



MILTON KEYNES COUNCIL

TECHNICAL COLLECTION OPTIONS

APPRAISAL

APPENDIX 1 : ASSUMPTIONS PAPER

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CONTENTS

CONTENTS..... 3

1 Introduction..... 4

2 General assumptions 4

2.1 Year 1..... 4

2.2 Spare Labour 4

2.3 Inflation..... 4

2.4 Salaries..... 4

2.5 Option 1 – Max BIOS 6

 2.5.1 Residual 6

 2.5.2 Recyclables and Compostables 7

2.6 Option 1a 8

 2.6.1 Residual 8

 2.6.2 Recyclables and Compositables..... 8

2.7 Option 1b – Max BIOS 9

 2.7.1 Residual 9

 2.7.2 Recyclables..... 9

 2.7.3 Green 10

 2.7.4 Kitchen 11

2.8 Option 2 – Heavy 12

 2.8.1 Residual 12

 2.8.2 Recyclables..... 12

 2.8.3 Compostiabes 13

2.9 Option 2a – Heavy 14

 2.9.1 Residual 14

 2.9.2 Recyclables..... 14

 2.9.3 Compostiabes 14

2.10 Option 2b – Heavy 15

 2.10.1 Residual 15

 2.10.2 Recyclables..... 15

 2.10.3 Green 15

 2.10.4 Kitchen 16

2.11 Option 3 – Max recycling..... 16

 2.11.1 Residual 16

 2.11.2 Recyclables..... 16

 2.11.3 Compostiabes 17

2.12 Option 3a – Max recycling..... 17

 2.12.1 Residual 17

 2.12.2 Recyclables..... 17

 2.12.3 Compostiabes 17

2.13 Option 3b – Max recycling..... 17

 2.13.1 Residual 17

 2.13.2 Recyclables..... 17

 2.13.3 Compostiabes 17

3 MRF Costs..... 18

1 Introduction

Jacobs Babtie were commissioned by MKC to advise on the waste collection services. As part of this advice it is necessary to develop a collection model to cost the provision of such services. This paper documents the assumptions made in the development of these models.

2 General assumptions

The following assumptions apply to all collections.

2.1 Year 1

The model uses the data provided by the council for 2004/5 and extrapolates this with year 1 being taken as 2007/8. The new collection will start in October 2007

2.2 Spare Labour

The calculation of the level of spare labour required to cover annual leave and sickness was based on an assumption of 6 weeks (30 days) annual leave and 2 weeks (10 days) sickness.

2.3 Inflation

Inflation has been assumed at 2.5% per year for all financial workings.

2.4 Salaries

Crew

Salary costs are based on weekly pay information provided by MKC. An additional 20% has been included to cover overheads.

- Driver: £25,000 p.a.
- Loader: £23,000 p.a.

Management and Administration

It has been assumed that the following staff would be required to run the Residual and Recycling collection services. .

Position	Salary	Oncost	Total cost per person	No. Required	Total
Regional Manager	35,000	7,000	42,000	1	42,000
Transport Manager	28,000	5,600	33,600	1	33,600
Depot Manager	32,000	6,400	38,400	1	38,400
Supervisor	24,000	4,800	28,800	3	86,400
Administration	16,000	3,200	19,200	3	57,600
			Grand Total	9	258,000

Number of Households Served

Options 1, 1a, 2, 2a, 3 and 3a will serve all households. Option 1b, 2b and 3b currently serve 25,000 households, around 30% this has been increased with the increase in the number of households.

2.5 Option 1 – Max BIOS

2.5.1 Residual

Key Points

Collection Location: Kerbside
 Household Receptacle: Black plastic sacks
 Collection Frequency: Weekly

Container

Householders will be provided with a black plastic sacks.

Productivity Levels

An average productivity level per loader of 678 collections per day was used based on experience of other UK local authorities of similar character. Two loaders plus a driver per vehicle was assumed. This gives a daily vehicle productivity of 1356 properties per day.

Vehicle Costs

A standard compacting Refuse Collection Vehicle (RCV) is assumed.

Vehicle Cost	
Cost of with bin lifts	120,000
Maintenance Year 1	5000
Maintenance Year 2	6500
Maintenance Year 3	8000
Maintenance Year 4	9500
Maintenance Year 5	11000
Maintenance Year 6	12500
Maintenance Year 7	14000
Km per litre	1.4
Fuel cost (per vehicle per year)	6,964
Tyre costs (per vehicle per year)	1500
Road Fund Licence (per vehicle per year)	2250
Insurance (per vehicle per year)	2000

- Kilometres per day: 50
- Fuel price per litre: £0.75

The distance travelled is to the disposal point or transfer point if applicable.

2.5.2 Recyclables and Compostables

Key Points

Collection Location: Kerbside
 Household Receptacle: 1 x 240ltr bins and a plastic sack.
 Collection Frequency: Weekly

Container

Householders are provided with one 240L bin at a cost of £14 per bin including delivery. A replacement rate of 2% is used in the first year of roll-out and 1% in subsequent years. Householders will also be provided with a plastic sack at a cost of £40 per 1000.

Productivity Levels

An average productivity level per loader of 467 collections per day was calculated based on experience from other UK local authorities. A crew of 1 driver and 2 loaders per vehicle was assumed giving an average productivity per vehicle of 984 collections per day and 1,468 properties passed per day.

Vehicle Costs

A split back compacting Refuse Collection Vehicle (RCV) is assumed.

Vehicle Cost	
Cost of with bin lifts	140,000
Maintenance Year 1	6000
Maintenance Year 2	7500
Maintenance Year 3	9000
Maintenance Year 4	10500
Maintenance Year 5	12000
Maintenance Year 6	13500
Maintenance Year 7	15000
Km per litre	1.3
Fuel cost (per vehicle per year)	7,500
Tyre costs (per vehicle per year)	1200
Road Fund Licence (per vehicle per year)	2250
Insurance (per vehicle per year)	2000

- Kilometres per day: 50
- Fuel price per litre: £0.75

The distance travelled is to the transfer station. MRF or bulking facility.

2.6 Option 1a

2.6.1 Residual

Key Points

Collection Location: Kerbside
 Household Receptacle: 240liter bin
 Collection Frequency: Fortnightly

Container

Householders are provided with a 240 bins at a cost of £14 per bin including delivery. A replacement rate of 2% is used in the first year of roll-out and 1% in subsequent years. .

Productivity Levels

An average productivity level per loader of 441 collections per day was used based on experience of other UK local authorities of similar character. Two loaders plus a driver per vehicle was assumed. This gives a daily vehicle productivity of 882 properties per day.

Vehicle Costs

A standard compacting Refuse Collection Vehicle (RCV) is assumed.

Vehicle Cost	
Cost of with bin lifts	120,000
Maintenance Year 1	5000
Maintenance Year 2	6500
Maintenance Year 3	8000
Maintenance Year 4	9500
Maintenance Year 5	11000
Maintenance Year 6	12500
Maintenance Year 7	14000
Km per litre	1.4
Fuel cost (per vehicle per year)	6,964
Tyre costs (per vehicle per year)	1500
Road Fund Licence (per vehicle per year)	2250
Insurance (per vehicle per year)	2000

- Kilometres per day: 50
- Fuel price per litre: £0.75

The distance travelled is to the disposal point or transfer point if applicable.

2.6.2 Recyclables and Compositables

Same as Option 1

2.7 Option 1b – Max BIOS

2.7.1 Residual

Same as option 1

2.7.2 Recyclables

Key Points

Collection Location: Kerbside
 Household Receptacle: Plastic Box
 Collection Frequency: Weekly

Container

Householder will be provided with a Plastic Box at a cost of £3 per box including delivery. A replacement rate of 2% is used in the first year of roll-out and 1% in subsequent years

Productivity Levels

An average productivity level per loader of 656 collections per day was used based on experience of other UK local authorities of similar character. Two loaders plus a driver per vehicle was assumed. This gives a daily vehicle productivity of 1959 properties per day.

Vehicle Costs

A split back compacting Refuse Collection Vehicle (RCV) is assumed.

Vehicle Cost	
Cost of with bin lifts	100,000
Maintenance Year 1	4000
Maintenance Year 2	5000
Maintenance Year 3	6000
Maintenance Year 4	7000
Maintenance Year 5	8000
Maintenance Year 6	9000
Maintenance Year 7	10000
Km per litre	2.1
Fuel cost (per vehicle per year)	4,642
Tyre costs (per vehicle per year)	900
Road Fund Licence (per vehicle per year)	1250
Insurance (per vehicle per year)	2000

- Kilometres per day: 60
- Fuel price per litre: £0.75

The distance travelled is to the transfer station. MRF or bulking facility.

2.7.3 Green

Key Points

Collection Location: Kerbside
 Household Receptacle: 240liter bin
 Collection Frequency: Fortnightly

Container

Householders are provided with two 240 bins at a cost of £14 per bin including delivery. A replacement rate of 2% is used in the first year of roll-out and 1% in subsequent years.

Productivity Levels

An average productivity level per loader of 529 collections per day was calculated based on experience from other UK local authorities. A crew of 1 driver and 2 loaders per vehicle was assumed giving an average productivity per vehicle of 1058 collections per day and 4,342 properties passed per day.

Vehicle Costs

A split back compacting Refuse Collection Vehicle (RCV) is assumed.

Vehicle Cost	
Cost of with bin lifts	120,000
Maintenance Year 1	5000
Maintenance Year 2	6250
Maintenance Year 3	7500
Maintenance Year 4	8750
Maintenance Year 5	10000
Maintenance Year 6	11250
Maintenance Year 7	12500
Km per litre	1.4
Fuel cost (per vehicle per year)	6429
Tyre costs (per vehicle per year)	900
Road Fund Licence (per vehicle per year)	1250
Insurance (per vehicle per year)	2000

- Kilometres per day: 60
- Fuel price per litre: £0.75

The distance travelled is to the transfer station. MRF or bulking facility.

2.7.4 Kitchen

Key Points

Collection Location: Kerbside
 Household Receptacle: 40 liter bin and Kitchen Caddy
 Collection Frequency: Weekly

Container

Householders are provided with 40L bin and Kitchen Caddy at a cost of £2 per bin including delivery. A replacement rate of 2% is used in the first year of roll-out and 1% in subsequent years.

Productivity Levels

An average productivity level per loader of 529 collections per day was calculated based on experience from other UK local authorities. A crew of 1 driver and 2 loaders per vehicle was assumed giving an average productivity per vehicle of 1058 collections per day and 2,645 properties passed per day.

Vehicle Costs

A split back compacting Refuse Collection Vehicle (RCV) is assumed.

Vehicle Cost	
Cost of with bin lifts	120,000
Maintenance Year 1	5000
Maintenance Year 2	6250
Maintenance Year 3	7500
Maintenance Year 4	8750
Maintenance Year 5	10000
Maintenance Year 6	11250
Maintenance Year 7	12500
Km per litre	1.4
Fuel cost (per vehicle per year)	6429
Tyre costs (per vehicle per year)	900
Road Fund Licence (per vehicle per year)	1250
Insurance (per vehicle per year)	2000

- Kilometres per day: 60
- Fuel price per litre: £0.75

The distance travelled is to the transfer station. MRF or bulking facility.

2.8 Option 2 – Heavy

2.8.1 Residual

Same as Option 1

2.8.2 Recyclables

Key Points

Collection Location: Kerbside
 Household Receptacle: 2 x boxes
 Collection Frequency: Weekly

Container

Householders are provided with two boxes at a cost of £3 per bin including delivery. A replacement rate of 2% is used in the first year of roll-out and 1% in subsequent years. .

Productivity Levels

An average productivity level per loader of 738 collections per day was calculated based on experience from other UK local authorities. A crew of 1 driver and 2 loaders per vehicle was assumed giving an average productivity per vehicle of 1476 collections per day and 2204 properties passed per day.

Vehicle Costs

A split back compacting Refuse Collection Vehicle (RCV) is assumed.

Vehicle Cost	
Cost of with bin lifts	120,000
Maintenance Year 1	5000
Maintenance Year 2	6500
Maintenance Year 3	8000
Maintenance Year 4	9500
Maintenance Year 5	11000
Maintenance Year 6	12500
Maintenance Year 7	14000
Km per litre	1.4
Fuel cost (per vehicle per year)	6,965
Tyre costs (per vehicle per year)	1500
Road Fund Licence (per vehicle per year)	2250
Insurance (per vehicle per year)	2000

- Kilometres per day: 50
- Fuel price per litre: £0.75

The distance travelled is to the transfer station. MRF or bulking facility.

2.8.3 Compostables

Key Points

Collection Location: Kerbside
 Household Receptacle: 240liter bin
 Collection Frequency: Weekly

Container

Householders are provided with a 240L bin at a cost of £14 per bin including delivery. A replacement rate of 2% is used in the first year of roll-out and 1% in subsequent years.

Productivity Levels

An average productivity level per loader of 800 collections per day was calculated based on experience from other UK local authorities. A crew of 1 driver and 1 loader per vehicle was assumed giving an average productivity per vehicle of 800 collections per day and 2000 properties passed per day.

Vehicle Costs

A split back compacting Refuse Collection Vehicle (RCV) is assumed.

Vehicle Cost	
Cost of with bin lifts	115,000
Maintenance Year 1	5000
Maintenance Year 2	6000
Maintenance Year 3	7000
Maintenance Year 4	8000
Maintenance Year 5	9000
Maintenance Year 6	10000
Maintenance Year 7	11000
Km per litre	1.6
Fuel cost (per vehicle per year)	6,093
Tyre costs (per vehicle per year)	1200
Road Fund Licence (per vehicle per year)	2250
Insurance (per vehicle per year)	2000

- Kilometres per day: 50
- Fuel price per litre: £0.75

The distance travelled is to the transfer station. MRF or bulking facility.

2.9 Option 2a – Heavy

2.9.1 Residual

Same as Option 1a

2.9.2 Recyclables

Same as Option 2

2.9.3 Compostables

Same as Option 2

2.10 Option 2b – Heavy

2.10.1 Residual

Same as Option 1

2.10.2 Recyclables

Key Points

Collection Location: Kerbside
 Household Receptacle: 2 x box
 Collection Frequency: Weekly

Container

Householders are provided with two boxes at a cost of £3 per box including delivery. A replacement rate of 2% is used in the first year of roll-out and 1% in subsequent years.

Productivity Levels

An average productivity level per loader of 738 collections per day was used based on experience of other UK local authorities of similar character. Two loaders plus a driver per vehicle was assumed. This gives a daily vehicle productivity of 2,204 properties per day.

Vehicle Costs

A split back compacting Refuse Collection Vehicle (RCV) is assumed.

Vehicle Cost	
Cost of with bin lifts	120,000
Maintenance Year 1	5000
Maintenance Year 2	6500
Maintenance Year 3	8000
Maintenance Year 4	9500
Maintenance Year 5	11000
Maintenance Year 6	12500
Maintenance Year 7	14000
Km per litre	1.4
Fuel cost (per vehicle per year)	6,965
Tyre costs (per vehicle per year)	1500
Road Fund Licence (per vehicle per year)	2250
Insurance (per vehicle per year)	2000

- Kilometres per day: 60
- Fuel price per litre: £0.75

The distance travelled is to the transfer station. MRF or bulking facility.

2.10.3 Green

Same as Option 1b.

2.10.4 Kitchen

Same as Option 1b.

2.11 Option 3 – Max recycling

2.11.1 Residual

Same as Option 1

2.11.2 Recyclables

Key Points

Collection Location: Kerbside
 Household Receptacle: 3 x box
 Collection Frequency: Weekly

Container

Householders are provided with three boxes at a cost of £3 per box including delivery. A replacement rate of 2% is used in the first year of roll-out and 1% in subsequent years.

Productivity Levels

An average productivity level per loader of 492 collections per day was used based on experience of other UK local authorities of similar character. Three loaders plus a driver per vehicle was assumed. This gives a daily vehicle productivity of 2,203 properties per day.

Vehicle Costs

A split back compacting Refuse Collection Vehicle (RCV) is assumed.

Vehicle Cost	
Cost of with bin lifts	120,000
Maintenance Year 1	5000
Maintenance Year 2	6500
Maintenance Year 3	8000
Maintenance Year 4	9500
Maintenance Year 5	11000
Maintenance Year 6	12500
Maintenance Year 7	14000
Km per litre	1.4
Fuel cost (per vehicle per year)	6,965
Tyre costs (per vehicle per year)	1500
Road Fund Licence (per vehicle per year)	2250
Insurance (per vehicle per year)	2000

- Kilometres per day: 60
- Fuel price per litre: £0.75

The distance travelled is to the transfer station. MRF or bulking facility

2.11.3 Compostiables

Same as Option 2

2.12 Option 3a – Max recycling

2.12.1 Residual

Same as Option 1a

2.12.2 Recyclables

Same as Option 3

2.12.3 Compostiables

Same as Option 2

2.13 Option 3b – Max recycling

2.13.1 Residual

Same as Option 1

2.13.2 Recyclables

Same as Option 3

2.13.3 Compostiables

Same as Option 1b

3 MRF Costs

Option	Max MRF capacity	Type	Deals with	Opex £/tonne	Capex £/tonne
1	25,340	Simple MRF/bulking facility	Paper & card	15	37
1a	26,546	Simple MRF/bulking facility	Paper & card	12	33
1b	25,340	Simple MRF/bulking facility	Paper & card	15	37
2	30,696	Simple MRF/bulking facility	Paper & card & Glass	20	40
2a	32,241	Simple MRF/bulking facility	Paper & card & Glass	15	37.5
2b	30,696	Simple MRF/bulking facility	Paper & card & Glass	20	40
3	34,995	Complex MRF	Everything	50	110
3a	36,809	Complex MRF	Everything	45	95
3b	33,336	Complex MRF	Everything	50	110