne reception and possibly Parish Council offices.
47. **Trade and Schools Waste Recycling** - Adoption of the preferred option will enable the same range of co-mingled recyclates to be collected from schools and trade premises. This would enhance the service currently provided as more types of material could be collected and hence it may be attractive to more potential customers and will be leading edge in contrast to many of our competitors.
48. **Assisted Collections** – Residents who suffer from a physical impairment or disability and have no assistance can apply for an Assisted Collection. This is granted subject to a site assessment. A suitable storage and collection point is agreed, usually to the

front of the property or adjoining garage, and the crews collect and return the bins to this point.

49. The preferred option would enable this system to continue and would be easier to use than the current boxes as it would reduce bending and carrying.
50. We currently provide Assisted Collections to circa 2,000 properties; one of the highest in the County. The profile of our population means that the number of applications for assisted collections is likely to rise. This is a situation faced by all the RECAP partners. None of the partners require professional medical confirmation for an application. All the partners rely on information and response to a letter to control the numbers.

Implications

51.	Financial	These considerations have been included in the body of the report. An Equalities Impact Assessment will be undertaken.
	Legal	
	Staffing	
	Risk Management	
	Equal Opportunities	

Consultations

52. Vehicle manufacturers, bin and box manufacturers, other Councils, MRF operators, paper re-processors, resident 'user groups' and Council colleagues; have been consulted.
53. See paragraph 29e.

Effect on Strategic Aims

54.	Commitment to ensuring that South Cambridgeshire continues to be a safe and healthy place for all.
	Commitment to making South Cambridgeshire a place in which residents can feel proud to live.
	Commitment to assisting provision for local jobs for all.
	Commitment to providing a voice for rural life.
	The preferred option will deliver the best quality service the Council can afford with high levels of recycling and customer satisfaction/perception whilst minimising environmental impact thereby contributing to the above commitments.

Conclusions / Summary

55. The best option for providing an integrated waste and recycling service that achieves all of the Members priorities is option 7 i.e. the use of an Inner Caddy, for paper, placed inside a 240litre wheeled bin collected fortnightly by 'twin-pack' collection vehicles as this would have the potential for net saving against the existing budget of £160k full year effect in year one, rising to an estimated £323,000 in year three.

Recommendations

56. The Task and Finish Group is asked to recommend to the Portfolio Holder:
- a. That the preferred option 7 be adopted;
 - b. That consideration be given to the collection of small batteries
 - c. That future consideration be given to funding the kitchen food sacks
 - d. That future consideration be given to weekly collection of kitchen food waste

Background Papers: the following background papers were used in the preparation of this report:

Report to Waste and Recycling Task and Finish Group dated 2nd July 2009.
Recycling and Waste Groups Report - CELLO MRUK dated August 2009.
Kerbside Recycling, Indicative Costs and Performance – WRAP dated June 2009

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