Appendix 6 – Collection Modelling Results for Huntingdonshire District Council

This appendix provides the cost, operational and performance implications of each scenario for Huntingdonshire District Council. Table 1 illustrates the current collection service operated across the District.

Table 52: Current collection service (baseline)

	Collection	Frequency	Container	Vehicle
Residual	Residual	Fortnightly	240l Wheeled Bin	RCV 20m ³
Dry Recycling	Co-mingled	Fortnightly	240l Wheeled Bin	RCV 20m ³
Organics	Co-mingled food and garden waste	Fortnightly	240l Wheeled Bin	RCV 20m ³

The description of each scenario (1-5) is in section 3 'Collection Modelling' of the main report. Any sensitivity analysis, in the form of an additional scenario is also described in section 4 within the relevant scenario results.

Annualised collection costs

Table 53: Annualised collection costs for current service and scenarios 1-5

	Baseline	Scenario 1	Scenario 2	Scenario 3a	Scenario 4	Scenario 5
	Current service	Separate food waste	Separate food waste + restricted residual	Twin-stream recycling, 3WC with residual, separate food, garden as is	Twin-stream recycling, fortnightly collection, separate food, garden as is	Kerbside Sort recycling with food, monthly residual, charged garden
Annualised dry recycling collection cost	£1,908,780	£1,908,780	£1,908,780	£3,420,704	£3,518,386	£6,638,083
Annualised garden waste collection cost	£1,760,012 <u>51</u>	£1,760,012	£1,760,012	£1,760,012	£1,760,012	£1,607,672
Annualised food waste collection cost	-	£2,269,745	£2,375,182	Co-collected with DMR and residual	£2,375,182	Co-collected with DMR
Annualised residual waste collection cost	£2,125,389	£1,833,100	£1,840,064	£1,777,896	£1,845,092	£1,302,999
Total gross collection cost	£5,794,182	£7,771,638	£7,884,038	£6,958,613	£9,498,673	£9,548,754
Difference from Baseline	-	£1,977,456	£2,089,856	£1,164,431	£3,704,491	£3,754,572

Vehicle and container requirements

Table 54: Vehicle and container requirements for current service and scenarios 1-5

	Dr	y recycli	ing	Gar	den was	ste		Food wa	aste	R	esidual	
	Vehicle type	No. vehicle s	Container type	Vehicle type	No. vehicle s	Contain er type	Vehicle type	No. vehicle s	Container type	Vehicle type	No. vehicl es	Containe r type
Baseline	RCV 20m ³	8	240L	RCV 20m³	8	240L	N/A	0	N/A	RCV 20m ³	9	240L
Scenario 1	RCV 20m³	8	240L	RCV 20m³	8	240L	Dedicated 7.5t	20	Kitchen caddy + 23L	RCV 20m ³	8	240L
Scenario 2	RCV 20m³	8	240L	RCV 20m³	8	240L	Dedicated 7.5t	21	Kitchen caddy + 23L	RCV 20m ³	8	180L
Scenario 3	REL + front pod (75%/25 %)	10	240L&180 L	RCV 20m³	8	240L	Collected with DMR	0	Kitchen caddy + 23L	RCV 20m ³	6	240L
Scenario 4	REL 65%/35%	12	240L & 180L	RCV 20m³	8	240L	Dedicated 7.5t	21	Kitchen caddy + 23L	RCV 20m ³	8	180L
Scenario 5	Side loading 21m ³	34	50L box (x3)	RCV 20m³	7	240L	Collected with DMR	0	Kitchen caddy + 23L	RCV 20m ³	5	240L

Tonnes collected and kerbside recycling rate

Table 55: Tonnes collected and kerbside recycling rate⁵² for current service and scenarios 1-5

	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5
Residual	24,506	20,186	16,914	17,668	17,670	18,666
Dry recycling	15,921	15,921	17,379	17,379	17,379	17,379
Food	0	5,373	6,980	6,981	6,980	7,784
Garden	18,929	17,663	17,663	17,663	17,663	11,481
Contamination	2,218	2,431	2,638	1,882	1,882	1,008
K/S recycling rate	57%	63%	68%	68%	68%	65%
Total	61,574	61,574	61,574	61,574	61,574	56,318
Difference between kerbside recycling tonnage	0	4,107	7,172	7,174	7,172	1,794

⁵² Note that kerbside recycling rate will differ from local authority recycling rate, which will be influenced by other waste collected and recycled / disposed by the local authority



Figure 1: Tonnes collected and kerbside recycling rate

Annual gross collection cost comparison to current service

Figure 2: Annual gross collection cost comparison to current service (baseline)



Please note, that in Scenario 3 food waste is collected on an RCV with a pod, and in scenario 5, food waste is collected in a dedicated compartment of a sideloading kerbsider vehicle. Therefore, the cost of food waste collection cannot directly be extracted from the costings as the tonnage is split proportionality.

Cost of change (additional CAPEX)

Operating cost savings are shown in the annualised KAT model results however no account has been taken of the residual value of any redundant vehicles. We have only accounted for the cost of new containers and vehicles not previously used in the Council. Any movement of bins or vehicles between different collection types has also not been accounted for.

Scenario 1	No. additional vehicles	Vehicle type	Cost per vehicle	Total cost (vehicles)	No. additional containers	Container type	Cost per container	Total cost (containers)	Total additional CAPEX cost
Dry	0	n/a	n/a	£0.00	0	n/a	n/a	£0.00	
Garden waste	0	n/a	n/a	£0.00	0	n/a	n/a	£0.00	£1,522,336.83
Food waste	20	Dedicated food	£60,000	£1,200,000	77299	Kitchen caddy	£4.17	£322,336.83	
Residual	0	n/a	£0.00	£0.00	0	n/a	n/a	£0.00	

Table 56: Additional CAPEX required to operate the service for scenarios 1-5⁵³

Scenario 2	No. additional vehicles	Vehicle type	Cost per vehicle	Total cost (vehicles)	No. additional containers	Container type	Cost per container	Total cost (containers)	Total additional CAPEX cost
Dry	0	n/a	n/a	£0.00	0	n/a	n/a	£0.00	
Garden		n/a	n/a	£0.00		n/a	n/a	£0.00	
waste	0	n/a	n/a	20.00	0	n/a	n/a	20.00	£2,977,583.78
Food	21	Dedicated	560.000	£1 260 000	77200	Kitchen	£4.17	£333 336 83	
waste	21	food	200,000	21,200,000	11299	caddy	£4.17	2322,330.03	
Residual	0	n/a	£0.00	£0.00	77299	180l bin	£18.05	£1,395,246.95	

⁵³ Note that this includes the Capex for new vehicles and containers only. It does not include any other costs associated with a change of service, for example take back of redundant containers, procurement, communications, enforcement or other infrastructure requirements such as additional depot space. However if the overall costs of the service have increased, the annualised costs will have more overheads included within them (as this is a percentage applied on top of the total annual service costs), which may account for some of these elements.

Scenario 3	No. additional vehicles	Vehicle type	Cost per vehicle	Total cost (vehicles)	No. additional containers	Container type	Cost per container	Total cost (containers)	Total additional CAPEX cost
Dry	10	REL + pod	£215,000	£2,150,000	77299	180I bin	£18.05	£1,395,246.95	
Garden waste	0	n/a	n/a	£0.00	0	n/a	n/a	£0.00	£3,867,583.78
Food waste	0	n/a	n/a	£0.00	77299	Kitchen caddy	£4.17	£322,336.83	
Residual	0	n/a	£0.00	£0.00	0	n/a	n/a	£0.00	

Scenario 4	No. additional vehicles	Vehicle type	Cost per vehicle	Total cost (vehicles)	No. additional containers	Container type	Cost per container	Total cost (containers)	Total additional CAPEX cost
Dry	12	REL 65/35%	£250,000.00	£3,000,000	77299	180I bin	£18.05	£1,395,246.95	
Garden waste	0	n/a	n/a	£0.00	0	n/a	n/a	£0.00	£7,372,830.73
Food waste	21	Dedicated food	£60,000	£1,260,000	77299	Kitchen caddy	£4.17	£322,336.83	
Residual	0	n/a	£0.00	£0.00	77299	180I bin	£18.05	£1,395,246.95	

Scenario 5	No. additional vehicles	Vehicle type	Cost per vehicle	Total cost (vehicles)	No. additional containers	Container type	Cost per container	Total cost (containers)	Total additional CAPEX cost
Dry	34	Sideloading	£150,000.00	£5,100,000	231897	50l (x3)	£2.98	£691,053.06	
Garden waste	0	n/a	£0.00	£0.00	0	n/a	n/a	£0.00	£6,113,389.89
Food waste	0	n/a	n/a	£0.00	77299	Kitchen caddy	£4.17	£322,336.83	
Residual	0	n/a	£0.00	£0.00	0	n/a	n/a	£0.00	

Collection cost per household vs recycling performance

Figure 3: Collection cost per household vs recycling performance



Quantitative assessment

Table 57: Quantitative scored assessment of scenarios 1-5 based on a 50:50 weighting of cost (annual) and tonnes recycled

<u>Huntingdonshire</u>	Separate food (weekly)	Separate food plus restricted residual (180l fortnightly)	Two stream (fibres separate), 3W rolling basis with residual, separate food & free garden	Two stream (fibres separate), separate food, garden 'as is', restricted residual (1801 fortnightly)	Kerbside sort (including food) plus monthly residual and charged garden
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Category	Weighting	Considerations	Guide	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5
Financial	50%	Annual cost	Annual cost in addition to Baseline. Score as	£0	£1,977,456	£2,089,856	£1,164,431	£3,704,491	£3,754,572
			deviation from the baseline.	10.0	4.7	4.4	6.9	0.1	0.0
Recycling performance	50%	Tonnes recycled per annum	Tonnes recycled (dry recycling, food and garden	0	4107	7172	7174	7172	1794
			excluding contamination)						
			in addition to baseline	0.0	5.7	10.0	10.0	10.0	2.5
			Total score unweighted	10.0	10.5	14.4	16.9	10.1	2.5
			Weighted score	5.0	5.2	7.2	8.4	5.1	1.3
			Rank	5	3	2	1	4	6

RAG (Red, Amber, Green) assessment

Meets 1 or less of the requirements set out within the National Resources and Waste Strategy
Meets less than half of the requirements set out within the National Resources and Waste Strategy
Meets at least half of the requirements set out within the National Resources and Waste Strategy
Meets the majority of the requirements set out within the National Resources and Waste Strategy

Table 58: RAG assessment of the scenarios compared to the requirements within the national Resources and Waste Strategy

Resources and Waste Strategy proposal	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5			
Collection of a core set of materials	PTT and cartons are collected at the kerbside								
Effective collection system to preserve material quality	All materials collected co- mingled. Risk associated with collecting glass with fibres (paper and card)	All materials collected co-mingled. Risk associated with collecting glass with fibres (paper and card)	All materials collected co- mingled. Risk associated with collecting glass with fibres (paper and card)	Fibres (paper and card) collected separately to glass and other containers (metals and plastics)	Fibres (paper and card) collected separately to glass and other containers (metals and plastics)	All materials collected separately			
Weekly separate food waste collection	No but could be added to the service profile as a separate collection at additional cost		Yes						

Free garden waste collection to all households with a garden	Yes to all households with a garden						
Resources and Waste Strategy assessment							

Key assumptions

Garden waste

The following assumption was applied in order to calculate the potential tonnage that could be collected through a charged garden collection scheme. The number of subscribers is based on benchmarking/rurality and that approximately 65% of the 'free tonnage' would be collected through the free garden waste service. Of the remaining 35% tonnage (not collected) we assume 15% is diverted into the residual collection and of the remaining 85%, 50% lost within the system to home composting, 35% to HWRC green waste composting.

Assume 50% take up of service, tonnage as follow:	Huntingdonshire	
Free tonnage collected as garden	65%	11481
15% of the difference in tonnage (35%) moves to residual	15%	927
85% of the difference in tonnage is lost (i.e. home composting,		
HWRC)	85%	5255

WRAP ready reckoner

The model uses the percentage of households in Social Groups D and E in a local authority area (derived from the 2011 Census) as a measure of deprivation and applies it to the following formulas:

• For areas with fortnightly residual waste collection (i.e. alternate weekly collection): = 2.1614 – (% Social Groups D and E □ 2.2009) ± 0.40 kg/hh/week

WRAP ready reckoner	kg/hh/week

LA	Social Grade D & E 2011 (%)			Medium	High	Low
Huntingdonshire	19.3%	2.1614	0.424773 7	1.73663	2.1366263	1.3366 3

		Tonnage/year			
	Number of households	Medium	High	Low	Medium - High
Huntingdonshire	77,299	6980	8588	5373	7784

KAT outputs

Type of Collection

	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5a	Scenario 5b	Scenario 5c
Scenario Name	Baseline	Separate food waste	Restricted residual	3 weekly	2 stream, restricted residual	Kerbside sort	Vehicle capacity sensitivity	Vehicle utilisation sensitivity
	Kerbside	Kerbside	Kerbside	Co-	Co-	Kerbside	Kerbside	Kerbside
	co-	CO-	CO-	collected	collected	sorted	sorted	sorted
	mingled	mingled	mingled	dry	2 dry	(more	(more	(more
	or single	or single	or single	recyclable	recyclable	than 2	than 2	than 2
	stream	stream	stream	s and	streams	streams)	streams)	streams)
Dry recycling				compost				
	Kerbside	Kerbside	Kerbside	Kerbside	Kerbside	Kerbside	Kerbside	Kerbside
	CO-	CO-	CO-	CO-	CO-	CO-	CO-	CO-
	mingled	mingled	mingled	mingled	mingled	mingled	mingled	mingled
Garden waste	or single	or single	or single	or single	or single	or single	or single	or single
	stream	stream	stream	stream	stream	stream	stream	stream
	select	Kerbside	Kerbside	Co-	Kerbside	select	select	select
	from list	CO-	CO-	collected	CO-	from list	from list	from list
		mingled	mingled	dry	mingled			
		or single	or single	recyclable	or single			
		stream	stream	s and	stream			
Food waste				compost				
	select	select	select	Kerbside	select	select	select	select
	from list	from list	from list	CO-	from list	from list	from list	from list
				mingled				
Dry recycling				or single				
				stream				
	Refuse	Refuse	Refuse	Refuse	Refuse	Refuse	Refuse	Refuse
Refuse	collection	collection	collection	collection	collection	collection	collection	collection

Collection Frequency

	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5a	Scenario 5b	Scenario 5c
_	every	every	every	every 3	every	once a	once a	once a
Dry recycling	fortnight	fortnight	fortnight	weeks	fortnight	week	week	week
	every	every	every	every	every	every	every	every
Garden waste	fortnight	fortnight	fortnight	fortnight	fortnight	fortnight	fortnight	fortnight
	select	once a	once a	every 3	once a	select	select	select
Food waste	from list	week	week	weeks	week	from list	from list	from list

	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5a	Scenario 5b	Scenario 5c
	select	select	select	once a	select	select	select	select
Dry recycling	from	from	from	week	from	from	from	from
	list	list	list		list	list	list	list
	every	every	every	every 3	every	monthly	monthly	monthly
Refuse	fortnight	fortnight	fortnight	weeks	fortnight			

Collection Vehicle

	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario	Scenario	Scenario	Scenario
					4	5a	5b	5c
	RCV, 20m3	RCV, 20m3	RCV, 20m3	REL + front	REL	side	side	side
				pod	65%/35%	loading,	loading,	loading,
				75%/25%	,	lift, 21m3	lift, 28m3	lift, 21m3
Dry recycling				22m3 total	21 m3			
					total			
Garden waste	RCV, 20m3	RCV, 20m3	RCV, 20m3	RCV, 20m3	RCV, 20m3	RCV, 20m3	RCV, 20m3	RCV, 20m3
	select	Dedicated	Dedicated	REL + front	Dedicated	select	select	select
	from list	food 7.5T	food 7.5T	pod	food 7.5T	from list	from list	from list
		GVW	GVW	75%/25%	GVW			
Food waste				22m3 total				
	select	select	select	Dedicated	select	select	select	select
	from list	from list	from list	food 7.5T	from list	from list	from list	from list
Dry recycling				GVW				
Refuse	RCV, 20m3	RCV, 20m3	RCV, 20m3	RCV, 18m3	RCV, 20m3	RCV, 20m3	RCV, 20m3	RCV, 20m3

Collection crew size including driver

	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5a	Scenario 5b	Scenario 5c
Dry recycling	3	3	3	4	3	3	3	3
Garden waste	3	3	3	3	3	3	3	3
Food waste	#DIV/0!	2	2	4	2	#DIV/0!	#DIV/0!	#DIV/0!
Dry recycling	#DIV/0!	#DIV/0!	#DIV/0!	2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Refuse	3	3	3	4	3	3	3	3

Number of households served

	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5a	Scenario 5b	Scenario 5c
Dry recycling	77,299	77,299	77,299	77,299	77,299	77,299	77,299	77,299
Garden waste	68,368	68,368	68,368	68,368	68,368	77,299	77,299	77,299
Food waste	0	77,299	77,299	77,299	77,299	0	0	0

	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5a	Scenario 5b	Scenario 5c
Dry recycling	0	0	0	77,299	0	0	0	0
Refuse	77,299	77,299	77,299	77,299	77,299	77,299	77,299	77,299

Percentage set out

	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario	Scenario	Scenario
						5a	5b	5c
Dry recycling	75%	75%	75%	75%	75%	75%	75%	75%
Garden waste	75%	75%	75%	75%	75%	40%	40%	40%
	select	45%	55%	75%	55%	55%	55%	55%
Food waste	from list							
	select	select	select	55%	select	select	select	select
Dry recycling	from	from	from		from	from	from	from
	list	list	list		list	list	list	list
Refuse	80%	80%	85%	90%	85%	90%	90%	90%

Percentage set out (2nd stream)

	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5a	Scenario 5b	Scenario 5c
	select	select	select	55%	75%	75%	75%	75%
Dry recycling	from	from	from					
	list	list	list					
	select	select	select	select	select	select	select	select
Garden waste	from list	from list	from list	from list	from list	from list	from list	from list
	select	select	select	55%	select	select	select	select
Food waste	from	from	from		from	from	from	from
	list	list	list		list	list	list	list
	select	select	select	select	select	select	select	select
Dry recycling	from list	from list	from list	from list	from list	from list	from list	from list

Average Participation

	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5a	Scenario 5b	Scenario 5c
Dry recycling	85%	85%	87%	87%	87%	87%	87%	87%
Garden waste	82%	82%	82%	82%	82%	44%	44%	44%
Food waste	100%	55%	65%	87%	65%	65%	65%	65%
Dry recycling	100%	100%	100%	65%	100%	100%	100%	100%

Average Capture

	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario	Scenario	Scenario
						5a	5b	5c
Dry recycling	75%	75%	80%	50%	80%	76%	76%	76%
Garden waste	114%	256%	256%	256%	256%	273%	273%	273%
Food waste	100%	73%	80%	48%	80%	0%	0%	0%
Dry recycling	100%	100%	100%	27%	100%	100%	100%	100%

Tonnes collected excluding contamination

	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario	Scenario	Scenario
						5a	5b	5c
Dry recycling	15,921	15,921	17,379	11,855	17,379	25,163	25,163	25,163
Garden waste	18,929	17,663	17,663	17,663	17,663	11,481	11,481	11,481
Food waste	0	5,373	6,980	10,179	6,980	0	0	0
Dry recycling	0	0	0	2,327	0	0	0	0
Refuse	24,506	20,186	16,914	17,668	17,670	18,666	18,666	18,666
Dry recycling	0	0	0	0	0	0	0	0
Garden waste	0	0	0	0	0	0	0	0
Food waste	0	0	0	0	0	0	0	0
Dry recycling	0	0	0	0	0	0	0	0

Tonnes of contamination collected

	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5a	Scenario 5b	Scenario 5c
Dry recycling	1,385	1,385	1,512	531	756	503	503	503
Garden waste	833	777	777	777	777	505	505	505
Food waste	0	269	349	458	349	0	0	0
Dry recycling	0	0	0	116	0	0	0	0

Utilisation of each

	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5a	Scenario 5b	Scenario 5c
Dry recycling (small)	N/A	N/A	N/A	74%	95%	N/A	N/A	N/A

Compartment in 2 stream

	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5a	Scenario 5b	Scenario 5c
Dry recycling (large)	N/A	N/A	N/A	100%	100%	N/A	N/A	N/A
Garden waste (small)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Garden waste (large)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Food waste (small)	N/A	N/A	N/A	39%	N/A	N/A	N/A	N/A
Food waste (large)	N/A	N/A	N/A	100%	N/A	N/A	N/A	N/A
Dry recycling (small)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dry recycling (large)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Tonnes of biodegradable material collected

	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5a	Scenario 5b	Scenario 5c
Dry recycling	8,727	8,727	9,528	11,855	9,528	17,311	17,311	17,311
Garden waste	18,929	17,663	17,663	17,663	17,663	11,481	11,481	11,481
Food waste	0	5,373	6,980	2,327	6,980	0	0	0
Dry recycling	0	0	0	2,327	0	0	0	0

Number of collection vehicles required

	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario	Scenario	Scenario
						5a	5b	5c
Dry recycling	7.9	7.9	7.9	4.7	11.7	33.2	33.2	34.9
Garden waste	7.5	7.5	7.5	7.5	7.5	6.8	6.8	6.8
Food waste	0.0	19.7	20.6	4.8	20.6	0.0	0.0	0.0
Dry recycling	0.0	0.0	0.0	20.6	0.0	0.0	0.0	0.0
Refuse	8.3	7.4	7.1	5.8	7.1	4.1	4.1	4.1

Collection limited by weight or volume

	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5a	Scenario 5b	Scenario 5c
Dry recycling	volume	volume	volume	weight	volume	volume	volume	volume

	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5a	Scenario 5b	Scenario 5c
Garden waste	volume	volume	volume	volume	volume	volume	volume	volume
Food waste	volume	weight	weight	volume	weight	volume	volume	volume
Dry recycling	volume	volume	volume	weight	volume	volume	volume	volume
Refuse	weight	weight	weight	weight	weight	weight	weight	weight

Number of loads collected per vehicle per day

	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario	Scenario	Scenario
						5a	5b	5c
Dry recycling	1.4	1.4	1.6	1.1	1.0	1.4	1.0	1.9
Garden waste	1.5	1.4	1.4	1.4	1.4	1.0	1.0	1.0
Food waste	1.0	0.4	0.5	2.0	0.5	0.5	0.5	0.5
Dry recycling	1.0	1.0	1.0	0.2	1.0	1.0	1.0	1.0
Refuse	1.1	1.0	0.9	1.2	0.9	1.7	1.7	1.7

Number of households passed per vehicle per day

	Baseline	Scenario	Scenario	Scenario 3	Scenario	Scenario	Scenario	Scenario
		1	2		4	5a	5b	5c
Dry recycling	980	980	980	1,101	660	465	465	443
Garden waste	916	916	916	916	916	1,129	1,129	1,129
Food waste	0	785	751	1,063	751	0	0	0
Dry recycling	0	0	0	751	0	0	0	0
Refuse	932	1,045	1,085	889	1,085	889	889	889

Number of households collected from per vehicle per day

	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5a	Scenario 5b	Scenario 5c
Dry recycling	735	735	735	825	495	349	349	332
Garden waste	687	687	687	687	687	451	451	451
Food waste	0	353	413	798	413	0	0	0
Dry recycling	0	0	0	413	0	0	0	0
Refuse	746	836	922	800	922	800	800	800

Pass rate

	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario	Scenario	Scenario
						5a	5b	5c
Dry recycling	203	203	203	236	141	103	103	98
Garden waste	183	183	183	183	183	226	226	226

	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5a	Scenario 5b	Scenario 5c
Food waste	0	135	129	228	129	0	0	0
Dry recycling	0	0	0	129	0	0	0	0
Refuse	189	178	184	180	184	180	180	180

Productive time

	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario	Scenario	Scenario
						5a	5b	5c
Dry recycling	290	290	290	280	280	270	270	270
Garden waste	300	300	300	300	300	300	300	300
Food waste	340	350	350	280	350	340	340	340
Dry recycling	340	340	340	350	340	340	340	340
Refuse	296	353	353	296	353	296	296	296

Non-productive time

·	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario	Scenario	Scenario
						5a	5b	5c
Dry recycling	130	130	130	140	140	150	150	150
Garden waste	120	120	120	120	120	120	120	120
Food waste	80	70	70	140	70	80	80	80
Dry recycling	80	80	80	70	80	80	80	80
Refuse	124	67	67	124	67	124	124	124

Percentage of targeted materials collected

	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario	Scenario	Scenario
						5a	5b	5c
Dry recycling	64%	64%	70%	44%	70%	66%	66%	66%
Garden waste	94%	210%	210%	210%	210%	121%	121%	121%
Food waste	0%	40%	52%	41%	52%	0%	0%	0%
Dry recycling	0%	0%	0%	17%	0%	0%	0%	0%

Annual cost for containers

	Baseline	Scenario	Scenario	Scenario 3	Scenario	Scenario	Scenario	Scenario
		1	2		4	5a	5b	5c
Dry recycling	£221,691	£221,691	£221,691	£311,106	£439,166	£299,432	£299,432	£802,258
Garden waste	£196,077	£196,077	£196,077	£196,077	£196,077	£221,691	£221,691	£221,691
Food waste	£0	£89,415	£89,415	£217,474	£89,415	£0	£0	£0
Dry recycling	£0	£0	£0	£0	£0	£0	£0	£0

	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5a	Scenario 5b	Scenario 5c
Refuse	£264,360	£264,360	£259,332	£264,360	£264,360	£264,360	£264,360	£264,360

Total capital cost of containers

	Baseline	Scenario	Scenario 2	Scenario 3	Scenario 4	Scenario	Scenario	Scenario
		1				5a	5b	5c
Dry recycling	£1,422,30	£1,422,30	£1,422,30	£1,744,63	£2,817,54	£690,667	£690,667	£2,318,97
	2	2	2	8	9			0
Garden waste	£1,257,97	£1,257,97	£1,257,97	£1,257,97	£1,257,97	£1,422,30	£1,422,30	£1,422,30
	1	1	1	1	1	2	2	2
Food waste	£0	£322,337	£322,337	£1,395,24	£322,337	£0	£0	£0
				7				
Dry recycling	£0	£0	£0	£0	£0	£0	£0	£0
Refuse	£1,422,30	£1,422,30	£1,395,24	£1,422,30	£1,422,30	£1,422,30	£1,422,30	£1,422,30
	2	2	7	2	2	2	2	2

Annual capital cost of collection vehicles

	Baseline	Scenario	Scenario 2	Scenario 3	Scenario 4	Scenario	Scenario	Scenario
		1				5a	5b	5c
Dry recycling	£281,013	£281,013	£281,013	£192,570	£537,405	£913,589	£974,494	£940,459
Garden waste	£281,013	£281,013	£281,013	£281,013	£281,013	£245,886	£245,886	£245,886
Food waste	£0	£214,962	£225,710	£192,570	£225,710	£0	£0	£0
Dry recycling	£0	£0	£0	£0	£0	£0	£0	£0
Refuse	£316,139	£281,013	£281,013	£210,760	£281,013	£175,633	£175,633	£175,633

Are vehicles used for more than one collection

	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario	Scenario	Scenario
						5a	5b	5c
Dry recycling	No	No	No	No	No	No	No	No
Garden waste	No	No	No	No	No	No	No	No
	select	No	No	No	No	No	No	No
Food waste	from list							
	select	select	select	No	select	select	select	select
Dry recycling	from	from	from		from	from	from	from
	list	list	list		list	list	list	list
Refuse	No	No	No	No	No	No	No	No

Total capital cost of vehicles

•	Baseline	Scenario	Scenario 2	Scenario 3	Scenario 4	Scenario	Scenario	Scenario
		1				5a	5b	5c
Dry recycling	£1,568,72	£1,568,72	£1,568,72	£1,075,00	£3,000,00	£5,100,00	£5,440,00	£5,250,00
	0	0	0	0	0	0	0	0
Garden waste	£1,568,72	£1,568,72	£1,568,72	£1,568,72	£1,568,72	£1,372,63	£1,372,63	£1,372,63
	0	0	0	0	0	0	0	0
Food waste	£0	£1,200,00	£1,260,00	£1,075,00	£1,260,00	£0	£0	£0
		0	0	0	0			
Dry recycling	£0	£0	£0	£0	£0	£0	£0	£0
Refuse	£1,764,81	£1,568,72	£1,568,72	£1,176,54	£1,568,72	£980,450	£980,450	£980,450
	0	0	0	0	0			

Annual vehicle operating costs

	Baseline	Scenario	Scenario 2	Scenario 3	Scenario 4	Scenario	Scenario	Scenario
		1				5a	5b	5c
Dry recycling	£1,081,59	£1,081,59	£1,081,59	£965,890	£1,955,24	£4,173,12	£4,173,12	£4,289,76
	7	7	7		3	5	5	4
Garden waste	£986,863	£986,863	£986,863	£986,863	£986,863	£876,996	£876,996	£876,996
Food waste	£0	£1,511,82	£1,584,65	£962,559	£1,584,65	£0	£0	£0
		2	9		9			
Dry recycling	£0	£0	£0	£0	£0	£0	£0	£0
Refuse	£1,188,37	£990,559	£999,784	£1,002,13	£999,784	£663,850	£663,850	£663,850
	7			5				

Annual overheads

	Baseline	Scenario	Scenario 2	Scenario 3	Scenario 4	Scenario	Scenario	Scenario
		1				5a	5b	5c
Dry recycling	£324,479	£324,479	£324,479	£289,767	£586,573	£1,251,93	£1,251,93	£1,286,92
						8	8	9
Garden waste	£296,059	£296,059	£296,059	£296,059	£296,059	£263,099	£263,099	£263,099
Food waste	£0	£453,546	£475,398	£288,768	£475,398	£0	£0	£0
Dry recycling	£0	£0	£0	£0	£0	£0	£0	£0
Refuse	£356,513	£297,168	£299,935	£300,641	£299,935	£199,155	£199,155	£199,155

Annual gross collection cost

	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5a	Scenario 5b	Scenario 5c
Dry recycling	£1,908,78	£1,908,78	£1,908,78	£1,759,33	£3,518,38	£6,638,08	£6,698,98	£7,319,41
	U	U	U	3	D	5	9	U

	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5a	Scenario 5b	Scenario 5c
Garden waste	£1,760,01 2	£1,760,01 2	£1,760,01 2	£1,760,01 2	£1,760,01 2	£1,607,67 2	£1,607,67 2	£1,607,67 2
Food waste	£0	£2,269,74 5	£2,375,18 2	£1,661,37 2	£2,375,18 2	£0	£0	£0
Dry recycling	£0	£0	£0	£0	£0	£0	£0	£0
Refuse	£2,125,38	£1,833,10	£1,840,06	£1,777,89	£1,845,09	£1,302,99	£1,302,99	£1,302,99
	9	0	4	6	2	9	9	9

Annual gross collection cost per tonnes collected

	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario	Scenario	Scenario
						5a	5b	5c
Dry recycling	£110	£110	£101	£142	£194	£259	£261	£285
Garden waste	£89	£95	£95	£95	£95	£134	£134	£134
Food waste	£0	£402	£324	£156	£324	£0	£0	£0
Dry recycling	£0	£0	£0	£0	£0	£0	£0	£0
Refuse	£87	£91	£109	£101	£104	£70	£70	£70

Annual gross collection cost per household served

	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario	Scenario	Scenario
						5a	5b	5c
Dry recycling	£25	£25	£25	£23	£46	£86	£87	£95
Garden waste	£26	£26	£26	£26	£26	£21	£21	£21
Food waste	£0	£29	£31	£21	£31	£0	£0	£0
Dry recycling	£0	£0	£0	£0	£0	£0	£0	£0
Refuse	£27	£24	£24	£23	£24	£17	£17	£17

Annual gross collection cost per targeted tonne collected

	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5a	Scenario 5b	Scenario 5c
Dry recycling	£120	£120	£110	N/A	N/A	£264	£266	£291
Garden waste	£93	£100	£100	£100	£100	£140	£140	£140
Food waste	£0	£422	£340	N/A	£340	£0	£0	£0
Dry recycling	£0	£0	£0	£0	£0	£0	£0	£0

Annual gross collection cost per household participating

, , , , , , , , , , , , , , , , , , ,	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario	Scenario	Scenario
						5a	5b	5c
Dry recycling	£29	£29	£28	N/A	N/A	£99	£100	£109
Garden waste	£31	£31	£31	£31	£31	£47	£47	£47
Food waste	£0	£53	£47	N/A	£47	£0	£0	£0
Dry recycling	£0	£0	£0	£0	£0	£0	£0	£0

Annual tonnes of material collected - Collection A

	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5a	Scenario 5b	Scenario 5c
Newspaper and magazines	3,784	3,784	4,131	4,131	4,131	4,131	4,131	4,131
Other paper	3,395	3,395	3,680	3,680	3,680	3,680	3,680	3,680
Corrugated card	1,467	1,467	1,552	1,552	1,552	1,552	1,552	1,552
Non corrugated card	81	81	164	164	164	164	164	164
Plastic film	398	398	529	0	529	529	529	529
Plastic bottles	713	713	788	0	788	788	788	788
Plastic - other dense	1,009	1,009	1,116	0	1,116	1,116	1,116	1,116
Glass flint	1,383	1,383	1,524	0	1,524	1,524	1,524	1,524
Glass brown	1,384	1,384	1,433	0	1,433	1,433	1,433	1,433
Glass green	1,384	1,384	1,471	0	1,471	1,471	1,471	1,471
Steel cans	628	628	681	0	681	681	681	681
Aluminium cans	295	295	310	0	310	310	310	310
Foil containers	0	0	0	0	0	0	0	0
Textiles	0	0	0	0	0	0	0	0
Soil and other organic	0	0	0	0	0	0	0	0
Non-compostable kitchen waste	0	0	0	0	0	0	0	0
Food waste	0	0	0	2,327	0	7,784	7,784	7,784
Compostable garden waste	0	0	0	0	0	0	0	0

Collection B

	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5a	Scenario 5b	Scenario 5c
Newspaper and magazines	0	0	0	0	0	0	0	0
Other paper	0	0	0	0	0	0	0	0
Corrugated card	0	0	0	0	0	0	0	0
Non corrugated card	0	0	0	0	0	0	0	0
Plastic film	0	0	0	0	0	0	0	0
Plastic bottles	0	0	0	0	0	0	0	0
Plastic - other dense	0	0	0	0	0	0	0	0
Glass flint	0	0	0	0	0	0	0	0
Glass brown	0	0	0	0	0	0	0	0
Glass green	0	0	0	0	0	0	0	0
Steel cans	0	0	0	0	0	0	0	0
Aluminium cans	0	0	0	0	0	0	0	0
Foil containers	0	0	0	0	0	0	0	0
Textiles	0	0	0	0	0	0	0	0
Soil and other organic	0	0	0	0	0	0	0	0
Non-compostable kitchen waste	0	0	0	0	0	0	0	0
Food waste	1,266	0	0	0	0	0	0	0
Compostable garden waste	17,663	17,663	17,663	17,663	17,663	11,481	11,481	11,481

Collection C

	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5a	Scenario 5b	Scenario 5c
Newspaper and	0	0	0	0	0	0	0	0
magazines								
Other paper	0	0	0	0	0	0	0	0
Corrugated	0	0	0	0	0	0	0	0
card								
Non corrugated	0	0	0	0	0	0	0	0
card								

	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5a	Scenario 5b	Scenario 5c
Plastic film	0	0	0	529	0	0	0	0
Plastic bottles	0	0	0	788	0	0	0	0
Plastic - other dense	0	0	0	1,116	0	0	0	0
Glass flint	0	0	0	1,524	0	0	0	0
Glass brown	0	0	0	1,433	0	0	0	0
Glass green	0	0	0	1,471	0	0	0	0
Steel cans	0	0	0	681	0	0	0	0
Aluminium cans	0	0	0	310	0	0	0	0
Foil containers	0	0	0	0	0	0	0	0
Textiles	0	0	0	0	0	0	0	0
Soil and other organic	0	0	0	0	0	0	0	0
Non-compostable kitchen waste	0	0	0	0	0	0	0	0
Food waste	0	5,373	6,980	2,327	6,980	0	0	0
Compostable garden waste	0	0	0	0	0	0	0	0

Collection D

	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5a	Scenario 5b	Scenario 5c
Newspaper and magazines	0	0	0	0	0	0	0	0
Other paper	0	0	0	0	0	0	0	0
Corrugated card	0	0	0	0	0	0	0	0
Non corrugated card	0	0	0	0	0	0	0	0
Plastic film	0	0	0	0	0	0	0	0
Plastic bottles	0	0	0	0	0	0	0	0
Plastic - other dense	0	0	0	0	0	0	0	0
Glass flint	0	0	0	0	0	0	0	0
Glass brown	0	0	0	0	0	0	0	0
Glass green	0	0	0	0	0	0	0	0

	Baseline	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5a	Scenario 5b	Scenario 5c
Steel cans	0	0	0	0	0	0	0	0
Aluminium cans	0	0	0	0	0	0	0	0
Foil containers	0	0	0	0	0	0	0	0
Textiles	0	0	0	0	0	0	0	0
Soil and other	0	0	0	0	0	0	0	0
organic								
Non-compostable	0	0	0	0	0	0	0	0
kitchen waste								
Food waste	0	0	0	2,327	0	0	0	0
Compostable	0	0	0	0	0	0	0	0
garden waste								