Waste Strategy Review
Options Appraisal
February 2017

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Background and Objectives

Milton Keynes Council's waste strategy is to be reviewed, with the objective of a new strategy being presented to cabinet on 7th March 2017.

While the current strategy requires updating, the main driver in this review is the financial position of the Council which faces a 20% budget deficit. The review will therefore be focussing on options which improve the budget position of the Council, and the purpose of this appraisal is to find options which are likely to do this.

Scope of the Review.

The review is to cover:

- The next five years
- All the major waste services:
    - household refuse and recycling collections
    - waste disposal and treatments including
        - the Milton Keynes Waste Recovery Park (MKWRP)
        - The Materials Recycling Facility (MRF)
        - Organic treatment – i.e. the recycling of food and garden waste (FGW)
    - street cleaning, fly tipping and enforcement
    - the civic amenity (CA) sites, locally known as community recycling centres (CRCs)
- Minor services:
    - graffiti removal
    - abandoned vehicles
    - clinical waste collections
    - hospital collections
    - trade waste collections
    - mechanical sweeping (of roads and redways)

Constraints

The review is constrained by current contracts. All the Council's waste services are out-sourced. The two largest waste contracts – waste collection and residual waste treatment - are not due to end in the next five years - the lifetime of this strategy. The situation with current contracts is as follows:

Table 1 Current major contracts

Contract (s)	Current Contractor	End of Contract /Contract Situation
Collection of refuse and recycling; street cleaning; mechanical sweeping; hospital, trade waste and clinical collections; graffiti removal	Serco, who also hold the landscaping and play areas contracts for the Council. There is a high degree of synergy between the three contracts.	Contract expires March 2023.
CA site operation	HW Martin	The contract was due to expire in 2016 and is currently temporarily extended since the recent re-tendering resulted in unaffordable costs. This service is therefore already under review. The tender for this remains open and the Council are engaged with bidders.
Milton Keynes Waste Recovery Park (MKWRP) – design, build, finance during construction and operation	Amey	Contract was awarded in June 2013 and lasts till 2031; the facility is due to achieve full service within the next year.
MRF operation	Viridor	Contract expires October 2024
Organics treatment provision.	Envar	An interim food and garden waste treatment contract was awarded in August 2016 for an initial term of 3 years with the option to extend for 2 years.

The Options Appraisal Process

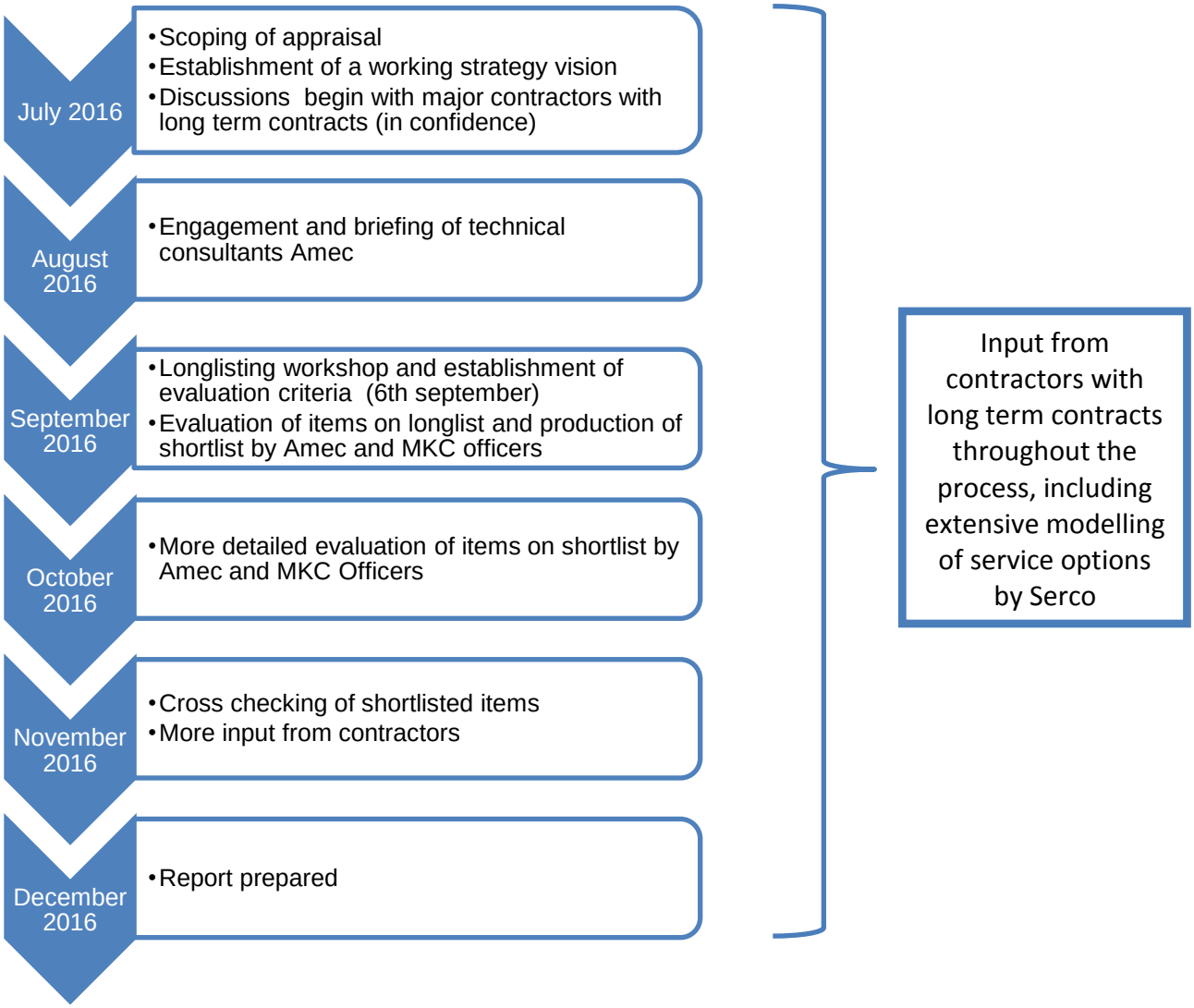
The options appraisal process has involved:

- Three current contractors Serco, Amey and Viridor. All have assisted in the generation of options, and offered their opinions and information. Assistance provided by the Council's technical consultants Amec Foster Wheeler (Amec) who have run a long listing workshop, evaluated the long list, and filled in gaps in the provision of technical information where possible. They have also provided quality assurance where needed.

- Assistance to a lesser extent has also been provided by consultants “Plan B”, from a commercial perspective.
- Council officers, who have evaluated the kerbside collections using data supplied, carried out analysis of minor options, and provided project management.

The process is shown in Figure 1.

Figure 1 The Options Appraisal Process



Establishment of a Vision for the Review

The vision for the Review was established as follows:

"Delivering a high quality waste service that costs substantially less than in 2016"

Longlisting

Prior to the Longlisting Workshop on 6th September, officers had already started listing some ideas of the areas where financial benefits may be improved. The longlisting workshop on 6th September gathered together more ideas, with input from Amec. The options were then scored using a scoring system with weightings as shown in Table 2a and Table 2b
This acknowledges that, while some options may give the Council a financial benefit, the benefit also needs to be tempered by deliverability. There are several aspects to deliverability - the option may not be deliverable because it is not possible legally, quickly (or at least within the lifespan of the strategy) or because the option is highly likely to be rejected by residents.

The output from the longlisting evaluation, using the weightings and scoring system, is shown in Table 3.

Table 2a Scoring Criteria

	Theme	Criteria	Weighting
1a	Finance	Generates net revenue savings by the end of 2017/18	1
1b	Finance	Generates net revenue savings by the end of 2018/19	3
1c	Finance	Generates net revenue savings by the end of the Strategy	3
1d	Finance	Use of capital generates positive revenue outcomes	1
1e	Commercial	Impacts on contracts	2
1f	Environmental	Impact on recycling rate	1
1g	Social & customer	Impact on the resident	2

Table 2b Scoring Methodology

Scoring	Scoring Methodology
0	The option has a negative impact on the criteria
1	The option does not contribute to the delivery of the criteria
2	The option performs moderately against the criteria
3	The option performs well against the criteria
4	The option performs very well against the criteria

Table 3 Scoring of long–listed options

Contract/Service/Area	Description	Score: (max = 52)
Refuse and recycling collections	With wheeled bins reduce residual waste collection frequency to 4 weekly	36
Refuse and recycling collections	Increase trade waste customer portfolio	36
CA/CRC sites	Enhanced Reuse (e.g. reuse shops)	36
CA/CRC sites	Increase trade charges	36
Refuse and recycling collections	With wheeled bins reduce residual waste collection frequency (2 weekly)	35
CA/CRC sites	Reduce number of sites	34
CA/CRC sites	Transfer some operations to third sector	34
CA/CRC sites	Address site abuse (enforcement/mitigation)	34
CA/CRC sites	Charging for some materials (e.g. DIY, asbestos)	34
Refuse and recycling collections	With wheeled bins reduce residual waste collections frequency (3 weekly)	33
CA/CRC sites	Preventing some materials (e.g. DIY, asbestos)	32
Refuse and recycling collections	Enforcing trade waste illicitly placed with domestic	31
Refuse and recycling collections	Add textiles (as a separate stream) to collections	30
Refuse and recycling collections	Add small WEEE	30
CA/CRC sites	Reduce opening hours	30
CA/CRC sites	Charge non-MKC residents for use of site	30
CA/CRC sites	Develop a super-site and close all 3 existing sites	30
Financial arrangements	Capital provision for purchasing vehicles	30
Refuse and recycling collection	Co-mingle all recycling (excl. batteries) using wheeled bins fortnightly	29
Financial arrangements	Insource/Teckal	29
Refuse and recycling collections	Engage third sector in service delivery (e.g. bulky waste)	28
MKWRP	Acquire extra area to extend the plant to generate income - site across the road	28
Refuse and recycling collections	Change current recycling frequency to fortnightly or more using wheeled bin plus box	27
Refuse and recycling collections	Six day working	27
Refuse and recycling Collection	Double shifting	27
Refuse and recycling collections	Alternative fuels for vehicles - biogas	27
Refuse and recycling collections	Charge for replacement containers	26

Contract/Service/Area	Description	Score: (max = 52)
Refuse and recycling collections	Increase Bulky Waste Collection charges	25
Refuse and recycling collections	Introduce a residual container chargeable top-up service	24
Refuse and recycling Collection	Bank Holiday working	24
Organics Treatment	Procure local AD plant instead of service contract for FGW etc.	24
Refuse and recycling collections	Introduce chargeable garden waste collection service	23
Refuse and recycling collections	Cease food waste (as part of move to chargeable garden waste)	23
MKWRP	Find cheaper outlet than RWTP to direct material to and sell spare capacity	23
Organics Treatment	Procure AD service for food waste and composting for garden waste	23
Refuse and recycling collections	Change current recycling frequency to fortnightly or more using existing receptacles	22
Organics Treatment	Procure composting only if food waste not collected	22
Refuse and recycling collection	If collected separately, limit garden waste Refuse and recycling collections season	21
Refuse and recycling collection	Introduce a residual waste sack limit (with MKC supplying) collected weekly	20
MRF	Adapt MRF to co-mingled glass either with all other dry recyclables	20
Financial arrangements	Refinance/sell existing assets	16
Refuse and recycling collections	Charge for collection of clinical waste	14
Refuse and recycling collections	Separate mixed organics - collect food waste separately weekly with charged garden waste	11
MRF	Adapt MRF to co-mingled glass with cans and plastics	11
MRF	Use MRF as transfer station only	10
Financial arrangements	Terminate contracts and re-procure	10
Refuse and recycling collections	Separate mixed organics - collect food waste separately fortnightly with chargeable garden waste	6

Following longlisting, the five areas in Table 4 were established for further detailed investigation. In addition, it was recognised that there were some options which might provide minor (and quick) benefits to the Council which should not be ignored. These warranted some investigation, which would be carried out by MKC officers. These are discussed in the Minor Options Section.

Some options were not taken any further after early discussions, following longlisting, or after preliminary discussions with contractors because major barriers became apparent to their implementation. These are logged in the Options that were discounted early in the process section.

Table 4 Detailed Investigation Areas

Detailed Investigation - Area 1	**Waste collection**
Description	Modelling of a range of waste collection options. Initial calculations of the impact on the collection contract were undertaken by Serco, with validation checks by Amec. The calculations of the impacts on other contracts, income and the wider service were carried out by MKC officers with some input from other contractors as appropriate.
Longlist options incorporated	• Changes to residual waste collection frequency • Introducing chargeable garden waste collections • Introduction of new receptacles • Changes to the recycling and organics service

Detailed Investigation - Area 2	**CA/CRC "super-site"**
Description	Modelling of a business case for a "super-CRC" involving the replacement of the three existing CA-sites with one large "super-site". This work has been undertaken by AMEC
Longlist options incorporated	• Develop a super-site and close all 3 existing sites • Encourage paying trade customers • Transfer some operations to third sector • Address site abuse (enforcement/mitigation) • Preventing some materials from entering the site (e.g. DIY, asbestos) • Charging for some materials (e.g. DIY, asbestos) • Enhanced Reuse (e.g. reuse shops) • Increase trade charges • Charge non-MKC residents for use of site e.g. with permit schemes

Detailed Investigation - Area 3	**Development potential for the New Bradwell CRC as a "supersite"**
Description	A particular review of the suitability of the existing New Bradwell CRC site for the development of a super-site incorporating all the long-list options is work area 2

Detailed Investigation - Area 4	**Trade waste market review**
Description	A review of the Milton Keynes commercial waste market to identify the potential for the growth of an MKC's trade waste service.
Long listing options incorporated	• Increase trade waste customer portfolio

Detailed Investigation – Area 5	**Service delivery modelling**
Description	Insource services either at the natural end of contracts or part way through with consideration of the Local Authority Trading Company (LATCo) arm's length option.
Longlist options incorporated	• Terminate contracts and re-procure • Insource/LATCo

Detailed Investigation Areas
Area 1: Refuse and Recycling Collection Options

The current system of refuse and recycling collection

This involves the following:

- Weekly collection of residual refuse in black sacks, which are not supplied by the Council but purchased by the resident
- Weekly collection of recycling in two streams –
    - Pink sacks containing paper, metals and plastics (supplied by the Council annually in rolls of 80 (60 in 16/17) with top-ups provided free of charge at various outlets in the area)
    - 40 litre blue boxes containing glass
- Both the refuse and recycling are collected on the same three-compartment "one-pass" vehicle, which is not widely used in the UK
- A free weekly mixed food and garden waste collection, which runs throughout the year, using 140 litre green bins for the majority of the area. Approximately 30,000 residents have a larger 240 litre bin which was supplied under a previous chargeable garden waste scheme and was not replaced with 140 litre bins when the current scheme started in 2009. The green bins are collected by relatively standard refuse collection vehicles with bin-lifts. Some residents e.g. those with little or no garden waste, can opt for a 23 litre green caddy which can be operated with the vehicle lift, directly deposited in the hopper or used in conjunction with a larger bin that the 23 litre bin can be decanted into.

Modelling methodology notes

23 alternative service options were modelled. These are summarised in Table 5 and the outcome of the modelling is summarised in Table 6. Options showing financial benefits are ranked by average annual return in Table 7

Start date assumption

Most options will require a "VEAT" (Voluntary Ex-Ante Transparency) notice to be issued (a legal requirement relating to the scale of contract changes and the potential need for contract extension), variations to contracts to be agreed, the purchase and delivery of new containers worth over £4m, the purchase of a largely new fleet of vehicles by Serco worth up to £7m depending on the option, extensive communications work, and, depending on the option, the setting up of charging systems. Therefore an implementation period of one year has been assumed for all options. For the purpose of financial modelling a start date of 1st April 2018 has been assumed. However, it is acknowledged that the start date could be brought forward depending on the option selected, to assist finances.

Contract length and vehicles

Annual service costs of each option have been supplied based on new vehicles and 5, 7 and 10 year contracts, which therefore assumed 0-, 2-, and 5- year contract extensions respectively beyond the existing term in 2023. Waste collection vehicles (which Serco would supply) are normally written off over at least 7 years; however most can easily last 10 years under reasonable

conditions and often longer. New vehicles would be needed for all the options except 1, 1a, 22 and 23. In these options, which have weekly collections similar to the current situation, it would be possible to use the existing fleet of "onepass" vehicles. These vehicles are mostly 2009-plate and are unlikely to be usable beyond the life of the existing contract which ends in 2023. A further variation has therefore been modelled for these options only, using the existing fleet and assuming a 5-year life i.e. the current contract term.

Changes to the recyclables stream

For the purpose of the financial modelling it has been assumed that where there is a reduction to the residual collection frequency, where glass is put into banks instead of being collected kerbside, and where there are changes to the FGW stream, that there will be no change to the quality or overall quantity of dry recycling collected.

Where collection of glass at the kerbside is ceased and the glass is put into banks, a very high density of banks – (e.g. one bank per village or estate) has been assumed in order to reduce the likelihood of a loss of tonnage.

Food Waste and 3 or 4 weekly residuals collection

All three or four weekly collections in the UK currently have a food waste collection, either separately or mixed with garden waste, so not having a food waste collection has not been considered in the modelling of any 3-or 4-weekly collection.

Scope of modelling

The modelling includes not only the operating changes in Serco service provision, but also:

- Capital costs and project implementation costs. The most significant capital cost is the provision of wheeled bins in all options where there is a reduced frequency of collection. This is necessary to contain the extra materials, prevent attacks by animals, and generally make the system more acceptable to residents. There will always be a proportion of properties which cannot use wheeled bins and need to remain on weekly collection with sacks. This has been taken into account and estimated, but a proper survey would need to be carried out to determine the exact locations of these properties prior to implementation. The cost of the survey has been included.
- Container costs. All the costs of container supply are included, that is: all sacks, bins, boxes, lids and caddies as appropriate to the option. This includes the cost of delivery to the resident. Sacks are treated as a revenue cost, but all other containers are a capital cost. Also included is an annual allowance for containers for household growth over the contract term, the cost of "attrition" (i.e. the containers that are lost, stolen or disappear), the cost of containers which are damaged by Serco in the course of collection, and depreciation of containers over their life.

  It may be possible to reduce the attrition cost in the future by charging residents for lost, stolen and disappeared containers.

No capital financing costs of container provision have been included; it has not yet been determined how the capital will be provided. The Council will be required to fund the purchase of any new containers not used in the current contract.

- Vehicle provision. Using wheeled bins also involves changing Serco's fleet of vehicles. The provision of vehicles forms part of Serco's contract cost – they buy or lease them and provide finance to do this as appropriate. In this model it has been assumed that this will continue. Investigations by finance officers have concluded that, at present, there is little or no benefit to be gained from the Council funding the vehicles. As discussed above, the majority of the current onepass fleet is 7+ years old (2009 registered) and probably has a market value less than its value on Serco's books due to the longer amortisation period as a consequence of the previous contract extensions. Serco will require compensation for the difference between the book value and the market value if the fleet is to be changed and this has been included in the modelling where appropriate.
- Other one-off project set-up costs included in the modelling are:
  -the extra helpline and communications work needed to facilitate any change
  -the cost of IT changes to Firmstep and the purchase of Whitespace software to facilitate charging in all options where there is garden waste charging. It has been assumed that the Council will collect the payment through Firmstep and that Serco will carry out all other garden waste charging administration using Whitespace.
  -the cost of bringing in any 140 litre wheeled bins where they are no longer needed in that option. This is a considerable extra expense which may not be necessary; it adds c500k+ to the project set-up cost depending on the option chosen.
- Changes in disposal costs. This varies considerably depending on the option. The following have been included in the modelling:
  - Where there is garden waste charging, there is the opportunity to treat garden waste which consequently goes through CA sites by open air windrowing which will result in lower disposal costs; however this is unlikely to happen until after August 2019 when the current Envar contract ends. Although open air windrowing is a less expensive option, there is insufficient capacity locally, so the savings will not be as great as if the material were to be treated in Milton Keynes, as it will need to be transferred out of the area. Residents will not be permitted to put garden waste in with their residual waste. However, some may do this, and if they do and it is not detected, or if they fly-tip it, this will be taken to the MKWRP. Therefore an increase in MKWRP tonnage has been modelled in options where there is garden waste charging, but it should be emphasised that this is a "worst case" provision and it would be hoped that this would not happen, or happen to the extent modelled.
  - Some options involve the stopping of food waste collections in conjunction with garden waste charging giving a considerable collection saving. In these cases the food waste would be put

with the residual waste. However, this affects the MKWRP's operation, its energy output, and its ability to take in 3rd party materials. Figures have been supplied by Amey of the likely impact on the MKWRP, which have been included. It would also decrease the recycling rate. (We have assumed that the compost-like material from the MKWRP cannot be counted as recycling).

  - Stopping food waste collection or charging for garden waste also potentially decreases the overall amount of material supplied to Envar, who may require a penalty to be paid for loss of material supplied to its contract, or for the Council to supply garden waste from the CA sites to make up the shortfall. This would cease after August 2019, when the contract ends. In options where food waste is collected completely separately from garden waste the food would probably go to Anaerobic Digestion in the next contract and the slightly lower gate fee for this has been assumed; again the material would need to be transferred out of Milton Keynes.
  - One option (21) has no recycling at all and places all materials in one container, with the residuals. Apart from any potential legal implications, this would have a severe impact on the MKWRP contract, which has been modelled here.
  - Some options have commingled glass in with the paper, cans and plastics. This places an extra processing cost on the MRF, which has been included in the model.

- Income changes. There are two areas where income changes may occur depending on the option. These are
  - Garden waste charging, where a charge of £35 per participating property has been assumed, with a 25% take-up. Some options have year-round garden waste collection and others only for 9 months. In the latter case the income has been reduced by a quarter.
  - Income from Eurobin charges. Some flats and sheltered housing which request communal Eurobins (large 4-wheeled bins of 1100 litres) to contain the sacks the Council supplies are required to pay a charge currently. If the Council changes to wheeled bin collections, then this will become the standard system and the council will not be able to charge. Legal opinion is currently being sought on this.
- Mitigation Absorbent Hygiene Product (AHP) collections. This has been included in options where there is 4-weekly collection. An AHP collection is a collection of nappies and incontinence waste which mitigates the effect of the reduced collection on properties which generate large quantities of such waste. This had not been included in the Serco modelling but officers have observed that councils with residual collections less than 3 weekly have introduced such collections, and an allowance has been made for it in the model appropriately.

The modelling does not include an allowance for any additional promotion of home composting (such as subsidised home compost bins) to counteract the introduction of garden waste charging. Reasonably priced, unsubsidised compost bins are currently available to residents through the Council's website, and S106 funds are used to promote home composting from time to time. New residents in some S106-funded areas are offered free home compost bins as part of the S106 agreement. Offering free or subsidised home composters would reduce any potential savings from introducing garden waste charging.

The Options

The 23 options modelled are combinations of the long-listed service options plus some additional collection scenarios currently in operation by other Waste Collection Authorities. They are summarised in Table 5 and results of the financial modelling are shown in Table 6. Detailed financial modelling is not supplied since much information has been supplied in commercial confidence by existing contractors to assist with the options appraisal. Options which show potential benefits to the Council's financial position are ranked in Table 7

Table 5 Service Options - Specifications

	Residuals		Mixed Dry Recycling (MDR)		Organics				
Service Options	**Collection Frequency**	**Containment**	**Collection Frequency**	**Containment**	**Garden Collection frequency**	**Garden Containment**	**Charge-able Garden Waste?**	**Food Waste Collection Frequency**	**Food Waste Containment**
Current	Weekly	Black sack supplied by resident	Weekly	Pink sack for paper, metals, plastic. Blue box for Glass	Weekly	140l W/Bin	N	With garden	
1 "current system if retendered now"	Weekly	Black sack supplied by resident	Weekly	Pink sack for paper, metals, plastic. Blue box for Glass	Weekly	140l W/Bin	N	With garden	
1a "current system with reusable sacks"	Weekly	Black sack supplied by resident	Weekly	Hessian Sack for paper, metals, plastics. Blue box for glass	Weekly	140l W/Bin	N	With garden	
2 "current system with wheeled bins"	Weekly	180l W/Bin	Weekly	All streams in 240l w/bin	Weekly	140l W/Bin	N	With garden	

	Residuals		Mixed Dry Recycling (MDR)		Organics				
Service Options	**Collection Frequency**	**Containment**	**Collection Frequency**	**Containment**	**Garden Collection frequency**	**Garden Containment**	**Charge-able Garden Waste?**	**Food Waste Collection Frequency**	**Food Waste Containment**
3	Alternate Weeks	180l W/Bin	Alternate weeks	240l w/bin for paper, metals, plastic. Blue box for Glass	Weekly	140l W/Bin	N	With garden	
4	Alternate weeks	180l W/Bin	Alternate weeks	All streams in 240l w/bin.	Weekly	140l W/Bin	N	With garden	
5	Three Weekly	240l W/Bin	Alternate weeks	All streams in 240l w/bin	Weekly	140l W/Bin	N	With garden	
6	Four Weekly	240l W/Bin	Alternate weeks	All streams in 240l w/bin	Weekly	140l W/Bin	N	With garden	
7	Three Weekly	240l W/Bin	Alternate weeks	All streams in 240l w/bin	Alternate weeks	240l W/Bin	N	Weekly	23l Caddy
8	Four Weekly	240l W/Bin	Alternate weeks	All streams in 240l w/bin	Alternate weeks	240l W/Bin	N	Weekly	23l Caddy
9	Alternate weeks	240l W/Bin	Alternate weeks	Glass, cans and plastics in 240l w bin. Paper in box with lid	Weekly	140l W/Bin	N	With garden	
10	Alternate weeks	240l W/Bin	Alternate weeks	240l w/bin for paper, metals, plastic. Blue box for Glass	Weekly	140l W/Bin	Y	Weekly	23l Caddy, collected on same vehicle as garden

	Residuals		Mixed Dry Recycling (MDR)		Organics				
Service Options	**Collection Frequency**	**Containment**	**Collection Frequency**	**Containment**	**Garden Collection frequency**	**Garden Containment**	**Charge-able Garden Waste?**	**Food Waste Collection Frequency**	**Food Waste Containment**
11	Alternate weeks	240l W/Bin	Alternate weeks	240l w/bin for paper, metals, plastic. Blue box for Glass	Alternate weeks (9 Months)	240l W/Bin	Y	No food collected – goes in with residuals	
12 "Greater Manchester" system	Three Weekly	240l W/Bin	Three Weekly	240l W/Bin x 2 – one for paper, one for glass, cans plastics	Weekly, year round	140l W/Bin	Y	Weekly	23l Caddy, collected on same vehicle as garden
13 "Glass in banks"	Alternate weeks	180l W/Bin	Alternate weeks	240l W/Bin for Paper, metals and plastic. Glass in banks	Weekly	140l W/Bin	N	With garden	
14	Three Weekly	240l W/Bin	Alternate weeks	240l w/bin for paper, metals, plastic, Blue box for Glass	Weekly	140l W/Bin	Y	Weekly	23l Caddy, collected on same vehicle as garden
15	Three Weekly	240l W/Bin	Alternate weeks	240l w/bin for paper, metals, plastic, Blue box for Glass	Alternate weeks (9 Months)	240l W/Bin	Y	Weekly	23l Caddy
16	Three Weekly	240l W/Bin	Alternate weeks	240l w/bin for paper, metals, plastic, Blue box for Glass	Alternate weeks (9 Months)	240l W/Bin	N	Weekly	23l Caddy

	Residuals		Mixed Dry Recycling (MDR)		Organics				
Service Options	**Collection Frequency**	**Containment**	**Collection Frequency**	**Containment**	**Garden Collection frequency**	**Garden Containment**	**Charge-able Garden Waste?**	**Food Waste Collection Frequency**	**Food Waste Containment**
17	Four Weekly	240l W/Bin	Alternate weeks	240l w/bin for paper, metals, plastic, Blue box for Glass	Weekly	140l W/Bin	Y	Weekly	23l Caddy, collected on same vehicle as garden
18	Four Weekly	240l W/Bin	Alternate weeks	240l w/bin for paper, metals, plastic, Blue box for Glass	Alternate weeks (9 Months)	240l W/Bin	Y	Weekly	23l Caddy
19	Four Weekly	240l W/Bin	Alternate weeks	240l w/bin for paper, metals, plastic, Blue box for Glass	Alternate weeks (9 Months)	240l W/Bin	N	Weekly	23l Caddy
20 "Welsh system"	Three Weekly	240l W/Bin	Weekly	3 x Boxes – one for paper, one for glass, one for metals and plastics	Alternate weeks(9 months)	240l W/Bin	Y	Weekly	23l Caddy
21 "All in one bin"	All streams collected in the same 240 litre bin every week								
22	Weekly	Black sack supplied by resident	Weekly	Pink sack for paper, metals, plastic. Blue box for Glass	Weekly	140l W/Bin	Y	Weekly	23l Caddy, collected on same vehicle as garden
23	Weekly	Black sack supplied by resident	Weekly	Pink sack for paper, metals, plastic. Blue box for Glass	Alternate weeks(9 months)	240l W/Bin	Y	No food collected – goes in with residuals	

Table 6 Financial Modelling of Kerbside Options- Summary
(red = saving, black = cost)

Option	Annual Collection Cost change £'000	Annual Disposal Cost Change £'000	Annual Income Change £'000	**Total Annual Revenue Change £'000**		**Capital Costs £'000**	**One-off Project Revenue Costs £'000**		**Net return to the council over contract term £'000**	**Average annual overall return over contract term £'000**	**Return on Investment (ROI) in years**
Current Vehicles 5 Year term											
Current	0	0	0	0		0	0		0	0	0.0
1a	-102	0	0	-102		289	234		-185	-37	4.8
22	335	155	-836	-346		404	885		-710	-142	3.7
23	-255	1349	-627	467		252	1,077		3,497	699	-2.8
New Vehicles over 5 years											
1	960	0	0	960		35	0		4,802	960	0.0
1a	817	0	0	817		289	1,442		5,615	1,123	-2.1
2	2,778	0	280	3,058		4,189	1,452		18,206	3,641	-1.8
3	8	0	280	288		4,196	1,452		4,358	872	-19.3
4	-196	953	280	1,036		4,189	1,452		8,098	1,620	-5.4
5	-572	953	280	661		4,189	1,452		6,220	1,244	-8.4
6	-559	1247	280	969		4,189	1,452		7,759	1,552	-5.7
7	123	794	280	1,197		5,894	1,676		9,743	1,949	-6.3
8	102	1089	280	1,471		5,894	1,676		11,110	2,222	-5.1
9	13	0	280	293		4,533	1,452		4,502	900	-20.1

Option	Annual Collection Cost change £'000	Annual Disposal Cost Change £'000	Annual Income Change £'000	**Total Annual Revenue Change £'000**		**Capital Costs £'000**	**One-off Project Revenue Costs £'000**		**Net return to the council over contract term £'000**	**Average annual overall return over contract term £'000**	**Return on Investment (ROI) in years**
10	138	155	-556	-263		4,523	2,078		2,346	469	24.7
11	-940	1349	-347	63		4,363	2,295		4,140	828	-104.9
12	441	155	-556	39		6,485	2,078		4,552	910	-215.2
13	116	0	280	396		4,245	1,477		4,940	988	-14.2
14	-455	155	-556	-856		4,190	2,104		-711	-142	7.2
15	143	91	-347	-113		4,700	2,256		3,342	668	60.9
16	155	-159	280	276		6,671	2,160		5,888	1,178	-31.6
17	-442	449	-556	-549		4,190	2,104		823	165	11.3
18	-116	386	-347	-77		4,700	2,256		3,521	704	89.3
19	235	136	280	651		6,671	2,160		7,763	1,553	-13.4
20	1,933	91	-347	1,677		3,666	3,870		13,541	2,708	-4.5
21	-1,766	3495	280	2,010		2,105	2,136		12,926	2,585	-2.1
22	1,067	155	-836	385		404	2,094		4,157	831	-6.4
23	13	1349	-627	736		252	2,285		6,048	1,210	-3.4

New Vehicles over 7 years

Option	Annual Collection Cost change £'000	Annual Disposal Cost Change £'000	Annual Income Change £'000	**Total Annual Revenue Change £'000**		**Capital Costs £'000**	**One-off Project Revenue Costs £'000**		**Net return to the council over contract term £'000**	**Average annual overall return over contract term £'000**	**Return on Investment (ROI) in years**
1	437	0	0	437		35	0		3,061	437	0.0
1a	291	0	0	291		289	1,442		3,603	515	-5.8
2	2,095	0	280	2,375		4,189	1,452		20,126	2,875	-2.3
3	-583	0	280	-303		4,196	1,452		1,383	198	18.3
4	-764	953	280	469		4,189	1,452		6,782	969	-11.8
5	-1,031	953	280	201		4,189	1,452		4,912	702	-27.6
6	-1,093	1247	280	434		4,189	1,452		6,543	935	-12.8
7	-380	794	280	694		5,894	1,676		9,449	1,350	-10.8
8	-390	1089	280	979		5,894	1,676		11,443	1,635	-7.7
9	-578	0	280	-298		4,533	1,452		1,584	226	19.8
10	-455	155	-556	-856		4,523	2,078		-1,699	-243	7.6
11	-1,393	1349	-347	-390		4,363	2,295		1,707	244	16.9
12	-90	155	-556	-492		6,485	2,078		1,825	261	17.2
13	-391	0	280	-111		4,245	1,477		2,781	397	51.0
14	-916	155	-556	-1,317		4,190	2,104		-5,066	-724	4.7
15	-356	91	-347	-612		4,700	2,256		282	40	11.2
16	-264	-159	280	-142		6,671	2,160		4,449	636	61.4
17	-891	449	-556	-998		4,190	2,104		-2,832	-405	6.2

Option	Annual Collection Cost change £'000	Annual Disposal Cost Change £'000	Annual Income Change £'000	**Total Annual Revenue Change £'000**		**Capital Costs £'000**	**One-off Project Revenue Costs £'000**		**Net return to the council over contract term £'000**	**Average annual overall return over contract term £'000**	**Return on Investment (ROI) in years**
18	-513	386	-347	-474		4,700	2,256		1,249	178	14.5
19	-240	136	280	176		6,671	2,160		6,677	954	-49.6
20	1,351	91	-347	1,095		3,666	3,870		13,337	1,905	-6.8
21	-2,145	3495	280	1,631		2,105	2,136		14,587	2,084	-2.6
22	542	155	-836	-139		404	2,094		1,314	188	17.8
23	-278	1349	-627	445		252	2,285		5,517	788	-5.7
New Vehicles over 10 years											
1	198	0	0	198		35	0		1,979	198	0.0
1a	-67	0	0	-67		289	1,442		952	95	25.3
2	1,673	0	280	1,953		4,189	1,452		23,906	2,391	-2.8
3	-808	0	280	-528		4,196	1,452		-904	-90	10.5
4	-966	953	280	266		4,189	1,452		7,044	704	-20.8
5	-1,273	953	280	-40		4,189	1,452		3,979	398	138.4
6	-1,275	1247	280	253		4,189	1,452		6,909	691	-22.0
7	-596	794	280	478		5,894	1,676		10,618	1,062	-15.7
8	-604	1089	280	765		5,894	1,676		13,488	1,349	-9.8
9	-804	0	280	-524		4,533	1,452		-617	-62	11.2
10	-680	155	-556	-1,081		4,523	2,078		-5,565	-557	6.0
11	-1,672	1349	-347	-670		4,363	2,295		-1,339	-134	9.8

Option	Annual Collection Cost change £'000	Annual Disposal Cost Change £'000	Annual Income Change £'000	**Total Annual Revenue Change £'000**		**Capital Costs £'000**	**One-off Project Revenue Costs £'000**		**Net return to the council over contract term £'000**	**Average annual overall return over contract term £'000**	**Return on Investment (ROI) in years**
12	-44	155	-556	-445		6,485	2,078		2,178	218	19.0
13	-692	0	280	-412		4,245	1,477		328	33	13.7
14	-1,190	155	-556	-1,591		4,190	2,104		-10,877	-1,088	3.9
15	-674	91	-347	-930		4,700	2,256		-3,741	-374	7.4
16	-564	-159	280	-443		6,671	2,160		2,423	242	19.7
17	-1,159	449	-556	-1,266		4,190	2,104		-7,625	-763	4.9
18	-800	386	-347	-761		4,700	2,256		-2,057	-206	9.0
19	-534	136	280	-118		6,671	2,160		5,675	567	74.1
20	945	91	-347	689		3,666	3,870		13,332	1,333	-10.8
21	-2,371	3495	280	1,405		2,105	2,136		17,666	1,767	-3.0
22	186	155	-836	-495		404	2,094		-2,580	-258	5.0
23	-642	1349	-627	81		252	2,285		3,261	326	-31.3

Table 7 Options with Financial Benefits

Option	Contract Type	Ranking of Options based on Average Annual Return over Contract Length £'000	ROI Years	Residual Waste Collection	Garden waste Charging?	Food Waste Collection?	Recycling Rate % (current=52)	Carbon Saving tonnes equivalent
14	New Vehicles 10 years	-1,088	3.9	3-weekly	Yes	Yes	49	-2,459
17	New Vehicles 10 years	-763	4.9	4-weekly	Yes	Yes	49	-2,459
14	New Vehicles 7 years	-724	4.7	3-weekly	Yes	Yes	49	-2,459
10	New Vehicles 10 years	-557	6.0	Fortnightly	Yes	Yes	49	-2,459
17	New Vehicles 7 years	-405	6.2	4-weekly	Yes	Yes	49	-2,459
15	New Vehicles 10 years	-374	7.4	3-weekly	Yes	Yes	49	-2,459
22	New Vehicles 10 years	-258	5.0	Weekly	Yes	Yes	49	-2,459
10	New Vehicles 7 years	-243	7.6	Fortnightly	Yes	Yes	49	-2,459
18	New Vehicles 10 years	-206	9.0	4-weekly	Yes	Yes	49	-2,459
14	New Vehicles 5 years	-142	7.2	3-weekly	Yes	Yes	49	-2,459
22	Existing Vehicles 5 years	-142	3.7	Weekly	Yes	Yes	49	-2,459
11	New Vehicles 10 years	-134	9.8	Fortnightly	Yes	No	45	-4,398
3	New Vehicles 10 years	-90	10.5	Fortnightly	No	Yes	52	0
9	New Vehicles 10 years	-62	11.2	Fortnightly	No	Yes	52	0
1a	Existing Vehicles 5 years	-37	4.8	Weekly	No	Yes	52	0

Discussion of Options

The current service enjoys a discount due to contract extensions being granted up to the maximum term and this would not be available if the service were to be retendered now to the current specification owing to the fact that new vehicles would be required. Option 1 shows that the service would cost £437,000 more annually if it were retendered today based on a 7-year contract.

Option 1a shows the effect of using reusable hessian- type sacks instead of pink sacks. This gives a small benefit of £37,000 annually (assuming the most sensible arrangement of keeping the current vehicles and the existing contract length), because the savings from using reusable sacks are almost outweighed by the increase in collection costs, since the sacks need to be returned to properties.

Options 2 to 21 that follow all require new vehicles because wheeled bins would be necessary for either or both refuse and recycling streams. The current "one-pass" vehicles supplied under the collection contract are not equipped to collect wheeled bins and retro-fitting the equipment to do so is not viable. In the evaluations that follow, the cost of the new vehicles has been written off over the three variations of contract life - 5,7, or 10 years - as appropriate. The calculations also include a sum to be paid to Serco to compensate them for the difference between the book value of the existing vehicles and their actual value, which is low, as onepass vehicles are not widely used.

Option 2 shows the effect of changing the current system from a sack system to a wheeled bin system but keeping all collections weekly. This shows a considerable increase in annual revenue costs no matter how long the contract. This is due to the collection method being slightly slower than sack collection, as bins have to be returned to houses, and also because, in the current system, the resident pays for the supply of black sacks. In addition there are high capital costs of purchasing bins and the project set up costs associated with buying new vehicles and rolling out new containers.

Options 3 and 10 both reduce the frequency of collection to alternate weekly, using 2 wheeled bins, 1 for residuals and 1 for the current pink sack contents and keeping glass in a blue box. In Option 3 the organics collection stays the same as currently; in option 10 garden waste charging is introduced. Both options can give annual revenue savings. Option 3 can give annual revenue savings of £303,000 in a 7-year contract and £528,000 in a 10 year contract. However, when the capital cost of bin purchase and set-up costs of the project are taken into account, the average annual overall return only shows a small benefit of £90,000 in a 10-year contract.

In Option 10 when the AWC is combined with garden waste charging, there are larger annual revenue savings of £263,000, £856,000 or £1,081,000 in 5-year, 7-year and 10 year contracts respectively. Again, there are high capital costs and project set-up costs, so the annual average overall return only

shows a benefit in the 7- and 10- year contract options of £243,000 and £557,000 respectively.
Option 9 is the same as option 3 but with a change to the presentation of recyclables from the current paper/plastics/metals mixture with separate glass to a glass/cans/plastics mixture with separate paper, which could benefit the MRF as 50% of the input would require no or minimal sorting. This would have similar collection costs to Option 3 but boxes with lids would be required. Therefore its performance is similar to but slightly worse than Option 3, and it only shows a small annual average return benefit of £90,000 in a 10 year contract scenario. However, it should be noted that no beneficial effect on the MRF has been included in the options analysis, as data has not been available. The Council would need to see a benefit to the MRF in the order of £38/tonne, £10/tonne of recyclables input depending on whether the contract is 5 years or 7 years respectively to make this viable in those contract lengths.

Options 4 to 8 inclusive all involve the commingling of all the recyclables together in one bin combined with alternate weekly, 3-weekly or 4-weekly collection; there are variations of organics collection but none are chargeable. This would involve investment in the MRF reflected in a MRF gate fee of £40/tonne. The Council currently pays no gate fees at the MRF, and this is the main reason that none of these options show any benefit. Viridor have indicated that they are reluctant to move to full commingling, and this has also been advised by other contractors.

Options 11 and 23 are similar to Option 3 and the current system respectively, except that, alongside garden waste charging, they also involve the complete stopping of food waste collections. This results in a movement of 5,000 tonnes of food waste to the black bin or sack respectively, and gives a very significant financial saving on collection costs as well as the garden waste income. However, this has profound effects on the MKWRP and the considerable collection savings are almost wiped out by the effect of the extra food waste on the operation and financial changes here. Option 11 could give annual revenue savings of £390,000 and £670,000 in 7- and 10-year contract scenarios, but the high capital costs of bin purchase and project set-up costs are such that an average annual overall benefit, of £134,000, is only shown in a 10-year scenario.

Option 12 is a three-weekly collection based on the three-weekly systems seen in the Greater Manchester area, in which three wheeled bins are supplied, one for refuse and two for the recyclables. Each bin is collected on a three week rotation, a different bin each week. There is also a weekly food and a weekly chargeable garden waste collection collected in 140 litre bins year round. This could be one of the simplest three-weekly systems from the resident's point of view. However, Option 12 requires each household to be provided with 3 large wheeled bins and consequently has high capital costs which cannot be returned, even in a 10 year contract.

Option 13 is an AWC collection, the same as option 3 but with the glass collected in banks instead of giving every property a kerbside glass collection.

In order to be compliant with “TEEP” a high density of banks has been assumed with one in every estate or village, involving the purchase of 150 eurobins for use as glass banks, so that there is a high chance of their usage. While this could show annual revenue savings in 7- and 10 –year scenarios, the high capital cost and set-up costs give no overall benefit, even in a 10-year contract scenario. It should also be noted that sites would need to be found for all the banks, which may be difficult in practice.

Options 14 to 16 are all 3-weekly residual collection options with recycling collected fortnightly, with paper, plastics and metal in a wheeled bin and glass in a box. As they are 3-weekly options, food waste is collected separately from residuals and is weekly.

Options 14 and 15 have chargeable garden waste. In option 14 the garden waste and food waste are collected weekly in existing 140 litre bins for those who want to subscribe and in 23 litre containers for those who do not, both streams being collected on the same vehicle. In option 15, the garden waste is collected alternate weekly in a 240 litre bin, and the food waste weekly in 23 litre bins on a separate round. In Option 16 there is no garden waste charging. All three options could show annual revenue savings in the 7-and 10-year scenarios but 16 is the weaker of the three options and would not show any benefit in a 5-year scenario, whereas Options 7-and 10 – would. All require significant capital and project set-up costs and therefore Option 16 shows no annual average return in any contract scenario.

Option 14 in a 10-year scenario gives the highest revenue savings of all the options at £1,591,000 and also the highest average annual return at £1,088,000. It requires significant capital investment and project-set-up, and has a return on investment at 3.9 years. In the 7-year scenario it can also give good benefits with an annual revenue saving of £1,317,000, an annual average return of £724,000 and a return on investment of 4.7 years.

Option 15 has smaller revenue savings and only shows a beneficial average annual return, of £374,000 in the 10-year scenario.

Options 17 to 19 are similar to options 14-16 except that the residuals collection is 4-weekly. However, the additional cost of an absorbent hygiene products (AHP) round has been included to mitigate the effect of the reduced frequency for households where nappies or incontinence waste is produced. This reduces the financial benefit. Like Option 16, Option 19 is the weaker of the options and, while giving an annual revenue saving in the 10-year scenario, it shows no overall annual benefit in any scenario. However Option 17 in the 10 year scenario ranks 2nd overall in terms of annual average return with a saving of £763,000 and in the 7-year scenario it ranks 5th with a saving of £405,000 annually. Option 18 could show an annual average return benefit of £206,000 annually but only in a 10 year contract. Both 17 and 18 show annual revenue savings in all three contract scenarios but require significant capital investment and project set-up costs.

Option 20 is the “Welsh” option. It follows the pattern adopted by several authorities in Wales who are following a Welsh blueprint for collections (Wales has a waste policy; there is no policy in England at present). It involves 3-weekly residuals collection, a three-stream, weekly collection of recyclables in small containers – boxes have been used here but it could be bags or reusable bags – with the recyclables separated into paper/metals & plastics/glass. The system is reported to produce good quality recyclables (though this varies locally) and requires a relatively simple MRF as sorting is done at the kerbside. Food waste is also collected weekly and often on the same vehicle as the kerbside materials. The collection vehicle is more expensive than other collection vehicles; the collection is slower and uses 3 crew rather than the normal 2. For this reason the collection is less productive and therefore more expensive than other options. The benefits to the Milton Keynes MRF - a complex MRF - are unlikely to be achieved. The MRF would have to achieve benefits in the order of £114, £79 or £55 per tonne of recyclables in 5-,7- and 10-year contract options respectively Therefore, despite having garden waste charging, the option is unlikely to be viable, and shows no annual average return benefit in any contract scenario.

Option 21 involves collecting all waste together in one bin. Although this produces very large collection savings of more than £2m, the extra disposal cost would be more than £3m and cancels out any benefit. It is also unlikely that sufficient quantity or quality of metals, plastics and glass could be separated from the residuals at the MKWRP to militate against a legal challenge.

Option 22 keeps the current system of weekly collections using sacks and onepass vehicles, but introduces garden waste charging with food waste collected in 23 litre containers by those who do not wish to participate in the garden waste scheme. The same vehicle collects both food and garden waste. This produces an annual revenue saving of £346,000 and an average annual overall return benefit of £142,000 in a 5-year scenario where the existing vehicles are kept. This has the best return on investment at 3.7 years since there is relatively little capital outlay compared to other options – no new vehicles or bins need to be purchased, and any compensation costs to Serco are avoided. Option 22 can also be implemented more quickly and has less risks overall than options involving new vehicles and wheeled bins. This scenario can also produce a revenue saving of £495,000 and overall average annual return of £258,000 in a new-vehicle - 10 year contract scenario but gives a longer return on investment. This is primarily because the costs are being spread over a longer period.

Overall,15 options show some improvement over the current system in terms of annual average return, the best having a 10 year contract – i.e. 5 year contract extension and reduced frequency of collection to three weekly. However, the best return on investment comes from keeping the existing vehicles and contract length and bringing in a garden waste charging system, primarily due to the need for less investment.

The top 12 options involve charging for garden waste. However, this will result in a predicted drop in recycling rate from the projected 52% to 49% due to the loss of some garden waste recycling. This does not necessarily result in a reduction in carbon emissions if the lost material ends up at the MKWRP. We have used the freely-available Scottish Environment Protection Agency Carbon Metric model to calculate changes in carbon emissions. There is a small reduction in carbon emissions due the material going through an "incineration" route (the closest option to the MKWRP in the carbon metric, although in practice it is a combination of anaerobic digestion and gasification neither of which are available in the model) rather than a recycling route. Nevertheless placing of garden waste in the residual stream would be discouraged; there is a risk of financial impact on the MKWRP if there is a significant increase of garden waste going through this route, and although a financial impact on MKC from garden waste going to the MKWRP has been included in the model, every effort should be made to minimise this as much as possible.

Discussion of Organics Contract Options

The contract for the treatment of organic waste ends in August 2019. The specification of the new contract will depend upon which option is selected.

If the food and garden waste collection stays as it is then previous work has indicated that it would be beneficial for the Council to construct a treatment plant in Milton Keynes using dry Anaerobic Digestion (AD)[1] technology. Such a project which would involve an investment of £24.5 million (including land purchase) based on 30,000 tonnes annual throughput, which allows a margin to accommodate future growth of Milton Keynes.

However the best options in Table 7 involve garden waste charging, which could result in a reduction in the FGW waste collection from current levels of c25,000 tonnes per annum to c10,000 tonnes per annum. This is insufficient material to justify the construction of a local "dry" AD plant to treat it. Below 30,000 tonnes AD plants become less viable as economies of scale decrease. This means the Council would have to take a risk on finding an extra 20,000 tonnes of organic material from elsewhere – perhaps from other local authorities - or pay very high costs per tonne for treatment.

In a garden waste charging scenarios 50% of the garden waste – about 10,000 tonnes - is likely to go through through CA sites instead of the FGW collection, and would therefore fall under the CA site contract.

If the FGW stream is reduced to c10,000 tonnes, as in options 10,14,17 and 22, the most viable procurement option for treatment of this material is likely to be a relatively simple contract to supply a service to treat these materials. This would probably be by in-vessel composting. In options 11, 15 and 18

[1] A dry AD plant is a plant in which organic material decomposes, usually in tunnels, in an environment with low oxygen levels. This is obtained by sealing the tunnel, as opposed to "wet" AD plants where air is excluded using water. Wet AD is not suitable for organic mixtures with high levels of garden waste.

where food waste and garden waste are separate the garden waste could be treated by open-air-windrowing and the food waste by “wet” AD .
When garden waste charging is brought in, it is common for some garden waste to “disappear” from collection streams, often not appearing in any council collections at all. However, our model has assumed 5000 tonnes would be put in incorrect streams, and incur costs as a result, to take a cautious approach.

Risks associated with the options

There are some risks which have not been taken account of in the modelling, and these are listed below.

Table 8 Risks

Risk	Options Affected	Impact score and description (1= low, 5=high)	Likelihood score and description (1=low,5=high)	Overall score
Loss or reduction in eurobin income	Current, 1,1a, 22,23	3-5 – loss or reduction of eurobin income	2	6-10
Legal challenge to variation in Serco contract	All except Current,1,1a. Lower risk in 22 and 23.	5 – may not be able to go ahead	2 – contract has been let for many years	10
Un-modelled composition risk at the MKWRP – change in composition of residual waste requires extra compensation to Amey or need for extra enforcement outweighing benefits	All except current and 1. High impacts have already been included in the modelling for options 11, 23 and 21. There is a medium un-modelled risk in all garden waste charging options – 10,11,12,14,15,17,18,20,22 Low when there is just a change to wheeled bin from sacks: 2,3,4,5,6,7,8,9,13,16,19	3-5	1-5	3-25
Extra contamination at MRF, (outweighing any extra recycling tonnage collected, or need for extra enforcement activity outweighing benefits)	All except current, 1, 1a with low-medium risk on options with lower frequency of collection or garden waste charging options and high risk when there is removal of food waste, especially option 23 where residents purchase own black sacks.	3-5 – penalties for contamination	2-5 depending on option	6-15

Risk	Options Affected	Impact score and description (1= low, 5=high)	Likelihood score and description (1=low,5=high)	Overall score
Adverse publicity causes difficulties in introduction or abandonment of project	All except current, 1. Highest in 3 or 4 weekly options and garden waste charging introductions.	5 – benefits not realised	4 – any service reduction	20
Increased flow of garden waste traffic to CA sites causes increased costs (apart from disposal which has been included in the model) and/or the necessity to acquire extra land for CA site use, and reduces the opportunity to make savings when retendering.	10, 11, 12, 14, 15,17, 18, 20, 22, 23	2-5	2-5- we will know more about this when tenders for CA site operation have been received	4-25
The number of properties which cannot accommodate wheeled bins is higher than expected	All except current, 1,1a, 22 and 23. Low risk in options 2, 20 and 21. Medium risk in all other options except 12 where it is high.	1-5 depending on option	3	3-15
AHP collection is also required due to public pressure	Any 3 weekly scheme: 5,7,14,15,16	5- could significantly reduce the benefit of any changing the system	3	15

Risk	Options Affected	Impact score and description (1= low, 5=high)	Likelihood score and description (1=low,5=high)	Overall score
Risk of “TEEP” challenge as a result of not collecting materials separately	High in option 21 Quite high in options 4-8 Other systems would have no risk beyond current system. Option 20 has a particularly low risk.	5 - system could be abandoned	4-5	20-25
Assumptions on waste flows are incorrect, so benefits would not be achieved	Caution has been used with assumptions, but in real life they will be different. Applies to all options but may be slightly higher in garden waste charging options.	3	2-3	6-9
When organics contract is retendered, the benefits of the expected change in gate fee are not achieved, and it is not possible to achieve the gate fees modelled.	Applies to all options with garden waste charging: 10, 11, 12, 14, 15, 17, 18, 20, 22, 23	3	2-3	6-9
Risk of extra waste being put in wheeled bins (possibly waste that would have gone to CA sites)	Applies to all options except current, 1, 1a 22 and 23 which do not have wheeled bins	3	3 (is mitigated by most options having restriction on bin capacity or reduced collection frequency)	9

Risk	Options Affected	Impact score and description (1= low, 5=high)	Likelihood score and description (1=low,5=high)	Overall score
Likelihood of extra litter from more food waste going into black sacks.	Option 23	3	5	15
Risk of compulsory food waste recycling being introduced in England requiring re-introduction of food waste collection.	11, 23	4	2-3	8-12
Risk of introduction of a standardised waste collection or recycling collection in England requiring a change to collection method	All	5	2-3	10-15
Risk of an increase in residents burning garden waste if garden waste charges are introduced (bonfires etc)	10,11,12,14,15,17,18,21,22,23	1 unlikely to have direct impact on Waste Service but may increase Environmental Health Complaints	4	4
Other assumptions are too optimistic, so benefits are not achieved.	Applies to all options (though caution has been applied in modelling)	3	2-3	6-9

Table 9 Opportunities and Other Benefits Associated with Options

Opportunity	Options where opportunity occurs
Reduction in littering due to introduction of wheeled bins	All except Current, 1, 1a, 22, 23 (though this could be reduced slightly in these options by promoting use of plastic dustbins and food recycling)
Scheme is perceived as less “messy” due to removal of necessity to separate food waste	11, 21,23
Opportunity to release MRF for alternative use	Option 21
Modelling is too conservative, so extra benefits are achieved on implementation	All options except current
Opportunity to extend current battery collection to include small electrical items, using space available underneath collection vehicles that is not available on one-pass options.	All except current, 1, 1a, 22 and 23
Reduced frequency or restriction on residuals gives boost to recycling	All except current, 1, 1a, 22, 23
New communications due to changes gives an opportunity to promote recycling/increase recycling	All except current

Possible beneficial changes to sack supply arrangements

If the current option is kept or options 22 or 23 selected, there are some minor changes in sack supply arrangements that could be considered to improve the Council’s financial position. Some of these could also be considered in 2017/18 if another option is selected. They are detailed in Table 10 and Table 11.

Table 10 Alternative Sack Supply Arrangements

Description	Cost of annual sacks	Delivery of annual sacks	Cost of top-up sacks inc delivery	Income	Total	Saving (-) or cost (+) Compared to Current Cost
Current:Deliver 80 pink sacks to each household per year; households obtain top-up sacks free of charge from outlets; residents pay for own black sacks	443	129	201	0	773	0
Deliver 110 pink sacks per year to each household (2/week + spares for Xmas etc); residents are charged for extra. Extra rolls are 52 sacks and can be either delivered or purchased at an outlet. Charge covers cost of roll + delivery etc; residents pay for own black sacks	603	135	0	0	738	-34
Sacks are not delivered to flats which have eurobins - residents use their own containers	376	110	201	0	687	-86
Instead of receiving bags, residents in flats receive a reusable bag to take their recycling to their eurobin	409	110	201	0	720	-53
Council will only collect its own marked refuse bags. Residents receive a roll of 110 bags giving them 2 per week plus spares. Top up rolls of 30 are charged at £5. Pink sacks continue as at present	1,052	270	201	122	1,522	750

Plain clear sacks replace pink sacks; black sacks continue as at present	439	129	200	0	769	-4

A further option is to stop the using the current pink sack outlets and require residents to request extra sacks online or by telephone. Serco would then deliver the sacks. Hopefully this would deter residents taking sacks for purposes other than intended. The extra cost of a delivery service would be in the order of £62,500 per annum. It is not known how big the deterrent effect might be, but simple calculations suggest that, with a reduction in sack usage of between 30-40 %, this would be worthwhile (Table 11)

Table 11 Serco delivering top-up pink sacks

Scenario: Delivery of top up pink sacks on demand instead of supplying outlets

Assumptions:

Annual cost of pink sack delivery £'000 in on-demand system	62.5
Total current cost of top-up pink sacks to outlets including delivery £000	200.6

% reduction in number of pink sacks used	10	20	30	40	50	60	70	80	90
number of pink sacks delivered (Million)	3.70	3.29	2.87	2.46	2.05	1.64	1.23	0.82	0.41
cost of pink sacks £'000	181	160	140	120	100	80	60	40	20
Total cost £'000	**243**	**223**	**203**	**183**	**163**	**143**	**123**	**103**	**83**
Saving (red) or Cost (black) £'000	**42**	**22**	**2**	**-18**	**-38**	**-58**	**-78**	**-98**	**-118**

Discussion of possible new kerbside collection working patterns

Several alternative working pattern arrangements have been considered; some were discarded early in the options appraisal process. However, two remain a possibility (subject to agreement with Serco), and had already been discussed before this appraisal:

- Saturday Working

This involves extending the collection week to Saturdays, either full or half a day. This gives a more efficient use of the fleet, and so a benefit. This could apply to all the options for refuse and recycling collection but cannot apply to the organics collection until after August 2019 since the transfer station does not accept the material on Saturdays in the current contract. This could be changed in the subsequent organics contract.

The effect of this upon many residents would mean that for the first year and a half organics would be collected on a separate day to kerbside collection, moving to the same day after August 2019, and that some residents would receive a refuse & recycling collection on Saturdays.

- Bank Holiday Collection

This involves crews working Bank Holidays instead of the Saturday following a Bank Holiday, throughout the year except over the Christmas break. While not generating savings (as crews still have to be paid for working out of normal hours) this generates less disruption, less need for communication with residents and fewer complaints of missed collections.

Major Area 2 Provision of one "super" CA /CRC site to replace the existing 3 CA sites

Amec Foster Wheeler have undertaken a detailed strategic business case to consider the options with regards to closing a single site, reducing opening hours across all sites or moving to a single super-site. The numbers provided are not directly comparable to the current budget position, and given the recent tendering and subsequent benchmarking exercises, we are acutely aware that the current contract price is extremely low and likely to increase following the completion of the current procurement.

MKC are currently in procurement for a provider to operate the Community Recycling Centres (CRCs). Following 2 rounds of competitive dialogue the final tenders which came back from the bidders were deemed to be unaffordable. The fee is largely made up of the management fee for operating the service and the disposal cost for materials received. The council has limited control over the types and volumes of waste, with the exception of controlling non household waste and traders. However, the specification e.g. of numbers of sites and opening hours / days could be changed to reduce the contract cost. The council currently operates 3 CRCs at Newport Pagnell, New Bradwell and Bleak Hall. Within the remit of the contract notice, MKC have gone back to the bidders participating in the competitive dialogue to test whether closing a single site (Newport Pagnell) or closing all 3 and replacing them with a supersite may prove economically advantageous.

Many local authorities are exploring the development of super-sites to rationalise ageing and unsuitable facilities. Such sites are being designed to offer a better customer experience, increasing recycling and opening up opportunities for generating income from commercial waste. However, the resulting closure of sites is something that has to be managed well from reputational and political perspectives.

In the long listing exercise the development of a super-site scored well and its attractiveness in providing cost savings was bolstered by the addition of associated considerations such as reducing the total number of sites provided, reducing/changing opening hours, transferring some operations to third sector, address site abuse (enforcement of illicit commercial waste tipping and non-MKC resident usage), preventing or charging for the deposit of some materials (e.g. DIY waste and asbestos), enhancing reuse (e.g. reuse shops), and increasing trade waste usage.

A 'super-site' is the term often given to a new-build or re-developed site that can incorporate a range of facilities and services that have the aims of:

- Improving the user experience by:
    - Making movement around the site easier and safer through the provision of clear traffic and pedestrian guidance and signage and segregating visitor vehicle movements from those of larger vehicles;
    - Providing sufficient capacity for the most popular waste streams at all times;

    - Helpful and knowledgeable staff able to answer queries and provide assistance; and
    - Covering some tipping areas to protect users (and materials) from the elements (depending on site configuration).
- Increasing recycling tonnages and quality by protecting materials, reducing the risk of contamination and making recycling easier for the user;
- Reducing the local impacts of facilities by improving traffic flows and vehicle capacities; and
- Monitoring and controlling site usage through the installation of CCTV and automatic number plate recognition software to address site abuse, and potentially inform potential users of site queuing via an on-line web-cam.

The 3 existing sites were constructed pre 1990 and do not reflect modern site standards. All sites require some element of refurbishment or upgrading (if retained) to improve visitor management and the expectations of the user. In budget constrained times it may be more financially beneficial to consider the rationalisation of sites as part of improving the quality and user experience of a larger site.

The potential of the existing New Bradwell CRC to become a super-CRC is examined in the next section. This option has now been discounted as it is not envisaged this site could accommodate future growth and demand, nor could it host an efficient commercial waste service.

The super-site option being considered would entail the development of a new super-site located centrally in Milton Keynes on a plot large enough to accommodate existing and forecast tonnages providing an increased range of facilities such as an enhanced trade area and a re-use centre.

GIS modelling has been undertaken to better understand the impact on the residents of closing all 3 sites and replacing them with one super-site. Best practice guidance from WRAP suggests that the maximum catchment area should be 3 miles in urban areas increasing to 7 miles in rural areas with a maximum travel time for the majority of residents in urban areas of 20 minutes increasing to 30 minutes for rural areas with one site provided for every 143,750 households.

The GIS analysis undertaken for the 3 exiting sites and an assumed supersite near the centre of Milton Keynes indicates that the existing situation captures almost all households within a 7-mile radius with only 102 properties sitting marginally outsider this distance. The assumed supersite would result in a deterioration of this for a small percentage (2-3%) of properties. All properties in Milton Keynes are within a 30 minute drive-time. There is a small deterioration for the supersite compared to the base case for the optimal 20-minute drive times, but the great majority of properties are still within these times in accordance with best practice.

<u>Financial Modelling</u>

The results of the modelling are shown in Table 12 below. The super-site option has a higher operational cost saving, but also the high net capital outlay.

In order to provide an indicative of the financial merits of moving to a supersite, the net 10 year expenditure has been calculated as shown in Table 13 below.

Table 12 – Summary of Financial Modelling of CA Site Options

Scenario	Capital Expenditure £'000	Capital Funding £'000	Net Capital Required £'000	Annual Operating Costs £'000	Operating saving compared to Three Sites £'000
Three Sites	639	-	-639	890	-
Super-site	5,348	3,695	-1,653	463	427

Table 13 – Cumulative Capital, Operating Cost and Cash Flow

Scenario	10 year cash flow (capital and operating costs)	10 year cash flow saving compared to Base case	% Saving 10yr Cash flow compared to Base Case
Three Sites	£9,539,000	£-	0%
Super-site	£6,283,000	£3,256,000	34%

Conclusion

The assessment of the modelled options demonstrates that moving to investment in a CRC super-site could be an economically attractive for MKC.

In contrast the super-site would provide enhanced opportunities in improved recycling facilities and be beter able to deal with traffic. One key risk identified for the super-site is the large initial capital expenditure, with inherent risks from cost overruns and time delays. A contingency has been allowed in the estimates for typical issues that arise, but other unforeseen events may occur. The capital income figure for the sale of the 3 existing sites is prudent.

Another key risk is that there may be difficulties in acquiring a suitable site in the preferred area.

Whilst the super-site options requires a higher up-front investment, the annual operating costs will provide an ongoing revenue saving which could pay-back this investment in about 3 years compared to operating 3 sites.

The improved controls on the usage of the site by those outside Milton Keynes can result in lower overall tonnages going through the sites. We do not have a measure of the use of the existing sites by those outside Milton Keynes but Newport Pagnell and New Bradwell are particularly thought to attract non-Milton Keynes residents. The reduction in overall throughput can

offer benefits in terms of sites being better able to cope with a garden waste charging option, having more capability for trade waste , the size of site required and the ease of use by Milton Keynes residents.

The key three parameters affecting the business case are the capital costs, the opening hours, and the site specific operating costs. These have a critical impact on the annual revenue streams, and there are associated uncertainties with the degree of estimating accuracy and modelling used. The following steps are recommended as the next stages in developing the business plan further:

- Engagement with potential service providers to confirm market appetite for a super-site solution (being done via current procurment);
- Confirmation of the capital income to MKC.
- Engagement with MKC transport officers on the traffic issues associated with continued operations at the current sites;
- Site review to confirm suitability of the super-site location, and any constraints that the selected site may place on future usage.

Major Area 3 Development potential for the New Bradwell CRC as a "supersite".

Development cost estimates

Amec Foster Wheeler has developed indicative costs for the development of the New Bradwell CRC as a "supersite" Table 14 provides a summary of these . Cost estimates for the CRCs have been developed in accordance with the Institution of Chemical Engineers (IChemE) classification for cost estimation to the classification of E. +/-30-50%.

Table 14 Indicative cost estimates for the development of super-CRC site at New Bradwell

Demolition and site clearance (Existing site)	£61,400
Demolition and site clearance (Extension site)	£1,100
Excavation	£193,000
Drainage	£73,700
Retaining Wall - Costs are for full length replacement	£154,500
Hardstanding - Assuming existing hardstanding to North West area is suitable for re-use	£336,800
Buildings/Structures	£95,000
Canopy	£39,700
Miscellaneous Works	£111,500
Sub-total	**£1,066,700**
Preliminaries (15% of construction work – excludes planning fees)	£160,000
Contingencies (10% of construction total)	£122,700
Design fees and contract administration (7.5% of construction total)	£92,000
Total	**£1,441,400**

If any excavated material from the former landfill site was found to be hazardous it is estimated this would add around £230k to costs.

Development constraints

New Bradwell does not currently accept commercial/trade waste. Any new super-site should have facilities to accommodate this waste stream as it provides additional services to local small and medium sized enterprises and can generate revenue. MKC currently provides this facility at its Newport Pagnell site.

Without extensive re-development of the New Bradwell site, including levelling of the raised ground to the east of the extension road, it is difficult to envisage how receipt of commercial waste could be managed. At least one, if not two weighbridges, on which trade users can weigh-on and weigh-off, is/are

required. A weighbridge office could also be included at this location by taking some area from the lower level HGV area

Given the volume of vehicles using the site, a wider access road would be desirable, preferably one that could facilitate trade vehicle access to the weighbridge. Vehicle flow around the site would also need to facilitate trade vehicles of weigh-off on departure, otherwise charging for and auditing of trade waste volumes will be problematic.

Once weighed in, trade waste vehicles would use the site in the same fashion as the public before leaving. Potentially the existing space available within the top level area would provide problems for large vans/lorries reversing into 60 degree parking bays. As such the new retaining wall may need to be moved forward to facilitate parking bays that are long enough to support trade vehicles.

The provision for trade waste collection at a New Bradwell super-CRC would put increased pressure on the site. To achieve the desired tonnages the flow through the site would be disrupted by the queuing and parking of the larger vehicles. **The site is considered to be too constrained to fully support 25Ktpa throughput plus additional from trade waste.**

An additional constraint is the ability to future proof the site. Milton Keynes has significant housing growth. In addition where different methods of waste collection are implemented- for example chargeable garden waste or fortnightly collections of residual waste – these may have an input on the quantity of household waste received at the CRCs in the future. With increases in household waste arisings a redeveloped New Bradwell site with an expanded footprint is may not be to be able to accommodate these additional waste quantities.

<u>Conclusion</u>

At current usage and waste generation levels the New Bradwell CRC could accommodate the household waste from across Milton Keynes. However, it could not accommodate significant increases in household waste arisings either as a result of increase in housing stock, or change to kerbside waste collection services. The site is unlikely to be able to accommodate commercial waste even after redevelopment of the land to the east of the access road.

In conclusion whilst New Bradwell could be developed as a super-site for current levels of household waste arisings it is not envisaged this site could accommodate future growth and demand. Nor could it currently accommodate an efficient commercial waste service.

Major Area 4 Trade waste market review

Local authorities have a statutory duty to arrange for the collection of commercial waste on request, and can charge to recover the cost of doing so, including both collection and disposal costs. Serco currently operate a separate trade waste collection service in Milton Keynes. Businesses requesting a collection from the Council (of refuse or recycling) are informed of Serco's service and also the services of other competitors in Milton Keynes. If the business requires that the Council collects, then Serco undertakes the collection for the Council and the Council charges the business including administration .

Milton Keynes is a vibrant and enterprising area with a large number of businesses that could be potential customers of a local authority service. The analysis of the market suggests that the service could grow with investment in sales. Initially a sack-based collection service that suits small and medium sized enterprises could be trialled with the waste cost effectively co-collected with household waste where possible. It is likely that some of this waste is "leaking" into the household waste stream already and that, by diverting it into a proper trade waste stream the Council will be able to reduce its costs.

If the household waste collection model changes in the future to a wheeled bin service, the approach to commercial waste collection will need to be reviewed to ensure existing customers can be serviced using wheeled bins.

When developing service proposals the Council should ensure that there is full cost recovery (including providing contingency for gate fee fluctuations) so that householders are not subsidising the service.

It is recommended that:

- The Council engages with waste contractor partners to develop a business plan for the expansion of this Service.
- The Council reviews its contracts to assess the potential for incentives.
- The Council review the findings of the recent judicial review on VAT to assure the Council takes into account its findings that, essentially, Councils do not have to apply VAT because their charges should only cover the cost of providing the service.

Major Area 5 Alternative service delivery models

The advantages and disadvantages of insourcing, “teckal” companies and other local authority trading companies (LATcos) have been considered by AMEC .

Their conclusions are that:
Many councils are exploring alternative ways to deliver services to reduce costs, increase quality and to see to commercialise to offset the impact of budget reductions.

Insourcing services are often suggested in response to contractor failure, customer complaints or a perceived lack of flexibility in service delivery. Transferring staff back into an authority does have financial impacts (for example in harmonising terms and conditions of staff and increased pension contributions) as well as requiring resources and capabilities internally that may be absent. It is a move that should be very carefully considered informed by a clear set of objectives.

The number of local authority trading companies (LATCos) being incorporated has increased markedly in recent years. These have been seen as ways of separating potential income generating services from the council with the view of making them commercially astute as well as providing the opportunity to cut costs. Any income dividend generated can be returned to the shareholding authority.

It is clear that some authorities see the “environmental services” as commercial opportunities – the expansion of commercial waste collections, offering the cleansing of private property, the maintenance of landscaped areas etc. Before committing to forming a LATCo a detailed business plan should be developed to ensure the commercial opportunities are a reality. Additionally the Council should also be certain is has the commercial skills within its workforce to put the business plan into action.

AMEC recommend that the Council’s appetite for the insourcing and/or commercialisation of services in general is identified, and if positive then a business case is developed.

It should be noted that the circumstances which AMEC list for insourcing are not relevant to MK at present, so, of the alternative options the LATco route would appear more useful.

However, the contract which this is most likely to apply to is the collection contract, which does not end till 2023.

The formation of a LATco (or insourcing) could therefore be explored during the life of the next strategy, with a view to a possible change at the end of the collection contract, but is not an option that is immediately viable.

Minor areas

In the course of the longlisting some minor areas emerged which, although unlikely to provide large scale benefits to the Council's financial position, may provide some minor positive effects.

An evaluation sheet for each of these areas has been completed as follows.

Option Number	**Minor 1**
Title	Charging for the Collection and Disposal of Hospital Waste
Description and detail	Non-clinical waste from hospitals is classified as "household waste" for which the Council may make a charge, both for collection and disposal. The Council has an informal agreement with Milton Keynes Hospital that it collects and disposes of its non-clinical waste free of charge with other household waste and the Hospital disposes of the needles collected by street cleansing crews and found during the course of undertaking refuse collections free of charge with its own clinical waste. However, partly as a result of legislative changes, changes in gate fees and waste ownership, the costs and quantities have shifted in recent years, and the situation has become more unequal. The Council now pays more to collect and dispose of the Hospital's waste than it saves on the clinical waste disposal costs of the needles. The amount of non-clinical hospital waste collected by the Council is high at 531 tonnes of which 45 tonnes are recyclables going into the MRF. It is therefore proposed that the Council charges the Hospital for the collection and disposal of its non-clinical waste and recyclables and pays for the Hospital, or another clinical contractor for the disposal of any needles that are collected during cleansing. As needles collected by the Council currently go straight to the Hospital for disposal the Council will either have to reach an agreement with the Hospital to pay for the clinical waste it takes there, or install a small bunded area for clinical waste on one of its existing waste sites to allow for the transfer to a clinical disposal contractor.

Relevant legislation	Controlled Waste (England and Wales) Regulations 2012
Financial Analysis – Revenue Effects	**2016/17 costs** **Total cost of hospital waste collection and disposal** **£66,613** Less cost of disposal of needles -£1,864 **Net annual benefit to Council from charging Hospital** **£63,650**
Financial Analysis – Capital/Project Set-Up Costs	It may not be necessary to install a clinical waste transfer area, but if this is the case, then a small capital outlay for storage of approx. 1 tonne of clinical waste per week would be required, or this could be included in the needles disposal cost. A permit change for the site may need to be obtained. There would be a small administration cost to obtaining quotes for the disposal of needles.
Delivery Timetable	This could start during 2017/18
Effect on Recycling Rate	Assuming the Hospital continued to use the Council's service for recycling and refuse collection, there would be no change to the recycling rate. However, if the Hospital choses to move its recycling and refuse elsewhere, then there could be a slight increase in the recycling rate in the order of 0.2% as the percentage of waste from the hospital that is recycled is lower than in the rest of the Council's household waste collections.
Effect on residents	There is no direct impact on residents.
Risks	Implementation risk – there is a risk that the costs of clinical storage and disposal could be higher when quotes are received.

Option Number	**Minor 2**
Title	Improving Communications about Recycling and Waste Management
Description and detail	Good communications activity is essential to support waste management. Over the years communications have become both easier/more cost effective with the use of the web, email newsletters, twitter, facebook etc and also harder because a wide range of different channels must now be covered. Some channels such as local newspapers have become less effective. The population has become more diverse and new residents need to be identified quickly. The only reliable method of communicating to all residents remains a door-drop of quality information because some sectors of the population, who are not easily identified, do not have access to computers/tablets/smartphones. It is therefore proposed that an annual door-drop of information is carried out. The benefit of doing this is: • Better participation in recycling and maximum use of recycling provision • A reduction in contamination Measurable evidence for the beneficial effects of communication is extremely varied as big campaigns are mostly used to support a change in collection method, and background events such as changes in economic activity, the composition of waste, or the weather can mask their beneficial effects. The benefits are thought to be in the order of 1-2% improvement in recycling rate, or stopping a decline. In the calculations below the benefits assume 1.5% diversion of materials from the kerbside residuals stream- c600 tonnes - to recycling. Of the 600 tonnes 1/3rd are dry recyclables. Most residents already recycle the main items – paper, plastic bottles, glass and cans, and those which are most likely to be diverted are the minor and lighter items such as non-bottle plastic, foil, aerosols and cartons. The remaining 2/3rds are food waste – there is evidence that much food waste remains in the residuals stream

	There is no direct benefit to the Council of reducing contamination under current arrangements.
Relevant legislation	None
Financial Analysis – Revenue Effects	**Costs** **£** **Annual door-drop** **30,000** **Benefits** Benefit to MKWRP 54,000 Less cost of processing extra food waste -18,000 **Net benefit of communications** **36,000** **Overall benefit to the Council** **6,000**
Financial Analysis – Capital/Project Set-Up Costs	Not applicable
Delivery Timetable	This can begin in 2017/18
Effect on Recycling Rate	+1-2%
Effect on residents	Residents are better informed, more confident and positive about how they manage their waste
Risks	Risk that other external factors will counteract the effect of the communications; especially if changing collection systems

Option Number	**Minor 3**
Title	Arrangements for treatment of mechanical highway sweeping
Description and detail	The composition of street sweepings varies seasonally and is generally observed to be a mix of small stones (arising from stones washing from pavements and verges and particles of degrading road surfaces), glass (from litter and broken automotive glass), pieces of metal (from parts of vehicles and litter), organics (leaf fragments, blossom, twigs etc.) and general litter (for example paper and card). The nature of the environment this waste stream arises from increases the potential of the material becoming contaminated with, for example, oils and fuels which require it to be 'cleaned' prior to any recycling and materials re-use. A number of different companies have developed processes to recycle mechanical sweepings. MKC collects street sweepings from the mechanical cleansing of highways. Until the summer of 2015 the material collected was sent to landfill subsequent to dewatering. Currently the mechanical sweepings are dewatered and transferred via a waste transfer station operated by Biffa at Bleak Hall a to a recovery facility in Buckden, Cambridgeshire. This includes processing, recycling of sand and gravel, recovery of organics, and disposal to landfill of process residues. From 2017 the street sweepings can be processed at the MKWRP but this produces little saving. Research undertaken by AMEC Foster Wheeler has identified a number of facilities for the treatment of street sweepings operating nationally. Obtaining gate fee information is difficult because of its commercial nature. However, it is believed that prices of £40-£50/tonne less, including haulage, may be achieved. The potential for MKC to make a saving is limited by the lack of tipping points and suitable waste transfer facilities in the borough which would allow for delivery of material by the fleet of sweepers. If MKC could construct a suitable tipping area at the MKWRP or Vehicle Depot there would be a potential saving.
Relevant legislation	Environmental Protection Act S89 (Duty to keep land and highways clear of litter etc.) and Highways Act 1980 (duty to keep highway safe)
Financial Analysis – Revenue Effects	It is anticipated that a overall saving of around £30 per tonne could be achieved depending on the location of the treatment facility and set-up costs below. This could yield a saving of around £63k per annum. If facilities were located close to

	Milton Keynes (and working with neighbouring councils to increase the supply tonnage may attract investment more locally) this saving could increase.
Financial Analysis – Capital/Project Set-Up Costs	The capital cost of a recycling plant of 50,000 tonnes is approximately £1.4m + civils and is therefore not viable given the potential revenue savings and the uncertainty of brokering additional tonnage (47,900 tonnes). The set-up of a tipping area - consisting of a 23 cu yard skip and ramp, which would need to be drained to foul / trade effluent, could cost around £50k depending on the requirement to provide a covered area. Capital could be provided using the remainder of the Depot funds available (c£48k). If a tipping area could be provided at MKWRP / Vehicle Depot there would be a handling charge . This would reduce the potential saving in the region of £10-20 per tonne. There is a lack of space at both existing council facilities.
Delivery Timetable	An option would be to contract with a third party mechanical sweepings treatment provider through existing contracts. Otherwise procurement of a service could take 6 months at least and may need a waiver from procurement in the interim.
Effect on Recycling Rate	No effect on recycling rate is anticipated
Effect on residents	No effect on residents is anticipated

Option Number	**Minor 4**
Title	Promotion of microgeneration plant(s) using RDF (refuse derived fuel) from the MKWRP
Description and detail	The MKWRP is a 3-stage process – mechanical treatment, anaerobic digestion and finally gasification. The gasification plant size is limited and the supply of tonnage to it is already committed. However, the capacity of the overall plant may be increased by accepting more materials but diverting the baled extra material, after processing it through the first two stages, to local “microgeneration” plants in the Milton Keynes area which can accept the fuel (known then as RDF – refuse derived fuel) and use it locally to produce electricity and heat. Microgeneration plants are modular and can be built in sizes ranging from 1 tonne per hour (8000 tonnes per annum) to 5 tonnes per hour (40,000 tonnes per annum). Smaller plants must have an outlet for the heat to be viable. The plant could charge a gate fee which is competitive.

	One suitable location may be a Fen Farm site which is already allocated for waste management purposes.
Relevant legislation	Waste Incineration Directive2000/76/EC Industrial Emissions Directive2010/75/EU
Financial Analysis – Revenue Effects	A detailed business case has not been completed for this option; however, it is recommended that a business case is investigated as part of the strategy, including investigation of suitable locations.
Financial Analysis – Capital/Project Set-Up Costs	See above
Delivery Timetable	This option can be investigated in the first year of the strategy. If it is viable then the site (especially if it is a larger site) will probably require permit(s) as well as planning permission. At least 2 years from decision to commence would probably be needed before the site would become operational.
Effect on Recycling Rate	No effect
Effect on residents	Depends on location and use of heat and electricity

Options that were discounted early in the process

Some options were discounted from detailed investigation early in the process, either during or after the longlisting phase, or in early discussions with contractors. These have been listed below, together with the reason for not investigating these options in detail.

Table 15 Options which have been considered at an early stage but not pursued further

Options	Reason for not pursuing
Changing to biogas-powered vehicles (if there is a change in collection vehicle)	The likely start date of a new service would be April 18. It is not possible to construct a new biogas plant before the new vehicles come into service. There is no supply of biogas suitable for vehicles currently in Milton Keynes, (though it is understood that a local supply is being considered in the private sector, and further controls on diesel vehicle emissions may come about in the future).
If onepass vehicles are replaced by RCV's, adding textiles to kerbside collections, kept beneath vehicle (possibly replacing batteries)	Contractor prefers to collect mixed small electricals and batteries rather than textiles.
Double-shifting of kerbside collection rounds	This involves working into the evening with the vehicles being used for 2-shifts per day. Serco are reluctant to do this. Collections are more likely to take place in the dark, at school-turn out times and in the evening rush hour. There is also less time for maintenance in the evening.
4-day working (kerbside collections)	Long working hours and extra working in the dark give extra health and safety concerns with no discernible extra financial benefit; Serco are reluctant to do this.
Using sensors to detect when communal/trade bins are full to make emptying more efficient	Local trials have shown that the sensors are affected by items being stuck in the bin opening slots and also by settling of bin contents. These problems need to be addressed before this idea can be taken forward.

If no change to current contract, charging for replacement boxes and bins if resident does not supply damaged box/bin for replacement	Under the present contract this does not benefit the Council directly, however it may do if it can renegotiate the current arrangements and share savings with Serco.
If no change to current contract, charging for extra/larger green bins	Do not have list of residents with larger/extra bins; can only apply to new requests
Underground collection systems (vacuum or static)	Very high capital cost and planning issues - unlikely to be fundable and long timescale
Increasing bulky waste charges	It is Council policy to increase bulky waste charges by the consumer price index each year. See Income and Collection Policy 1.6 and also to recover the full cost of the service where applicable see Policy 1.4. The current charges cover collection costs. If charges increase, demand will fall which would leave the Council in a worse financial position.
Engaging the third sector in bulky waste collections	Third sector organisations need to screen the bulky waste at first contact with the customer, so a new system would need to be set up with an appropriate third party organisation. The two most likely in Milton Keynes are Age Concern and Willen Hospice. Both would need extra vehicles, manpower and storage space to expand their operations, together with some arrangement for disposing of items that turn out not to be suitable for re-use. It is likely that around 10% of items picked up by the bulky waste crew may be suitable for reuse, so an alternative system still needs to be in place for the remaining 90%. By charging for bulky waste collections we are already driving residents to seek out alternative collections for good quality items suitable for reuse and it is probably better to promote the existing channels of reuse than ask them to take on a large volume of work which they are not geared up to cope with.
Reducing the MRF to a transfer station operation only	Does not appear to be viable within the current contractual arrangements or with the majority of collection options considered. The MRF would be an expensive transfer station.
Processing dry recyclable pink sack contents through the mechanical treatment (MT) plant at MKWRP at	The reception hall of the MT plant is not big enough to implement a segregation of wastes on site. This would require that the pink sack contents are stored off-site and then double-handled. However, this is likely to have a significant cost. The Council would be required to

evenings/weekends and freeing up the MRF for an alternative purpose.	take the risk on the recyclate values. The recycling levels that are achievable are far lower than a purpose built MRF - it would be probably safe to assume that no more than 50-60% recycling efficiency over the volume of recyclates. The remaining 50-40% would be sent to the gasifier for combustion, displacing additional third party waste from the facility (but with a compensating high CV value). This is unlikely to be a better contractual arrangement than present arrangements.
Investment in a private wire to sell electricity from the MKWRP	This does not directly affect services though it may affect the profitability of the MKWRP. A business case would need to be put forward by Amey.
Changes to abandoned vehicles arrangements	Statutory duty and no opportunities to reduce costs; low value of service
Changes to weedkilling arrangements	Already included in 2017/18 budget
Devolving some powers/responsibilities for street cleaning and landscaping to parishes	This option is being dealt with by another programme within MKC looking at how we work with partners and parishes to deliver services differently.
Refinancing/selling existing assets	All assets are owned outright except MKWRP, which is not yet owned (except land). Options for selling CA sites are explored in the major areas above.