

Warwickshire Waste Partnership

17 September 2014

Wheeled Bin Review

Recommendations

- (1) That the paper be used by the Waste Partnership, to debate the possible options for reducing residual capacity and recommend the way forward

1.0 Key Issue

1.1 In order to achieve new requirements laid down by the Waste Framework Directive and continue to move waste up the waste hierarchy the Warwickshire Waste Partnership updated the joint municipal waste management strategy for Warwickshire in 2013 and has set itself two key targets for the remaining strategy period:

- Aim to reduce residual waste produced to a maximum of 311 kg per household, per year by the end of the strategy period (2020).
- Aim to achieve a countywide re-use, recycling and composting target of 65% by the end of the strategy period (2020).

1.2 In order to achieve these targets the partnership will need to work together to reduce the amount of residual waste in Warwickshire and encourage residents to fully utilise the re-use, recycling and composting services provided.

1.3 The EU Commission is proposing a 70% municipal waste target by 2030 and bans on the landfilling of recyclable material by 2025.

2.0 Background

2.1 As part of the process for updating Warwickshire's Joint Municipal Waste Management Strategy the Partnership agreed some areas of focus to support the implementation of the targets.

2.2 The three areas chosen by the Partnership to be the focus for promoting kerbside waste education in Warwickshire were as follows:

- Promotion of environmental and economic benefits
- More information about services – how, when, what

- Smaller replacement residual waste bins where appropriate

- 2.3 A public consultation on the Strategy update took place in April/May 2013. As part of the consultation the public were asked whether they supported the areas of focus put forward by the Partnership. The results showed that overall the public did support the areas of focus put forward.
- 2.4 An implementation plan has been developed and has started to be delivered to promote the kerbside recycling/composting services.
- 2.5 This report on the implications of introducing smaller bins was requested at the Warwickshire Waste Partnership meeting on 11th March, so this area of focus could be considered by each district and borough council.

3.0 Current collection arrangements and capacity

- 3.1 The current provision for collection arrangements and capacity across Warwickshire is provided in Table 1. All materials are collected fortnightly.

Table 1 Current collection arrangements and capacity

District/ Borough	Collection arrangements (All collected fortnightly)	Households
North Warwickshire (NWBC)	240 litre wheeled bin for residual waste 240 litre wheeled bin for co-mingled recycling 240 litre wheeled bin for biowaste ¹	27,030
Nuneaton & Bedworth (NBBC)	240 litre wheeled bin for residual waste 240 litre wheeled bin for co-mingled recycling 240 litre wheeled bin for biowaste	54,670
Rugby (RBC)	240 litre wheeled bin for residual waste ² 240 litre wheeled bin for co-mingled recycling 240 litre wheeled bin for biowaste	43,680
Stratford-on-Avon (SDC)	240 litre wheeled bin for residual waste 240 litre wheeled bin for co-mingled recycling 240 litre wheeled bin for biowaste	53,580
Warwick (WDC)	180 litre wheeled bins for residual waste 55 litre box and 55 litre re-usable sack for source separated recycling ³ 240 litre for biowaste	60,570
Warwickshire Total		240, 530

¹ Comingled food and garden waste

² Standard replacement is a 180 litre wheeled bin – approximately 500 of these have been issued.

³ There is no limit on the amount of recycling you can present as long as it is contained and presented properly.

- 3.2 It is worth noting that a ‘traditional’ dust bin had a capacity of approximately 90 litres and this was collected weekly. However, time and waste composition have changed. The time of the ‘dust bin’ was in the days of the open fire where most combustible items would have gone on the fire and the bin would just contain ash. Milk and pop bottles were in returnable bottles and the availability of fruit and veg was only what was in season. The move to oil, gas and electric heating, the demise of the returnable bottle plus the change from glass to plastic for bottles in addition to the availability of almost any food at any time of the year has meant the volume of waste has risen substantially. After a brief use of paper sacks, which proved unreliable in wet weather, the 80 litre sack became the norm as collectors did not have to return to the property with the bin. Many authorities, for many years did not limit the amount of sacks collected.
- 3.3 The changes to our waste collections (adding recyclables and garden waste collections) in recent years have also increased the overall weekly collection capacity to its current level of 360 litres⁴ per household in North Warwickshire, Nuneaton & Bedworth, Rugby and Stratford-on-Avon. In Warwick the overall weekly collection capacity is an average of 292.5 litres⁵.
- 3.3 Warwickshire authorities have a policy of not taking residual side-waste (placed at the side of the wheeled bin and not inside the bin). They also require that the lid on the wheeled bin is closed. Residual waste that is placed outside the bin will not be removed for disposal.

4.0 Tonnages

4.1 The tonnages for Warwickshire in 2012/13 are provided in Table 2:

Table 2 - Residual waste, recycled and compostable material collected by the WCAs in 2012/13

District/ Borough	Residual Waste (tonnes)	Kerbside recyclables (tonnes)	Bring Schemes (tonnes)	Composting (tonnes)
NWBC	16,315	4,085	148	6,288
NBBC	26,847	9,834	252	11,413
RBC	22,164	8,073	271	10,277
SDC	21,557	13,026	2	17,186
WDC	22,397	10,263	90	13,948
Total	109,280	45,281	763	59,112

⁴ Based on (Capacity of bins x No of containers) x (Weeks of the year/Fortnightly collections) / Weeks of the year or ((240 litres) x (3))*(52/2)/52)

⁵ Based on ((180+240+55+55+55)*(52/2)/52) – Assuming each HH as 1 bag and 2 boxes

5.0 Performance

5.1 The performance for Warwickshire in 2013/14, for the two key targets in the updated strategy, was as follows:

- Annual kg of residual waste produced per household was 497.14 kg (NI 191)
- Countywide re-use, recycling and composting rate of 53.2% of municipal waste (NI 192)

6.0 Waste Composition Analysis results

6.1 A waste composition analysis carried out in Feb/March 2014 showed that overall 57.9% of collected residual waste could have been recycled at the kerbside – the equivalent of 4.34 kg/hh/wk or 50,746 tonnes per annum across Warwickshire.

6.2 The cost to WCC of disposing of **ALL** of the recyclable material remaining in the residual waste bin (based on the average residual waste disposal cost of £69.50 in 2013/14) was £3,526,847 per annum.

6.3 If **ALL** of the recyclable material was diverted into the current kerbside collections, based on the cost of the recycling credit £41.82 in 2013/14 this would result in the WCAs obtaining recycling credits to the value of £2,127,272. The disposal cost saving to WCC would therefore be £1,399,575 per annum.

6.4 It is not felt realistic to remove **ALL** recyclables from the residual waste stream at the kerbside, so the assumptions work on the basis of removing **50%** from the residual waste. If the Partnership managed to do this the performance for Warwickshire for the two key targets in the updated strategy would be approximately as follows. It should be noted that this performance figure is based on the kerbside recycling and composting only and does not include any changes introduced at the HWRCs.

- Annual kg of residual waste produced per household of 280kg (NI 191)
- Countywide re-use, recycling and composting rate of 64% of municipal waste (NI 192)

6.5 The potentially recyclable waste⁶, was largely made up of five material types; food waste, paper, plastic, card/cardboard and textiles.

6.6 Table 3 shows the kg/hh/wk for each material type.

Table 3 Kg/hh/wk of residual waste currently recyclable relative to current collection schemes

Current recyclables ⁷ in residual waste	NWBC KG/HH/WK	SDC KG/HH/WK	RBC KG/HH/WK	NBBC KG/HH/WK	WDC KG/HH/WK	County Average KG/HH/WK
Recyclable Paper	0.32	0.32	0.35	0.31	0.35	0.33
Recyclable card/cardboard	0.20	0.27	0.22	0.19	0.22	0.22
Recyclable Textiles	0.00	0.30	0.00	0.29	0.37	0.21
Recyclable Plastics	0.25	0.27	0.26	0.22	0.27	0.25
Recyclable Glass	0.12	0.14	0.13	0.10	0.14	0.13
Recyclable Metals	0.11	0.12	0.12	0.12	0.12	0.11
Recyclable Garden Waste	0.06	0.05	0.06	0.06	0.06	0.06
Recyclable Food Waste	2.94	3.23	3.05	2.70	3.03	2.97
Recyclable Other Organics ⁸	0.00	0.00	0.00	0.00	0.24	0.05
Recyclable WEEE & HHW ⁹	0.00	0.06	0.00	0.00	0.00	0.01
Total Recyclable	4.01	4.77	4.19	3.97	4.81	4.34

7.0 Proposal

7.1 The majority of residents across the County have access to a very comprehensive recycling service, which the waste composition survey shows is being underutilised.

7.2 In addition to providing education to residents, it is suggested that a number of options to reduce residual waste capacity are considered to understand if a

⁶ The overall recyclability of the residual waste relates to all the items present that could have been accepted into the current kerbside recycling containers specific to each WCA.

⁸ Pet bedding

⁹ Hazardous Household Waste

service change would be feasible in some or all of the Districts and Boroughs and if this would help achieve the targets in the updated strategy.

8.0 Required Outcomes

8.1 Any service change would need to ensure the following outcomes in order to be considered:

- Reduced residual waste being presented at the kerbside by residents
- Greater quantities of recycling waste being presented at the kerbside by residents, with low impact on contamination
- A rise in recycling rates across the County
- A reduction in treatment costs as less material is being sent for disposal
- Increased participation in recycling schemes across the County

9.0 Proposed Options

9.1 The proposed options are as follows:

- A. Purchase and roll out of replacement 180 litre residual waste bins for all households with a residual waste wheeled bin (in one programme) North Warwickshire, Nuneaton & Bedworth, Rugby and Stratford and continuation of fortnightly collection – this would bring these Authorities in line with Warwick residents.
- B. Phased replacement of 240 litre residual waste bins in North Warwickshire, Nuneaton & Bedworth, Rugby and Stratford with 180 litre residual waste bins by the end of the strategy period (2020) and continuation of fortnightly collection.
- C. Three weekly collection of the existing 240 litre residual waste bin in North Warwickshire, Nuneaton & Bedworth, Rugby, Warwick and Stratford.
- D. Fortnightly collection of two residual waste bags (1 per week) in North Warwickshire, Nuneaton & Bedworth, Rugby, Warwick and Stratford.
- E. Keep the service as it currently stands.

9.2 In all of the above options, allowances may need to be made for larger households or those with a legitimate reason for producing higher quantities of residual waste i.e. nappies/AHPs or larger families. It may also be necessary to allow for the collection of additional waste at Christmas and New Year.

9.3 It may be useful for some of the options suggested to carry out a pilot, if relevant this will be noted in the individual options review.

10.0 Options review

10.1 A brief review of each of the example options is provided on the following pages in tables 4 to 8.

Table 4 Review of Option A

Review of Option A			
Overview	Collection frequency	Cost/Saving implications	Impact on tonnage & targets
Purchase and roll out of replacement 180 litre residual waste bins for all households with a residual waste wheeled bin (in one programme) in North Warwickshire, Nuneaton & Bedworth, Rugby and Stratford	Continuation of fortnightly collection for all three waste streams (residual, recycling and composting)	<p>The one off capital cost for the purchase of the smaller residual waste bins would be approximately £3,359,267¹⁰ It should be noted that funding is not currently available at any of the Authorities and so funding would need to be investigated before this option is chosen.</p> <p>Payback on capital for the procurement of bins can be made in 1.5 years¹¹. Payback should be made to the provider before any savings are shared between the WCA/WDA.</p> <p>Cost of communications</p> <p>Additional costs will also be incurred to collect and dispose of "old" bins. If chosen full costs will be calculated.</p>	<p>Immediate reduced residual waste capacity per fortnight per household of 60 litres</p> <p>Residual waste of 5.34 (kg/hh/wk) or approx. 280 kg per annum - assuming 50% removal of recyclables.</p> <p>Potential increase of 11% on current re-use, recycling and composting rate – assuming 50% removal of recyclables.</p>
<p>Key Issues</p> <p>This scheme is already working effectively in Warwick, although it should be noted that it was rolled out as part of a larger service change (when the WDC moved from weekly sack collections to fortnightly refuse collections, together with introducing food waste collections and expanded their dry recycling service) and so residents would have received a lot of support at this time. The recycling and composting rate increased from 31% to 61% at this time, this has since reduced to 55% in 2013/14. It should be noted that since Warwick have a kerbside collection sort scheme they have the advantage that contamination is readily identifiable at source.</p> <p>The recycling rate in SDC where residents have a 240 litre residual waste bin is 26%, the recycling rate in WDC where residents have a 180 litre residual waste bin is 27% - this means there is no real difference in rates between the Authorities even though WDC has less residual waste capacity.</p> <p>Very likely this option would have a negative reaction from residents and would therefore need good support for residents to assist with the change.</p> <p>Huge logistical exercise and cost of exchanging old for new bins would need to be investigated and carefully implemented.</p> <p>Would not be able to move over to 3 weekly collections of a 180 litre bin as bulk densities would be too high (an average of minus .006 T/M³ short of space).</p>			

¹⁰ Based on bin cost of £18.95 (latest ESPO price of wheeled bin)

¹¹ Based on removing 50% of recyclables from the residual waste bin

Review of Option A

Could result in increased use of HWRCs for the disposal of excess kerbside waste.

May increase fly tipping

Political reticence/resistance from Councillors in WCAs

Table 5 Review of Option B

Review of Option B			
Overview	Collection frequency	Cost/Saving implications	Impact on tonnage & targets
<p>Phased replacement of 240 litre residual waste bins in North Warwickshire, Nuneaton & Bedworth and Stratford with 180 litre residual by the end of the strategy period 2020 - 6 years</p>	<p>Continuation of fortnightly collection for all three waste streams (residual, recycling and composting)</p>	<p>The annual cost for the smaller bins over the 6 years would be approximately £568,374 broken down across the 4 WCAs as:</p> <p>£85,370 for NWBC £172,666 for NBBC £137,956 for RBC £172,382 for SDC</p> <p>It should be noted that funding is not currently available at any of the Authorities and so funding would need to be investigated before this option is chosen.</p> <p>The average reduction in waste disposal cost per year would be £2,287,777</p> <p>Cost of communications to ensure that there are no issues with overloading or contamination.</p> <p>Implementation costs</p>	<p>This method will not be wholesale replacement, but will instead be phased the expected time to roll out across the County will be 6 years – the end of the current waste strategy period.</p> <p>Capacity would reduce over the 6 year period as shown in option A.</p> <p>The expected annual impact on the strategy target, assuming removal of 50% of the recyclables would be:</p> <p>Yr 1 – 59% Yr 2 – 60% Yr 3 – 61% Yr 4 – 63% Yr 5 – 64% Yr 6 – 65%</p>

Key Issues

This scheme is already working effectively in Warwick, although it should be noted that it was rolled out as part of a larger service change (when the Authority moved from bags to wheeled bins/ fortnightly collection) and so residents would have received a lot of support. It should be noted that since Warwick have a kerbside collection sort scheme they have the advantage that contamination is readily identifiable at source.

Very likely this option would have a negative reaction from residents at the point of change and therefore this option would need good support for residents to assist at that time. The phased approach minimises the risks associated with a large service change and consequent media communication issues.

The roll out of replacement 180 litre bins is already taking place in Rugby (currently 500 have been replaced), but based on the current annual replacement schedule of 200 bins per year it would take a very long time for all bins to be replaced. It should be noted that there have been some issues with

Review of Option B

overloading of bins and contamination in recycling in areas that are moving over to 180 litre bins. RBC are considering the stance on capacity for new properties and replacement bins.

Could result in increased use of HWRCs for the disposal of excess kerbside waste

One disadvantage of this approach is that the positive impacts would be seen gradually over time as more and more bins get replaced.

Another approach may be to start replacing 240 litre bins with 180 litre bins when residents request new bins, then fully roll out to the remaining properties once an agreed percentage has already gone over to 180 litre bins.

May increase fly tipping

Political reticence/resistance from Councillors in WCAs

Table 6 Review of Option C

Review of Option C			
Overview	Collection frequency	Cost/Saving implications	Impact on tonnage & targets
<p>Reduced collection frequency for existing 240 litre residual waste bins in North Warwickshire, Nuneaton & Bedworth, Rugby, Warwick and Stratford.</p>	<p>A reduction in the collection frequency of the residual waste bin to 3 weekly</p> <p>Fortnightly collection of dry recyclables and biowaste</p> <p>Provides flexibility for the future, does not preclude the introduction of smaller residual bins in future years.</p>	<p>No immediate capital investment needed for the North Warwickshire, Nuneaton & Bedworth, Rugby and Stratford</p> <p>The one off capital cost for the purchase of the larger residual waste bins in Warwick would be approximately £928,625¹²</p> <p>It should be noted that funding is not currently available at any of the Authorities and so funding would need to be investigated before this option is chosen.</p> <p>A rough estimate of savings on reduced collections would be £1 million</p>	<p>Weekly capacity reduced from 240 litres every 2 weeks to 240 litres every 3weeks.</p> <p>Residual waste of 5.34 (kg/hh/wk) or approx. 280 kg per annum - assuming 50% removal of recyclables.</p> <p>Potential increase of 27,141 tonnes</p>
<p>Key Issues</p> <p>The recycling rate in SDC where residents have a 240 litre residual waste bin is 26%, the recycling rate in WDC where residents have a 180 litre residual waste bin is 27% - this means there is no real difference in rates between the Authorities even though WDC has less residual waste capacity.</p> <p>Warwick has been included in this option for completeness even though they already have reduced residual capacity when compared with the other WCAs.</p> <p>Very likely this option would have a negative reaction from residents and therefore this option would need good support.</p>			

¹² Based on a recent 240 litre bin price of £19.55

Review of Option C

Design of new rounds would need to be investigated and carefully implemented to minimise disruption to the public. It should also be noted that WCAs may not be able to carry out this major change during current contract periods without renegotiating.

Could result in increased use of HWRCs for the disposal of excess kerbside waste.

Fear from public of increase in insects and vermin. A report on the health impacts of extended residual collections has been carried out by zero waste Scotland and its summary is provided in Appendix 1.

May increase fly tipping

It may be useful to carry out a trial of three weekly collections on one round to gain further information.

Political reticence/resistance from Councillors in WCAs

Table 7 Review of Option D

Review of Option D			
Overview	Collection frequency	Cost implications	Impact on tonnage & targets
Collection of two residual waste bags in North Warwickshire, Nuneaton & Bedworth, Rugby, Warwick and Stratford.	Fortnightly collection of 2 bags of residual waste per household	Ongoing purchase and delivery of council specific bags might be required – to prevent people putting out more than their allowance Cost of communications Implementation costs and increased costs of collections due to changes in the RCVs or the removal of the lifter mechanisms to enable this type of collection method to be carried out in such a way that it limits the H&S impacts – although these cannot be removed.	Reduced residual waste capacity per fortnight per household of 160 litres (Reduced from 240 litres)
<p>Key Issues</p> <p>This option has been considered for completeness, but due to the expected problems and issues this is not really considered a viable option.</p> <p>Areas that have this scheme in place, already had black bag schemes, rather than wheeled bins. There are no examples of Authorities moving from wheeled bins to black bags.</p> <p>The HSE¹³ recommends that wherever possible, refuse collection should be carried out using wheelie bins of appropriate sizes rather than bags or small dustbins.</p> <p>More litter on highways due to split bags and wildlife.</p> <p>The lengths of the rounds may increase due to the use of bags rather than wheeled bins. It should</p>			

¹³ Manual handling in refuse collection - http://www.hse.gov.uk/research/hsl_pdf/2002/hsl02-21.pdf

Review of Option D
<p>also be noted that WCAs may not be able to carry out this major change during current contract periods without renegotiating.</p> <p>Very likely this option would have a negative reaction from residents and therefore this option would need a very large amount of support to implement.</p> <p>Could result in increased use of HWRCs for the disposal of excess kerbside waste.</p> <p>Households may put out more bags for collection than allowed.</p> <p>Fear from public of increase in insects and vermin.</p> <p>May increase fly tipping</p> <p>Political reticence/resistance from Councillors in WCAs</p>

Table 8 Review of Option E

Review of Option E			
Overview	Collection frequency	Cost implications	Impact on tonnage & targets
Keep the service as it currently stands.	Fortnightly collection of residual waste, dry recycling and biowaste	Costs remain the same	Tonnage remains the same
<p>Key issues It may be difficult to meet 2020 re-use, recycling and composting target in updated strategy with education alone.</p>			

11.0 Fly tipping

11.1 There are always concerns when changes are made to the waste services that the change will result in increased fly tipping. Increases in fly tipping can occur when restrictions to waste are initially introduced, but this often settles down shortly afterwards. The impact on fly tipping would therefore need to be carefully monitored throughout the process. A budget to deal with any increases in fly tipping may be necessary.

12.0 Comparisons with other authorities

12.1 The options presented in this report are based on schemes already in operation across the UK. An overview of the three different types of schemes (bags, smaller bins and reduced collections) that have been implemented already and the impact this has had are provided in table 9 for information.

12.2 It should be noted that two of these examples are from Scotland and Wales. The reason for this is there are more detailed examples of Authorities that have already implemented reduced residual capacity in these areas, since they have more challenging national targets to meet. All of the examples have a weekly food waste collection, so this should be taken into consideration

when looking at the impact. The reason for choosing these examples is that they have the most detailed data on tonnages, recycling rates etc. at this time. A longer list of the Authorities that have or are considering making a change is included in Appendix 2 and can be monitored if necessary to gain an overview of how these schemes work elsewhere.

- 12.3 It is important to remember there are significant differences in services, performance, participation and demographics across Authorities and so the impact of a scheme can vary from place to place. Specific and detailed work on the impact of any proposed scheme in Warwickshire would need to be supported and carried out by members of the Partnership before any changes are investigated and then implemented.

Table 9 Implemented Scheme and impact

Authority	Implemented Scheme	Impact
Monmouthshire County Council	<p>Collection of two residual bags per fortnight (about 120 litres)</p> <p>Weekly collection for dry kerbside recycling in bag</p> <p>Weekly food waste collection in kitchen caddy (free liners)</p> <p>Nappy/AHP collection on request</p> <p>Chargeable service for garden waste</p>	<p>Implemented July 2013</p> <p>Residual tonnage decrease of 15%</p> <p>Re-use and recycling tonnage increase of 30%</p> <p>Composting tonnage decrease of 15%</p> <p>Increase in re-use, recycling and composting rate from 56% in 12/13 to 62.9% in 13-14.</p> <p>Reduced overall treatment cost</p>
Bristol	<p>Collection of 180 litre bin per fortnight</p> <p>Weekly collection for dry kerbside in box/bag</p> <p>Weekly collection of food waste bin and caddy</p> <p>Chargeable service for garden waste.</p>	<p>Phased implementation approved in June 2009 when residents 240 litre bins were replaced with 180 litre versions when they request a new bin, or on any new developments.</p> <p>A complete replacement of bins between Jan 2012 – June 2012 took place when a new contractor took over.</p> <p>Saved £2.5 million a year compared to previous waste contract.</p> <p>The recycling and composting rate in Bristol when from 39% in April-June 2011 to 50% in April-June 2012.</p>
Falkirk	<p>Collections of 240 litre residual waste bin once every three weeks</p> <p>Fortnightly collection for dry kerbside recycling in bin/box</p> <p>Weekly collection of food waste in caddy</p>	<p>Implemented May 2014</p> <p>Weekly collection capacity of 393 litres</p> <p>Estimated to save £258,826 in 2014/15 and £385,542 the following year. Estimated saving of £1.4 million</p>

Authority	Implemented Scheme	Impact
	Fortnightly collection of garden waste (on request from Dec-Feb)	<p>a year in landfill tax costs.</p> <p>Estimated that the change to 3 weekly will result in a recycling rate of 60.8%.</p> <p>If the initial performance was mirrored throughout the district the results on performance would be as follows:</p> <ul style="list-style-type: none"> • Residual waste per household per week reduces from 7.62 kg to 5.59 kg • Food waste increased from 0.62 kg to 0.92 kg

Background Papers

None.

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