APPENDIX

WASTE OPTIONS POLICY REVIEW REPORT

Prepared for: Oadby & Wigston Borough Council

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Executive Summary

SLR Consulting Limited (SLR) has been engaged by Oadby & Wigston Borough Council (the Council) to undertake a waste options policy review with the primary objective of making cost savings. The Council has stated that it is seeking to achieve circa £700k in cost savings compared to current levels of expenditure. This report summarises the findings of the waste policy options review.

The study has been carried out by:

- interviewing staff, meeting with collection crews, collecting data and visiting the Casepak materials recovery facility (MRF);
- preparing waste flow and cost models for existing services;
- agreeing with Officers the service change options to be modelled;
- modelling the options;
- benchmarking with authorities and soft market testing with waste contractors within Leicestershire; and
- preparing this report for presentation to the Council.

Since the study started Leicestershire County Council (LCC) has dictated that recyclable waste shall be presented at the Casepak materials recovery MRF. This will require the Council to close their MRF at the Depot site on Wigston Road. The Casepak process requires glass to be collected co-mingled with paper, card, plastics and metals. It is not safe, however, to collect glass co-mingled with other waste materials in plastic sacks/bags. We would therefore recommend that 240l bins are used for the collections of recyclables which include glass. Delivering dry recyclable waste to Casepak MRF will not cost the Council more to collect as dry recyclables can be compacted and collected in a single load per day.

The original base case model for the study was prepared which considered two scenarios:

- A: Business as usual - LCC Dictate; collections as current service; and
- B. Business as usual - LCC Dictate; co-mingled recycling.

It was agreed with the Council to model costs for the following options. The options assess charging for garden waste together with using different waste receptacles (bins and bags) and collection frequencies:

1. Same as option B, but with garden waste charge;
2. Fortnightly collection of residual waste and recyclables - no garden waste charge;
3. Fortnightly collection of residual waste and recyclables - with garden waste charge;
4. Weekly residual and fortnightly recyclables - with garden waste charge;
5. Weekly residual in 140l bins and weekly co-mingled recyclables in bags; and
6. Weekly residual in 140l bins and weekly co-mingled recyclables in bags – with garden waste charge.

The base case for cost savings has been set as the Business as usual – LCC Dictate; co-mingled recycling i.e. the situation that will apply from April 2018.

The estimated total yearly cost savings relative to the Business as usual – LCC Dictate; co-mingled service are given below with and without a £30/bin/year green waste charge (negative numbers indicate a net cost and positive numbers a net saving to the Council):

Option	Annual Cost Saving (£k) incl. garden waste charge (where applicable)	Annual Cost Saving (£k) excl. garden waste charge
1. Same as option B, but with garden waste charge	289	1
2. Fortnightly collection of residual waste and recyclables in wheeled bins (alternatively weekly collection) - no garden waste	N/A	-13

Option	Annual Cost Saving (£k) incl. garden waste charge (where applicable)	Annual Cost Saving (£k) excl. garden waste charge
charge		
3. Fortnightly collection of residual waste and recyclables in wheeled bins (alternatively weekly collection) - with garden waste charge	276	-11
4. Weekly residual in sacks and fortnightly recyclables wheeled bins- with garden waste charge	322	34
5. Weekly residual in 140l bins and weekly co-mingled recyclables in bags	N/A	-314
6. Weekly residual in 140l bins and weekly co-mingled recyclables in bags – with garden waste charge	-25	-312

Many local authorities now charge for the collection of household garden waste to reduce costs and generate income. Information from the benchmarking and soft market testing shows that garden waste wheeled bin charges locally range from £28/yr (Charnwood – only if paid by DD, £37 otherwise) to £40/yr (Leicester). The Council project team has suggested a charge of £30/bin/yr which is similar to the Charnwood charge. It equates to 58p/week for the residents using the service for the collection of garden waste. The introduction of chargeable garden waste collections (£30/bin/yr fee and 40% participation) should result in an annual income of £289k. The Council could consider a higher charge e.g. £35/bin/year for payment by direct debit and £45/bin/year for other methods of payment. We would recommend the garden waste collection service operates for 12 months of the year.

The modelling does not show that the number of refuse collection vehicles (RCVs) can be reduced by changing from weekly sacked collection to alternative weekly bin collection. The reason for this is that sacks are collected from over 1,900 properties per round per day whereas collections from wheeled bins are typically between 1,200 to 1,400 properties per round per day. Changing from weekly to alternative weekly collection will not save vehicle and crew costs.

The pros and cons of collecting residual wastes and recyclables in bags and wheeled bins on a weekly and fortnightly basis are summarised in Appendix 05. There are health and safety issues with the collection of residual and garden waste in sacks due to unknown weight and sharps. The Council has a policy that residual waste sacks should not be collected if they are heavier than 10kgs. However, this is difficult to enforce. Collection staff lift more than one sack at a time to finish as early as possible under their “Task and Finish” employment terms. There is no enforcement of the number of sacks they should lift at a time. There is a risk to collection staff from sharp waste material in residual and garden waste sacks. Sacks can also burst when being handled, spilling waste onto the street. Sacks can be damaged by animals (dogs, cats, foxes, rats etc) looking for food. Collecting in wheeled bins provides better street cleanliness, provided wheeled bins are not stored on the pavement.

It is calculated that collecting residual wastes weekly in 140l wheeled bins will result in a £314k/year cost increase to the Council against the LCC dictate, which may be reduced to a cost of 25k/year by charging for garden waste i.e. retaining weekly residual wastes collection but using bins and charging for garden waste will be cost neutral from April 2018, but would not provide a cost saving.

The rest of the options investigated (options 2 to 4) provide comparable cost savings and, excluding the garden waste charge income, are roughly cost neutral compared to option A – Business as usual, LCC dictate; co-mingled recycling. Charging for garden waste is therefore key to generating additional income for the Council.

Out of all the options we would recommend that Option 3 is adopted as Council Waste Policy from April 2018:

- Garden waste charging for collection in 240l wheeled bins (no collections in sacks);
- Alternative weekly collection of co-mingled dry recyclables (paper, card, metals, plastic and glass) in 240l wheeled and residual waste in 180l wheeled bins.

This will result in a predicted annual cost saving of approximately £276k from charging for garden waste (compared to scenario B) and significant improvements to the health and safety of the waste collection staff. It will also provide improvements to the current situation with vermin and waste spillages. Moreover, this option will likely improve recycling rates and counteract, in part, the reduction in the recycling rate caused by the introduction of a chargeable garden waste service.

It should be noted that although Option 4 (i.e. weekly residual collections in bags, fortnightly co-mingled recyclables collections in bins and garden waste collections charge) could potentially provide the highest cost savings, it does not address the current health and safety issues with the residual waste collections in bags and will likely further reduce recycling rates due to lack of motivation for the residents to recycle.

SLR assessed the collection of residual waste and recyclables over 5 days rather than 4 days as at present. Current calculations do not show a cost saving at present if 5 day working is introduced, but there could possibly provide a saving depending upon the amount of green waste collected. The Council should consider this further if garden waste charging is introduced.

The Council will need to plan for these service changes and we would recommend that if they are approved by Council on 5th December that they are consulted upon with waste collection crews, and an Implementation Plan is prepared. The Implementation Plan should consider:

- the procurement of new vehicles and wheeled bins. Reasonable quality wheeled bins should be procured;
- optimising routes for collection of residual waste and recyclables from wheeled bins to ensure collection in an 8 hour working day;
- the safe system for the collection of wheeled bins;
- informing the public of the service changes and allowing some exceptions (e.g, sacks for houses that cannot store wheeled bins; 360l wheeled bins for recyclables and 240l wheeled bins for residual waste for larger properties);
- a Council Policy is prepared for the provision of wheeled bins and Eurobins to existing properties and new residential developments.

The above service changes will not provide the Council with an annual cost saving of £700k. The annual cost saving is likely to be around £300k. If the Council require a higher cost saving, they may consider outsourcing the services to a private sector waste management company. Soft market testing indicates that waste management companies will be interested in tendering for waste collection services. They should be able to provide economy of scale cost savings. However, procurement is likely to take a year or more, and the Council will lose direct control over the management of the services. Greater cost savings are likely to be achieved by outsourcing all Council environmental services to a single contractor.

Charging for garden waste will reduce the Councils recycling rate. However, changing from weekly collection of dry recyclables in boxes/ sacks to fortnightly in wheeled bins should not reduce this further as long as the frequency of residual waste collections is also reduced. Fortnightly collection of residual waste in 180l wheeled bins should encourage households to recycle.

1.0 Introduction

This chapter summarises the objective and scope of the Waste Options Policy Review, the work undertaken, and the structure of this report.

1.1 Scope of the review

In July 2017 Oadby & Wigston Borough Council (the Council) prepared Terms of Reference (ToR) for external special support. The Council's budget for waste collection services is being reduced with the removal of waste Recycling Credits by Leicestershire County Council (LCC) (£400,000 in 2016/17, £200,000 in 2017/18, and £0 from 2018/9). LCC is also dictating the location and format for the presentation of residual and dry recyclable wastes meaning that dry recyclables ideally need to be collected co-mingled. The Council currently operates a small 'dirty' Materials Recycling Facility (MRF) which is set to close as a result of the direction from LCC.

The Council requires a Waste Options Policy Review to seek to save around £700,000 per annum on service costs, but ideally without materially altering the quality of the waste collection services to the residents and the recycling rate achieved.

The Council wants to be able to make evidenced based policy decisions on the practicality of a combination of different collection systems, methods and frequency together with the projected capital and revenue costs and/or savings, performance levels and impact to the public. SLR notes that some Council members wish to retain weekly residual waste collection.

The specific areas upon which the Council wishes to explore options are:

Table 1-1: Terms of Reference Requested Options

Included from Council List
1. Collection Methods – bins and/or bags
2. Collection Frequency – weekly and/or two weekly
3. Collection Capacity – bins (140l or 240l) and /or number of bags
4. Staffing – task & finish or regulated hours
5. Collections Rounds – ensure balanced, reasonable, efficient and effective
6. Vehicles – ensure correct type, correct number and are fit for purpose
7. Depot – what is needed to support the service and alternative uses
8. Green Waste – should the Council charge, if so how much with projected participation and income levels
9. Benchmarking – soft market testing of in-house versus private sector delivery of services
10. Full Market Testing - likely interest, cost, timescale and client resources required
11. Health and Safety - identification of main issues
12. Risks - assessment of legal, TEEP, H&S, environmental crime etc
13. Other - identify any other issues, savings or improvement that could be made

SLR Consulting Limited (SLR) submitted a letter proposal to the Council on 14th August 2017 following a presentation of SLR's capabilities and a discussion of the Council's requirements on 26th July 2017. The scope of

the work was reduced due to the Council's fixed budget, following agreement that the available budget was insufficient to explore all of the above options in detail.

It was agreed that the scope of the work should focus on assessing options for cost saving with a focus on:

Table 1-2: Agreed Policy Review Options

Included from Council List
1. Collection Methods – bins and/or bags
2. Collection Frequency – weekly and/or two weekly
3. Collection Capacity – bins (140l or 240l) and /or number of bags
4. Staffing – task & finish or regulated hours
5. Vehicles – ensure correct type, correct number and are fit for purpose
6. Depot – what is needed to support the service and alternative uses
7. Green Waste – should the Council charge, if so how much with projected participation and income levels
Added to Council List
1. MRF value for money (operating costs against recyclables income)
2. Benchmarking services against Blaby, Harborough and Charnwood Councils
3. LCC's waste delivery instruction, Recycling Credit removal and "Tip and Away" costs
4. High level soft market testing with waste management contractors

The focus of SLR's review process is whether cost savings can be achieved by altering the configuration of waste collection services (e.g. round frequency, container type, charging for green waste collections).

For the staffing 'Task and Finish' review, we proposed to undertake a high level review as to whether any rounds could be saved if regulated hours are worked. If this review indicates that rounds could be saved by regulated working hours, then a further detailed study could be required to balance collection rounds with regulated hours. However, changes in employment terms would need to be negotiated with Council collection staff.

SLR also committed to undertake high level soft market testing with waste management contractors to assess the services that they provide against those provided by the Council's Direct Service Operator (DSO), and to assess the contractor's interest in providing collection services to the Council.

We proposed to exclude the following items at this stage, although these could be reviewed under a subsequent study or studies if considered beneficial to the Council.

Table 1-3: Waste options not considered

Excluded from Council List	Reason
5. Collections Rounds – ensure balanced, reasonable, efficient and effective	A detailed review of collection round structures would require the use of specialist software, and cannot be completed within the current fixed budget cap of £15k
10. Full Market Testing - likely interest, cost, timescale and client resources required	We have included benchmarking with other Councils in Leicestershire

Excluded from Council List	Reason
11. Health and Safety - identification of main issues	These items should be assessed separately, noting that each may result in additional costs or savings
12. Risks - assessment of legal, TEEP, H&S, environmental crime etc.	

To undertake the review SLR requested relevant information from the Council in order to prepare the base case model of the existing services. SLR also prepared benchmarking questions for other Waste Collection Authorities in Leicestershire, and questions for soft market testing with waste management contractors (Appendices 01 and 02).

SLR met with Officers and Members to discuss the services and held a workshop with Members to agree a shortlist of waste collection options to be modelled in detail, along with the questions for benchmarking and soft market testing. SLR also met with waste collection staff to discuss waste collection services provision i.e. receptacles, frequency, health and safety etc.

LCC issued a dictate to the Council to deliver dry recyclable wastes (paper, card board, metals, plastics and glass) either source separated or co-mingled to the Casepak MRF. The Casepak process is designed to accept glass co-mingled with the other recyclables and therefore there is a preference for recyclables to be delivered co-mingled. Moreover, co-mingled recyclables collections are more efficient, provide greater flexibility because the same vehicles can be used for the collection of residual waste and recyclables, are more convenient for the residents and there is evidence that they yield higher recycling rates.

The downside of co-mingled recycling is that contamination rates may increase slightly, but this can be counteracted by an effective communications campaign. We would therefore advise the Council to move away from their current source separated recyclables collections and opt for a co-mingled recyclables collection service. The model assumes that there is no change in the cost to the Council for the delivery of recyclables to Casepak. However, the Council should consider whether they can claim a “Tip and Away” payment from LCC. There is no change in the location and cost for the delivery of residual waste.

The base case model is based on a business as usual position – including LCC’s instruction with regard to co-mingled recycling. The options modelled included:

Table 1-4: Options Modelled

Included from Council List
1. Green waste charging
2. Fortnightly collection of residual waste and recyclables in wheeled bins - no green waste charge
3. Fortnightly collection of residual waste and recyclables in wheeled bins - with green waste charge
4. Weekly residual in sacks and fortnightly recyclables in wheeled bins - with green waste charge.
5. Weekly residual in 140l bins and weekly recyclables in bags - no green waste charge
6. Weekly residual in 140l bins and weekly recyclables in bags - with garden waste charge

Following the workshop, SLR modelled the shortlisted options for cost savings, and assessed the benchmarking and soft market testing answers. Options 1 to 4 were initially modelled and a draft report sent to the Council. The Council subsequently requested options 5 and 6 to be modelled. The conclusions of SLR’s extended options review are summarised in this report.

SLR sent a draft report to the Council and received some specific questions from the Council. These questions are answered in Appendix 04.

1.2 Report structure

This report is structured to provide:

1. Introduction: scope of work and report structure;
2. Local authority benchmarking and soft market testing;
3. Base case waste and options model; and
4. Waste options policy review.

2.0 Benchmarking and Market Testing

This chapter summarises the information received from other Waste Collection Authorities in Leicestershire and the soft market testing with waste contractors.

2.1 Introduction

The Council sent the benchmarking survey questionnaire in Appendix 01 to all Waste Collection Authorities in Leicestershire. It was not sent to Leicester City Council which is a Unitary Authority. SLR sent the soft market testing questionnaire in Appendix 02 to Biffa Waste Services, FCC and Serco (three of the largest six waste collection contractors in England).

The Council only received a completed questionnaire from Charnwood Borough Council (BC). SLR received completed questionnaires from Biffa Waste Services, FCC and Serco. We consider that the benchmarking and soft market testing provides a good summary of the services provided by other authorities in Leicestershire (Charnwood; Harborough (FCC), Melton Mowbray (Biffa) and Leicester (Biffa)).

2.2 Authority Benchmarking

Charnwood BC is a larger, more rural authority than Oadby & Wigston BC with approximately 73,000 properties. It has:

- Fortnightly collections;
- Task and finish;
- 240l residual for existing properties, 240l co-mingled dry recyclable; 240l garden waste wheeled bins;
- 180l residual bins now provided as replacements and for new properties;
- Batteries collected in a separate bag;
- 48% recycling rate;
- Private waste management contract (outsourced waste collection services)
- Charged garden waste collection:
    - £28/bin/year direct debit;
    - £37/bin/year any other payment method;
    - 12 month service;
    - 45% participation;
    - £710,000 income in 2016/17;

Charnwood BC commented that:

- Introduction of trade waste under consideration;
- Charging for bulky waste under consideration;
- They are reviewing the value of bring sites;
- In-cab technology will be introduced in the next contract;
- Price for Garden Waste Service reviewed year on year; and
- A permit scheme for the Garden Waste Service has been recently introduced.

2.3 Soft Market Testing

The answers to the soft market testing questions may be summarised as follows:

Table 2-1: Soft Market Testing Responses

Question	Response Summary
Residual waste collection	
How many of your contracts retain weekly residual collection in sacks?	Weekly residual collection services in sacks range from: 0% - Contractor 1 5% - Contractor 2 30% - Contractor 3
How many of your contracts have weekly residual collection in wheeled bins?	Weekly residual collections are mainly in sacks although there are examples of weekly collection in bins. 120l wheeled bins are being introduced for weekly residual waste collections.
What residual waste wheeled bin size would you consider appropriate for fortnightly collection (240l, 180l, 140l)?	180l wheeled bins for alternative collection of residual waste is considered most suitable by all.
What is the average number of properties serviced per day for dry recyclable wheeled bin collections in an urban area e.g. 1,300 properties/day?	1,200 to 1,400 properties per day referenced.
Would you recommend a 5 days collection rather than 4 days collection?	Mixed views amongst three waste contractors. One considered five days is best; one said there is no noticeable difference; and one said that the existing four days in Oadby & Wigston is preferable.
Have you experienced increased fly-tipping from alternative weekly collection?	No experiences of increased household waste fly tipping due to alternative weekly collection.
Dry recyclables collection	
What dry recyclable wheeled bin size would you consider appropriate for fortnightly collection (240l, 180l, 140l)?	240l wheeled bin recommended by all for co-mingled dry recyclable.
Garden Waste	
What household participation (%) would you expect if you were to set a charge around £30?	£30/bin/year considered a good price for Oadby & Wigston by all. FCC stated Harborough have a current £40/bin/yr charge and a 50% participation. FCC recently introduced a £35/bin/year rate in Barrow-in-Furness. Leicester charge £45/bin/year for subscriptions and £40/bin/year direct debit, with additional bins at £20/bin/year. Biffa charge £50/bin/year for garden waste that they have initiated across England.
Would you propose garden waste collection for 8 months of a full year?	A full year service would be recommended.
What is the average number of properties serviced per day for garden waste wheeled bin collections in an urban area at around 40% participation?	650 to 800 garden waste wheeled bin collections per day. Note that this is the bin pick-up rate and not the household by-pass rate.
What typical reduction in recycling rate have you experienced through the introduction of paid	Charging for garden waste may reduce the recycling rate by around 5% but this can be made up by co-mingled dry

Question	Response Summary
garden service?	recyclable collected in 240l wheeled bins
Outsource waste collection services	
Would you be likely to tender for waste collection services if they were outsourced?	Biffa (Leicester and Melton) and FCC (Harborough) would be interested in tendering.
What would make procurement attractive to you?	Procurement will be more attractive with a lower contract cost if: • No risk on value recyclable materials, • Prudential borrowing to purchase vehicles; • A long-term contract (8-10 years); • Self-monitoring contract; and • Provision of a depot facility.
Service Change	
What service changes may provide best value for money for the Council?	All three contractors said alternative weekly collection would provide best value for money to the Council. 180l residual, 240l co-mingled dry recyclable, 240l green wheeled bins.

2.4 Benchmarking and Soft Market Testing Conclusions

All four Leicestershire and Leicester authorities that were benchmarked and soft market tested have outsourced waste collection services. They all provide alternative weekly collection of residual, co-mingled recyclables, and green waste in wheeled bins. 240l wheeled bins are provided for co-mingled recyclables and green waste but there is a preference for 180l wheeled bins for residual waste.

All four Leicestershire and Leicester authorities that were benchmarked and soft market tested charge for garden waste collection for 12 months of the year. Prices range from £28/bin/year (Charnwood) to £40/bin/year (Leicester).

The soft market testing shows that some authorities collect residual waste in sacks or bins (120l) on a weekly basis, although the majority provide alternative weekly (fortnightly) collection. There was no experience of increased fly-tipping of household waste as a result of introducing alternative weekly collection.

The waste management contractors consider that alternative weekly collection will provide the best value for money service to the Council.

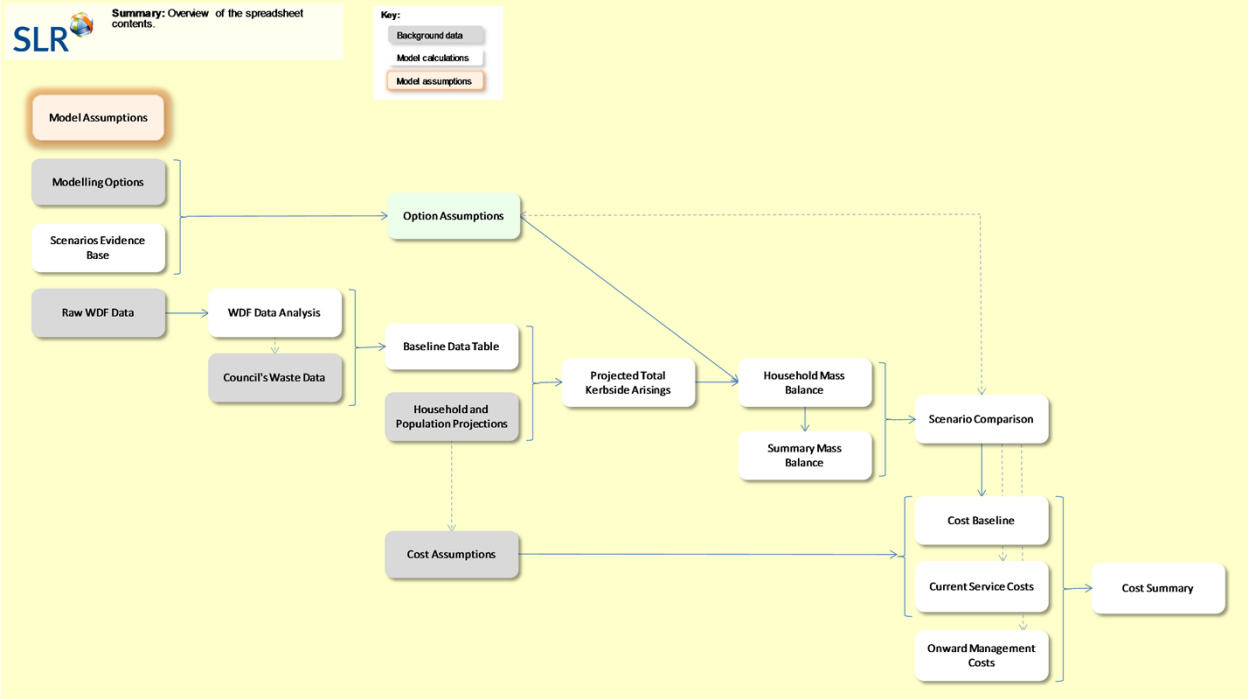
3.0 Base Case and Options Model

The chapter describes the base case and options model, and presents cost savings calculated for each of the options agreed with the Council.

3.1 Model Description

SLR has prepared a waste flow and cost model of the existing services and options for the Council. The model has a number of linked spreadsheets as shown below:

Figure 3-1: Base Case and Options Model Structure



3.2 Base Case Model

The current waste collection services include:

- Weekly sack refuse collection;
- Weekly bag dry recyclable collection;
- Fortnightly sack and bin garden waste collection; and
- Fortnightly box and bottle glass and cooking oil collection.

The base case has been prepared with two options:

Table 3-1: Base Case Models

Base Case Description	Collection Details
A: Business as usual - LCC Dictate; collections as current service with kerbside sort of dry	• Weekly residual waste collections (in bags) • Weekly co-mingled dry recyclables collections (in bags) • Weekly glass waste collections (in boxes)

Base Case Description	Collection Details
recyclables collected in boxes.	• Fortnightly green waste collections (service free of charge) Waste oil collections are considered redundant and are therefore excluded from the service. Twin-pack RCVs continue to be used. Collection crews work on a task-and-finish basis up to an 8 hour shift.
B: Business as usual - LCC Dictate; commingled recycling. The current waste collections service is maintained - but glass is collected commingled with the dry recyclables.	• Weekly residual waste collections (in bags) • Weekly co-mingled dry recyclables collections including glass (in bags) • Fortnightly green waste collections (service free of charge) Waste oil collections however are considered redundant and are therefore excluded from the service. Old twin pack RCVs are replaced by new standard 26T RCVs. Collection crews work on a task-and-finish basis up to an 8 hour shift.

The assumptions used in the model are listed in Appendix 03. These are as discussed with Officers prior to the preparation of the model.

An evidence base has been researched to acquire appropriate data to use in the model to calculate cost savings ('Scenarios Evidence Base' spreadsheet). Data have been researched from national bodies e.g. Waste & Resource Action Programme (WRAP) for co-mingled waste collection and collection frequency (e.g. performance impact of weekly against fortnightly collections).

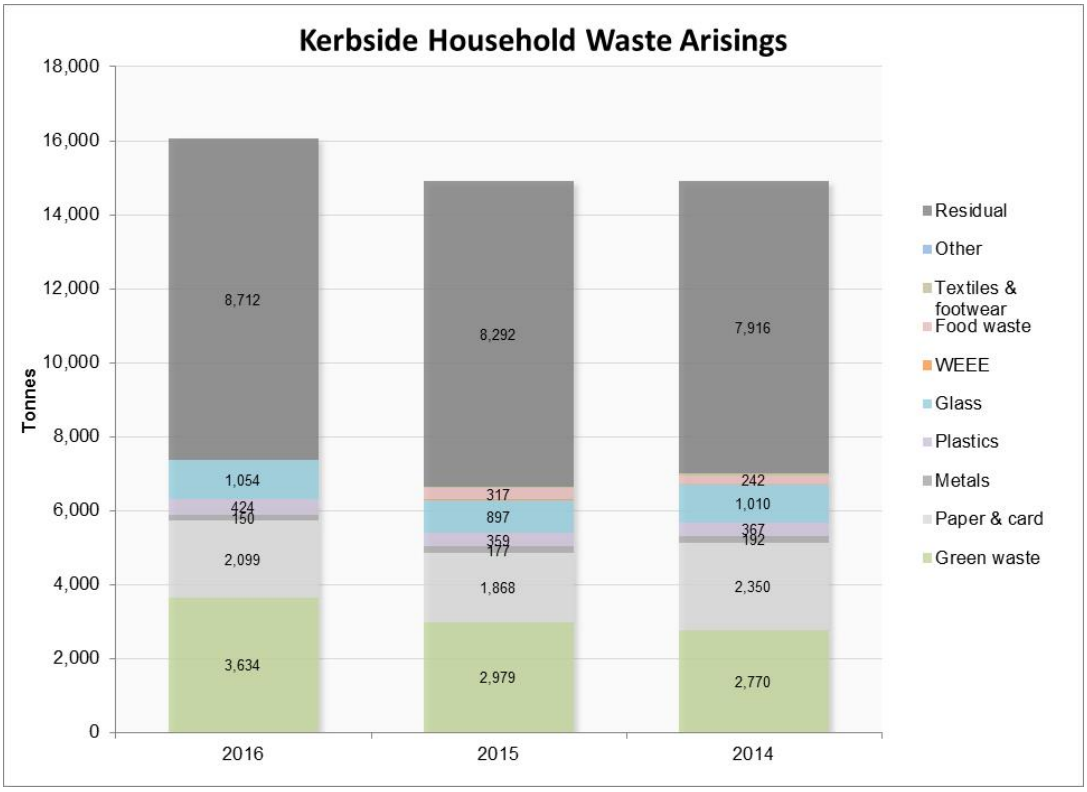
The model is interactive and parameters can be changed for the base case and each of the options ('Options Assumptions' spreadsheet) e.g. household participation (proportion of households participating in the dry recycling collection service; proportion of households (excl. flats) participating in the green waste collection service); weight of dry recyclables per person per year (glass, paper, plastics). The model assumes that when a garden waste charge is introduced, most of the garden waste (circa 75 – 85%) from properties not participating will be taken to the Household Waste Recycling Centre (HWRC) or composted, with the balance ending up in the residual waste stream.

The model also includes Office for National Statistics (ONS) household and population projections ('Hh and Population Projections' spreadsheet). These have been used to calculate increasing waste arisings due to changes in population and households to 2035, although the focus of the model is the next 7 years from 2018 to 2025 for the replacement of refuse collection vehicles.

Due to the inherent uncertainty of future projections, the model includes three waste arisings scenarios which capture a range of possible waste arisings outcomes. These include; 'High arisings', 'Intermediate' and 'Low arisings'. The 'High arisings' case assumes a greater increase in population than projected by the ONS and a 10% increase in the household waste arisings per person. The 'Low arisings' case combines lower population increase with lower household waste generation (-10%) to provide an estimate for the possibility of lower total waste arisings. For the purposes of this report, however, the 'Intermediate' waste arisings case is considered as the most appropriate projection and is therefore used to report on the outcomes of the model. The waste arisings scenario can be selected in the model in tab 'Scenario Comparison'.

The model includes raw data from Waste Data Flow and this has been analysed to identify waste statistics applicable to Oadby & Wigston over the last three years. This information is summarised in Table 3.2 below:

Figure 3-2: Kerbside Household Waste Arisings



The recycling rates calculated from these data are as presented in Table 3-2 below.

Table 3-2: Recycling Rates (2014-2016)

	2016	2015	2014
Kerbside recycling rate	45.8%	44.4%	46.9%

Officers have reported a recycling rate of approximately 50% in recent years, with the latest 2016 recycling rate at circa 48%. However, residual waste and street sweepings that contain recyclables are back allocated to Oadby and Wigston via the County, which could explain the difference between the reported overall recycling rates and the estimated kerbside recycling rate. For 2016, only kerbside data were available, so recycling rates could only be accurately calculated for the kerbside services. Based on the recycling rates reported in previous years, it could be cautiously assumed that the back allocation of recyclables from the County results in an overall recycling rate of circa 2-3% higher than the kerbside recycling rate.

The base case model projects total kerbside waste arisings ('Projected Total Kerb Arisings' spreadsheet) from which the mass balance for household waste for Oadby & Wigston is calculated ('Household Mass Balance' and 'Summary Mass Balance' spreadsheets).

3.3 Options Model

Options modelled are as follows:

Table 3-3: Options Modelled

Options Description	Collection Details
1. Business as usual - LCC Dictate; commingled recycling, with green waste charge	The current waste collections service is maintained (collection frequencies and methods as above) but there is an annual fee for households that opt in for green waste collections. Waste oil collection service is removed. Old twin pack RCVs are replaced by new standard 26T RCVs. Collection crews work on a task-and-finish basis up to an 8 hour shift.
2. Fortnightly collection of residual waste and recyclables - no green waste charge	The collections service is changed as follows: • Fortnightly residual waste collections (in bins) • Fortnightly co-mingled dry recyclables collections including glass (in bins) • Fortnightly green waste collections (service free of charge) Waste oil collections are considered redundant and are therefore excluded from the service. Old twin pack RCVs are replaced by new standard 26T RCVs. Collection crews work on a task-and-finish basis up to an 8 hour shift.
3. Fortnightly collection of residual waste and recyclables - with green waste charge	Service is the same as in option 2 but there is an annual fee for households that opt-in for green waste collections. Old twin pack RCVs are replaced by new standard 26T RCVs. Collection crews work on a task-and-finish basis up to an 8 hour shift.
4. Weekly residual and fortnightly recyclables - with green waste charge	The collections service is changed as follows: • Weekly residual waste collections (in bags) • Fortnightly co-mingled dry recyclables collections including glass (in bins) • Fortnightly green waste collections (chargeable service) Waste oil collections are considered redundant and are therefore excluded from the service. Old twin pack RCVs are replaced by new standard 26T RCVs. Collection crews work on a task-and-finish basis up to an 8 hour shift.
5. Weekly residual in bins and weekly recyclables in bags	The collections service is changed as follows: • Weekly residual waste collections (in 140l bins) • Weekly co-mingled dry recyclables collections including glass (in bags) • Fortnightly green waste collections (free of charge) Waste oil collections are considered redundant and are therefore excluded from the service. Old twin pack RCVs are replaced by new standard 26T RCVs. Collection crews work on a task-and-finish basis up to an 8 hour shift.
6. Weekly residual in bins and weekly recyclables in bags - with garden waste charge	The collections service is changed as follows: • Weekly residual waste collections (in 140l bins) • Weekly co-mingled dry recyclables collections including glass (in bags • Fortnightly green waste collections (chargeable service) Waste oil collections are considered redundant and are therefore excluded from the service. Old twin pack RCVs are replaced by new standard 26T RCVs. Collection crews work on a task-and-finish basis up to an 8 hour shift.

The projected kerbside residual and recyclable waste arisings for Base Case A and B (business as usual with current kerbside sort receptacles, and co-mingled bins (Table 3-1)), and for the above options for 7 years from 2018 are projected to be:

Figure 3-3: Residual Waste Modelled Arisings

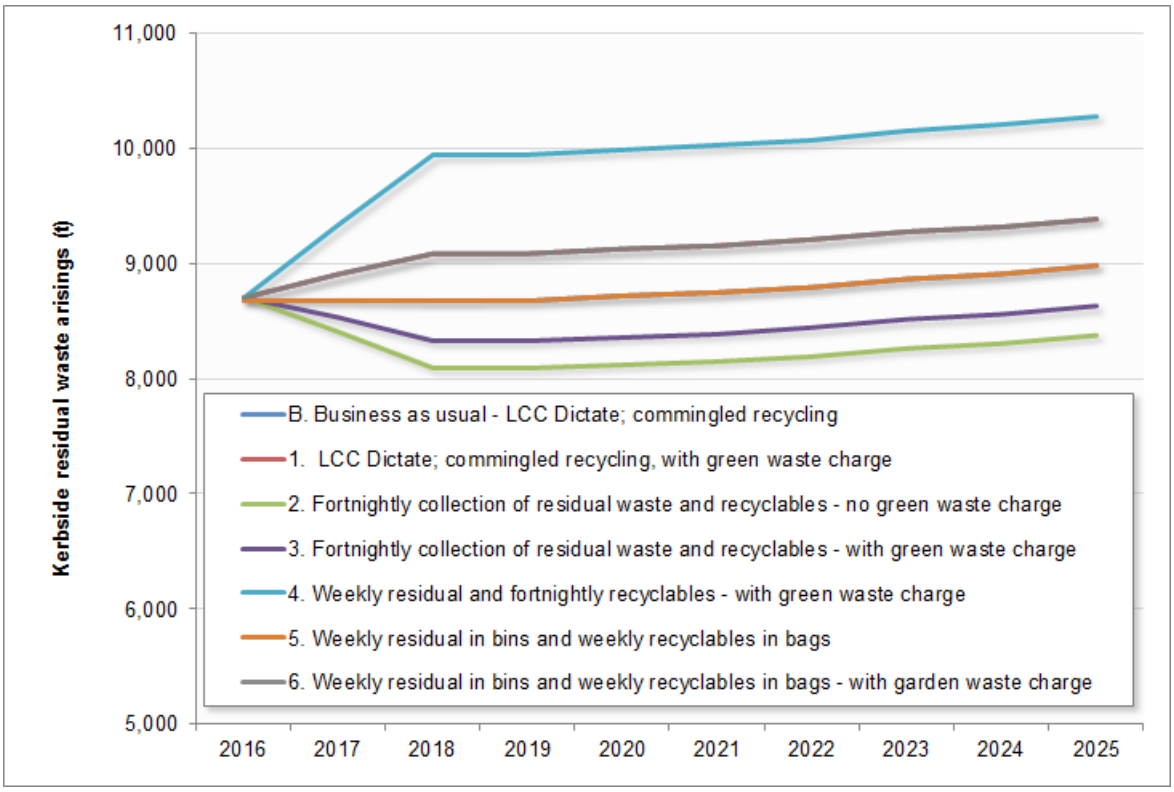
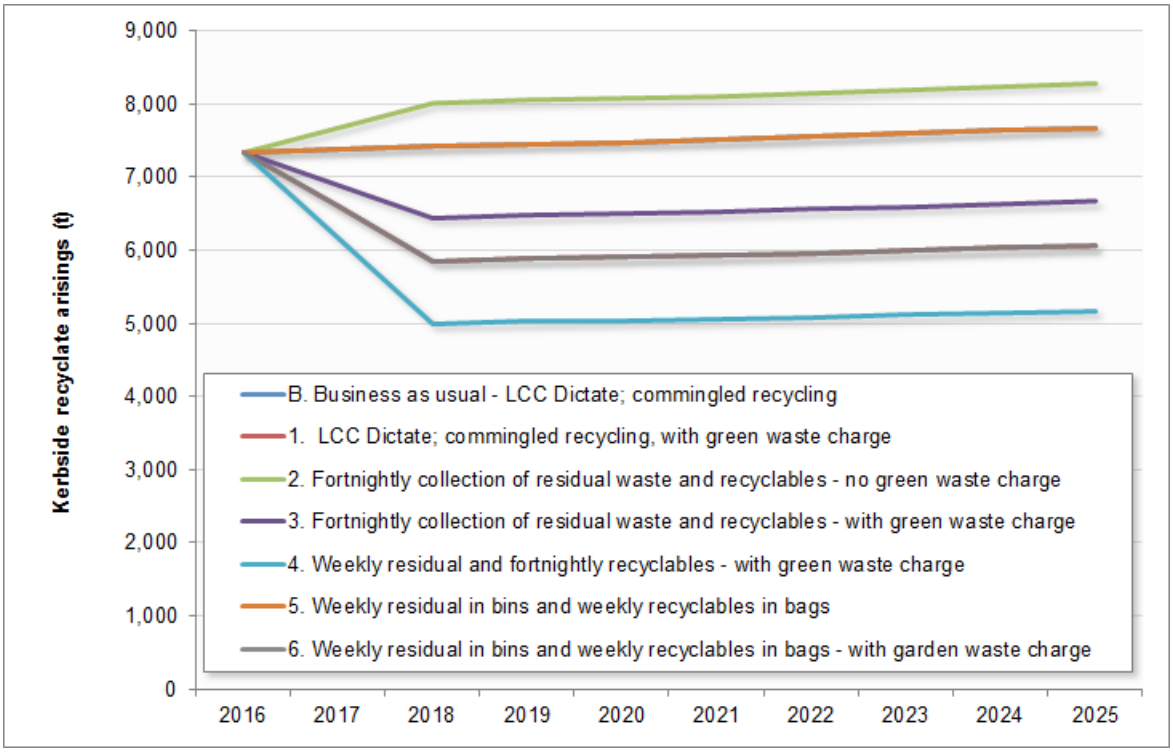
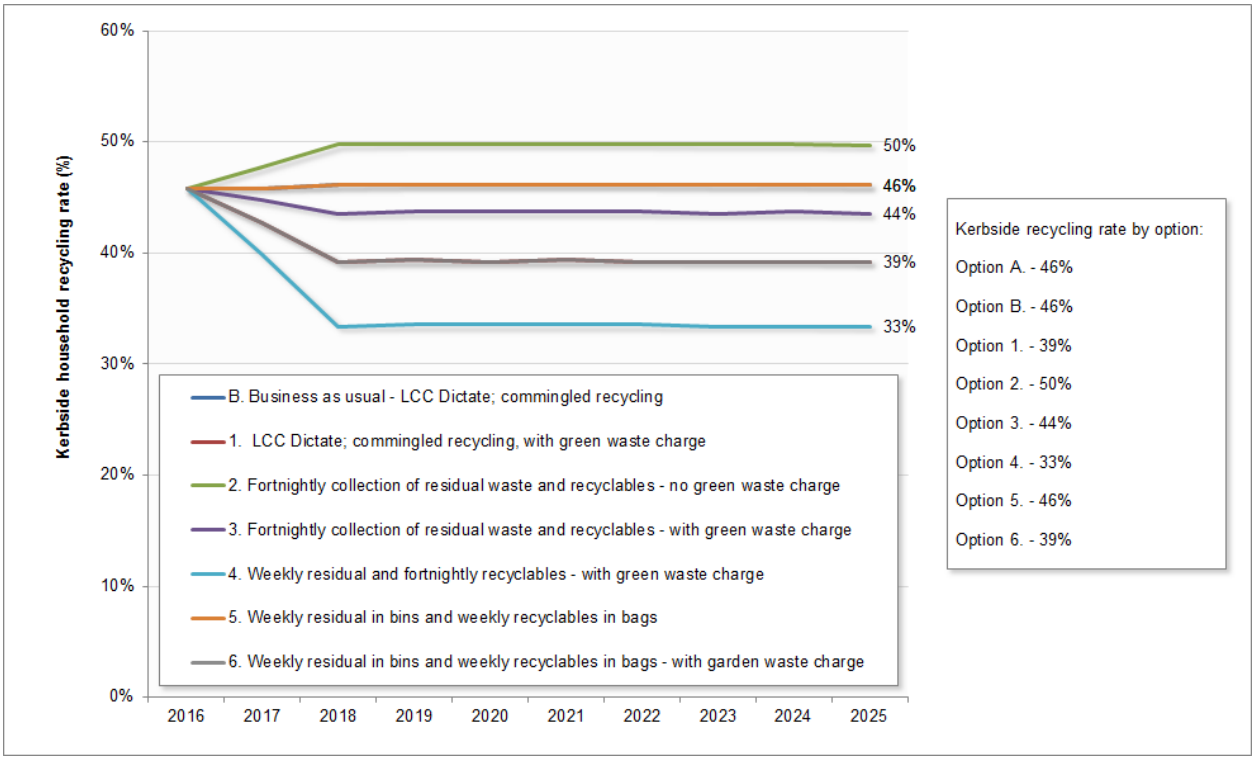


Figure 3-4: Dry Recyclable Modelled Arisings



The projected kerbside recycling rates for each option are presented in Figure 3-5 below. Note that the overall recycling rate may in reality be higher by 2-3% due to back allocation of recyclables arising from the management of the residual waste by the County. The recycling rate will depend upon the marketing of service change by the Council, and the ease of recycling to residents.

Figure 3-5: Projected Recycling Rates



The model includes spreadsheets for 'Cost Assumptions', 'Current Service Costs', 'Cost Baseline', 'Onward Management Costs' and 'Cost Summary'.

Operational (Opex) cost savings and capital (Capex) cost expenditure have been calculated for items summarised in Table 3-4 below.

Table 3-4: Capex Expenditure and Opex Savings Modelled

Capex and Opex	Items modelled
Capex	1. New RCVs 2. Provision of recycling sacks to residents (A, B and Option 1) 3. Wheeled bins (Options 2, 3, 4, 5 and 6) 4. Depot demolition and remediation works (£100,000 assumed)
Opex	1. Vehicle fuel costs 2. Vehicle running costs 3. Staff costs 4. Income from green waste charging (Options 1 and 3) 5. Management of green waste changing 6. Communication costs 7. Other costs, i.e. indirect expenses

The charge and participation rate for garden waste are user definable. However, the model results presented below are based on an assumption of a £30/annum charge for the first garden 240l wheeled bin, £20/annum for the second garden 240l wheeled bin and a 40% participation rate. This is the collection cost initially discussed with the Council, and a participation rate that should be achieved. Note that the model assumes that

circa 1,000 households will request a second garden waste bin (or circa 4-5% of all households in Oadby and Wigston).

3.4 Model Results

The results of the model for provision of residual and recyclable collection services are as follows. Note that income from the introduction of a chargeable garden service is included in the results presented below (where applicable).

Figure 3-6: Cost Savings Against Option B (Co-mingled Recycling LCC Dictate)

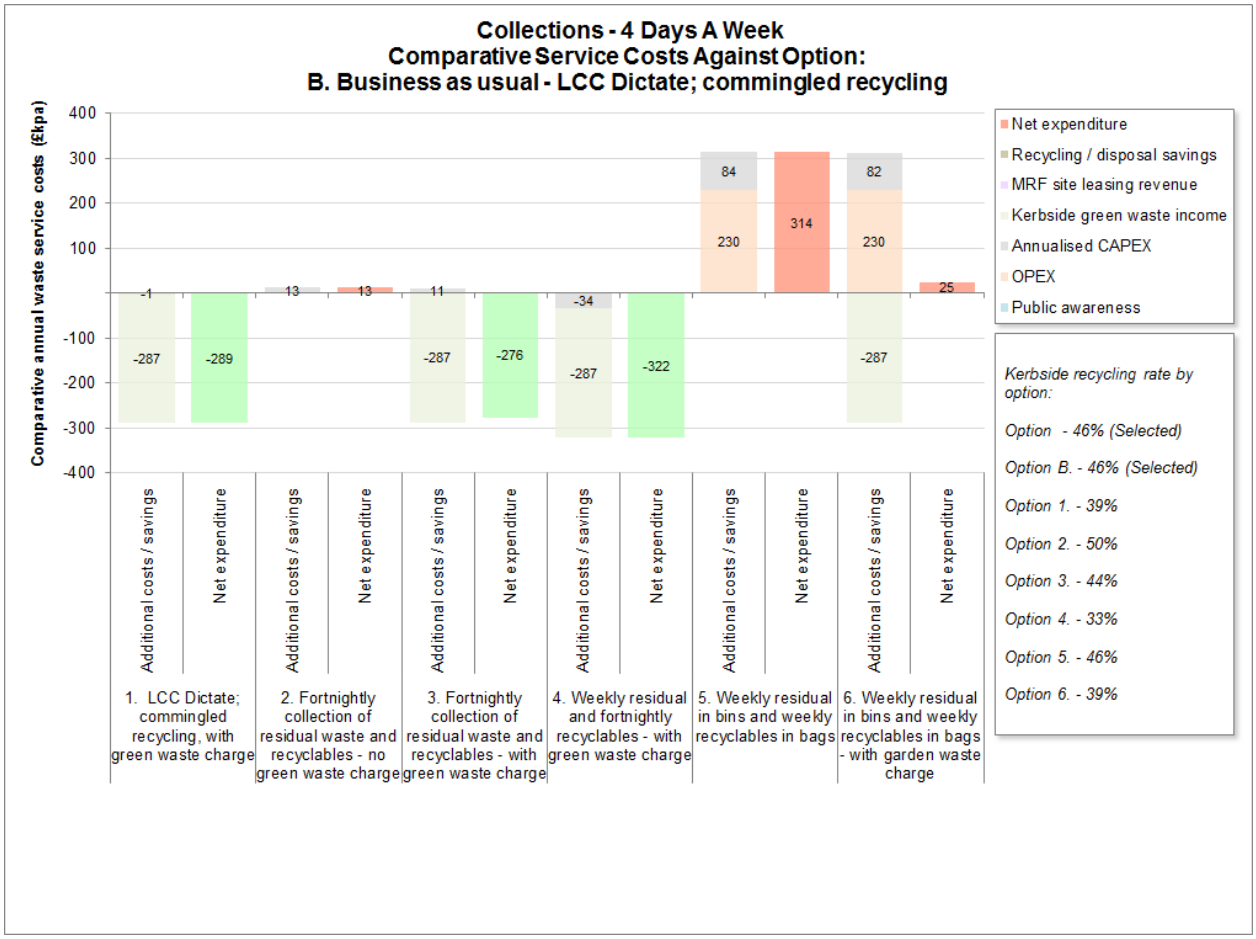


Table 3-5: Four Day Working Week (Cost Savings)

Option	Capex (£k)	Opex (£k)	Annual Cost Saving (£k)[1]
1. Same as option B, but with garden waste charge	1,144	1,242	289
2. Fortnightly collection of residual waste and recyclables - no garden waste charge	1,323	1,242	-13
3. Fortnightly collection of residual waste and recyclables - with garden waste charge	1,310	1,242	276
4. Weekly residual and fortnightly recyclables - with garden waste	906	1,242	322

Option	Capex (£k)	Opex (£k)	Annual Cost Saving (£k)[1]
charge			
5. Weekly residual in 140l bins and weekly co-mingled recyclables in bags	1,828	1,472	-314
6. Weekly residual in 140l bins and weekly co-mingled recyclables in bags – with garden waste charge	1,815	1,472	-25

[1] Cost savings are presented as positive numbers

The model calculates £289k per annum cost savings for option 1 from garden waste income at £30/bin/annum and 40% participation rate.

Table 3-6 presents a matrix of garden waste income assuming different participation rates and garden waste charges. It is calculated that increasing the charge per wheeled bin per annum from £30 to the average East Midlands charge of £35 will increase the income to the Council by £50k (i.e. from £287k to £337) at 40% participation.

Table 3-6: Matrix of potential chargeable garden waste collections income (k£/a)

% uptake of service	First bin yearly charge (£)				
	40	**35**	**30**	**25**	**20**
50%	484	422	359	297	235
45%	435	379	323	267	211
40%	387	337	287	238	188
35%	339	295	251	208	164
30%	290	253	216	178	141
25%	242	211	180	148	117
20%	194	169	144	119	94

The estimate of the cost savings exclusively of the garden waste charge is as follows.

Figure 3-7: Cost Savings Against Option B (Co-mingled Recycling LCC Dictate)

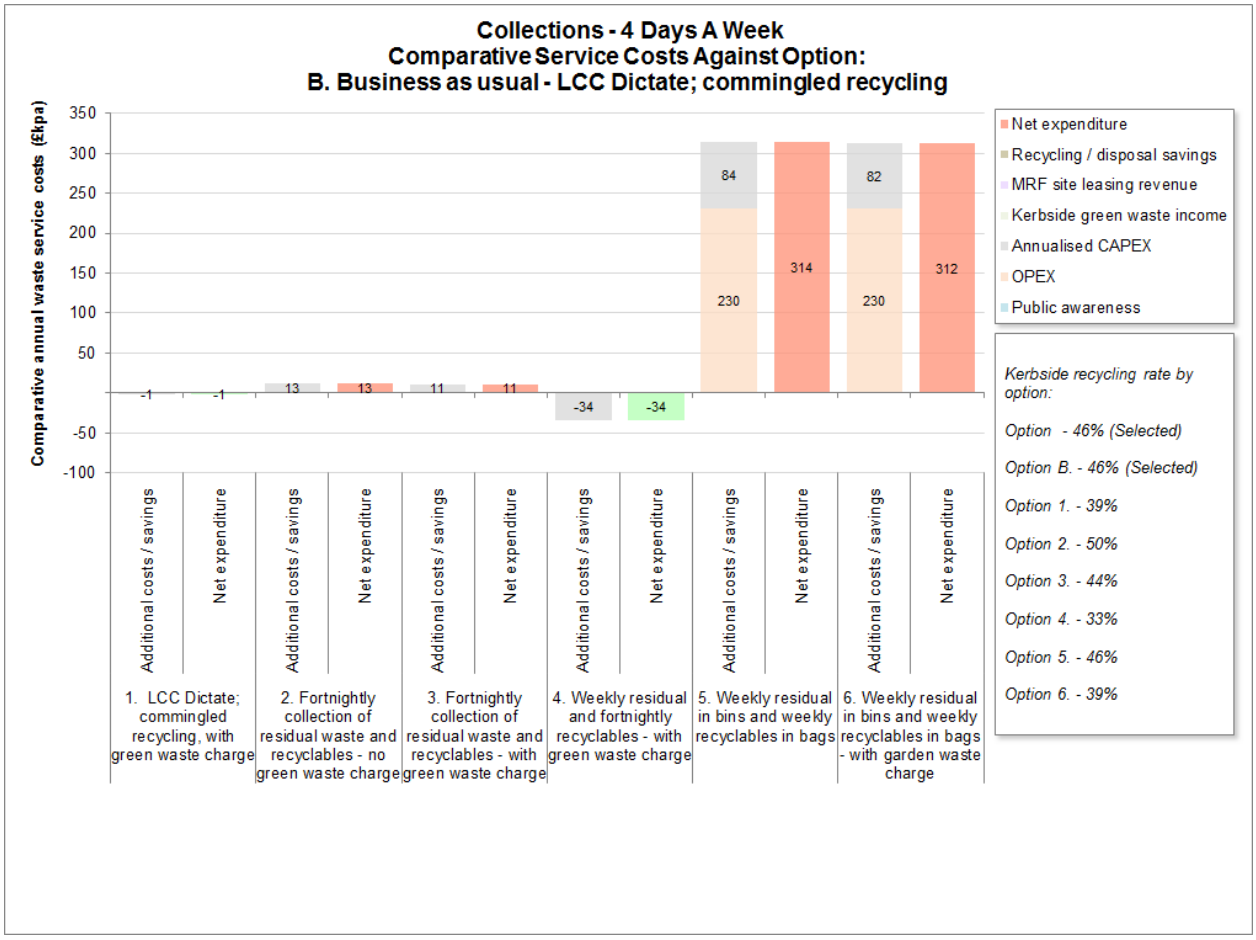


Table 3-7: Four Day Working Week (Cost Savings)

Option	Capex (£k)	Opex (£k)	Annual Cost Saving (£k)[1]
1. Same as option B, but with garden waste charge	1,144	1,242	1
2. Fortnightly collection of residual waste and recyclables - no garden waste charge	1,323	1,242	-13
3. Fortnightly collection of residual waste and recyclables - with garden waste charge	1,310	1,242	-11
4. Weekly residual and fortnightly recyclables - with garden waste charge	906	1,242	34
5. Weekly residual in 140l bins and weekly co-mingled recyclables in bags	1,828	1,472	-314
6. Weekly residual in 140l bins and weekly co-mingled recyclables in bags – with garden waste charge	1,815	1,472	-312

[1] Cost savings are presented as positive numbers

Weekly residual waste collection in sacks has been replaced in the majority of local authorities in England by alternative weekly (fortnightly) collection in wheeled bins. Some authorities do however retain weekly residual waste collection in sacks. Residual waste can be collected more quickly by throwing sacks into RCVs than lifting wheeled bins using vehicle mounted equipment, but there are health and safety concerns for the collection crews and issues with vermin.

The collection of residual waste in 140l bins on a weekly basis shows that this will result in an additional cost to the Council of £314k/year which becomes an £25k/year cost where garden waste is charged.

The typical rate for the collection of residual waste or co-mingled recyclables in urban areas is around 1,200 wheeled bins per day (based on an 8-hour shift – the soft market testing gave a range of 1,200 to 1,400 wheeled bins a day), whereas the Council DSO staff collect around 1,900 sacks per day in less than 8 hours under the 'Task and Finish' arrangements. Consequently, there is no cost saving for the alternative weekly collection of residual waste and dry recyclables in wheeled bins against the current arrangements as it is quicker to collect residual waste in sacks. However, it is safer and cleaner to collect in wheeled bins.

The modelling initially predicted a cost saving by collecting residual and recyclable waste for 5 working days rather than 4 workings days. However, when data was confirmed for garden, bulky and flat waste collection there was no significant cost saving by changing from 4 day to 5 day collection.

3.5 Conclusions

The Council has stated that it is seeking c. £700k in cost savings against the current level of expenditure. LCC has dictated that the residual and recyclable collected waste shall be presented at Casepak and the Council can make cost savings by closing the existing MRF and leasing the depot. The Council may also generate further income by charging for garden waste. We calculate that the Council should be able to make a cost saving (gain an income) of approximately £300k by charging for garden waste. Charging for garden waste will result in a reduction in the recycling rate.

Moving from weekly collection of recyclabes in sacks to fortnightly collection in wheeled bins does not provide an opex saving, but will in time provide a capex saving (£80,000/year) against the continued provision of sacks to the public and provides a safer system for the collection of waste which better reflects current best practice.

The above conclusions regarding costs and savings are estimates based on several key assumptions and there is no guarantee on the level of saving that will be achieved. The key assumptions currently set out in the SLR model include a 40% take up of a charging scheme for garden waste and the number of wheeled bin pick-ups that can be achieved by the collection crews. All of the options modelled will require capital expenditure on vehicles, and some on wheeled bins, together with some additional operational time for the management of service changes and the introduction of a charged garden waste service. There is a need to 'spend to save' to gain a reduction in service costs.

4.0 Waste Options Policy Review

The chapter provides the waste options policy review in accordance with the specific areas agreed with the Council to be explored.

4.1 Collection methods, frequency and capacity

4.1.1 Method and frequency

The collection of residual waste in sacks is historic in the UK. It stems from the time when only residual waste was collected from dust bins on a weekly basis. Many local authorities have switched to the collection of residual waste in wheeled bins on a less frequent basis. However, some councils continue to collect residual waste in sacks on a weekly basis although changing to alternative weekly collection does improve recycling rates, health and safety, and street cleanliness.

The collection of residual waste in sacks can be more than 50% quicker than collection from wheeled bins, but unlike bins, sacks are not collected on a fortnightly basis unless food waste is separately collected. Collection of residual waste in wheeled bins on a fortnightly basis (alternative weekly basis with dry recyclable and garden waste) is normally quicker than collection from sacks on a weekly basis (i.e. more households can be serviced per vehicle with bins on a fortnightly basis than sacks on a weekly basis). However, there is no significant cost advantage to the Council in switching from weekly collection in sacks to alternatively weekly collection in bins due to the small number of Council waste collection vehicles that are available. Retaining collection in sacks has the advantage of maintaining weekly collections, which is desired by some Councillors.

4.1.2 Capacity

If the Council chooses to move to alternative weekly collection in wheeled bins for both residual and recyclable wastes, we would recommend that 180l residual and 240l co-mingled recyclable wheeled bins are used to optimise recycling rates. 240l residual bins have historically been provided but there has been a move to provide smaller residual wheeled bins. Waste contractors consulted regarding Oadby & Wigston residual waste collection recommended 180l wheeled bins.

The Council currently purchase residual waste sacks at a cost of £80,000/year (£3.50/household) and deliver these to households. This cost would be saved after approximately 5 years if money was used to amortise the funding of wheeled bins. Good quality wheeled bins have an operational life expectancy of over 20 years.

4.2 Staffing, vehicles and collection rounds

The advantage of the rapid collection of sacks is not being realised by the Council because staff work on the basis of ‘Task and Finish’. They do not work a fixed number of hours per day. If it was agreed for them to work an 8 hour day, it is questionable whether there would be a cost saving as staff may not be motivated to collect sacks as quickly. ‘Task and Finish’ is still practiced by many local authorities but collection rounds are optimised to work an 8 hour day.

Residual waste (refuse) collection vehicles were replaced in 2015 and can accept sacks or wheeled bins. Recycling vehicles need replacement and this is a key reason for undertaking this study. The recycling vehicles may be replaced by open back vehicles which can be used on alternative weeks for residual waste. It was hoped that this study would show that vehicles numbers could be reduced thereby saving the cost of new recycling vehicles for the Council. However, this study concludes that the number of refuse and recycling vehicles cannot be reduced as long as wastes are collected on an alternative weekly basis..

The Council has questioned whether collection route optimisation would provide cost savings. Where weekly residual weekly collection is retained, there will only be a small fuel cost saving if routes are optimised, with no time cost saving to the Council due to 'Task and Finish'. If alternative weekly collection in wheeled bins was introduced, then we would recommend route optimization, particularly in areas where large houses are being converted into flats. Route optimization is more critical to wheeled bins than sacks, as vehicles have to stop at each property for wheeled bins whereas sacks are mounded together for a number of properties.

4.3 Health & Safety and Environment

Waste collection crews collect sacks from around 1,900 properties in less than an 8 hour day under 'Task and Finish'. Crews stack sacks in piles first thing in the morning, and then throw the sacks into the refuse collection vehicles. Residual waste collection rounds are often completed well within an 8 hour working day. There are health and safety issues with the collection of residual waste in sacks especially relating to manual lifting. Collection crews have no knowledge of the weight of sacks before lifting them. The Council have a policy of restricting residual waste sacks to 10kg, but this is not enforced. Refuse collection crews also lift a number of sacks at the same time to speed up collections. There is also a risk that residual and garden waste sacks can contain sharp objects which can puncture the sack and potentially injure the refuse collector.

Sickness in the waste collections crews is higher than average and this could be partially attributed to the collection of residual waste in sacks. Sickness in waste collection crews averaged 1.33 days per person per month in 2016/17 against 0.86 in the rest of council. The number of working days lost by waste collection crews in 2016/17 was 739 days (i.e. 2 men for over a year). In 2015/16 Council benchmarked this sickness against waste collection services in 11 other councils. Of the 11 council, only one authority had a worse sickness record. Ten of the councils used bins. Bag collection days lost average was 749 days whereas wheeled bins were 504 days

In addition, there is an issue of litter from sack collection. Sacks can burst when being handled, spilling waste onto the street. Also, sacks can be damaged by animals (dogs, cats, foxes, rats etc) looking for food. The street cleanliness of wheeled bins is considerably better than sacks.

The Council should have a health and safety policy for the collection of wheeled bins for working at the back of RCVs and crossing roads.

If the Council wishes to retain weekly collections for residual waste and recyclables in sacks but address health and safety concerns of the collection crews, this would incur further costs to enforce. If two Foremen were to be employed this would come at an annual cost of circa £70k.

4.4 Depot, MRF and Leicestershire County Council dictate

The Dictate from LCC dated 8th September 2017 requires the Council to deliver glass, metals, plastics (film, bags, HDPE, PET; including plastic bottles, yoghurt pots, food trays, plastic toys, plastic bric-a-brac, garden pots etc.), cardboard and paper to the Casepak materials recovery facility from 1st April 2018. The Council could continue to collect them weekly using their existing boxes and sacks together with some new receptacles. However, it will be safer and more effective to collect the above recyclable materials co-mingled, alternative weekly in wheeled bins. The collected co-mingled dry recyclable waste can be delivered directly to the Casepak facility. Glass should be included as this is required by the Casepak MRF equipment. However, the collection of cooking oil should be stopped.

We would recommend that the Wigston road MRF facility is closed as:

- it was a cost to the Council in 2016/17;
- there is no certainty of income as it is dependent on volatile recyclable material markets;
- an income from the site should be available to the Council from the leasing of the site; and
- LCC has dictated the co-mingled collection of recyclables.

Following the closure of the MRF, part of the site could be leased for commercial use, and part retained for Council depot use. For example the Council could retain an area for vehicle parking and vehicles maintenance facility. The remainder of the site could potentially be fenced and gated; derelict MRF buildings demolished; waste removed and disposed off-site; with the offices retained.

The site may then be leased.

The Council should consider whether it can claim "Tip and Away" payment from LCC for delivery of recyclable wastes to the Casepak facility.

4.5 Garden Waste

Many local authorities charge for the collection of household garden waste to reduce costs and potentially generate income. Information from the benchmarking and soft market testing in Chapter 2 show garden waste wheeled bin charges locally range from £28/yr (Charnwood) to £40/yr (Leicester). The Council project team has suggested a charge of £30/bin/yr which is similar to the Charnwood charge. It equates to 58p/week for the collection of garden waste for each participating household and the Council could consider a higher charge e.g. £35/bin/year for payment by direct debit and £45/bin/year for other methods of payment. We would recommend the service is for 12 months of the year.

If the Council agrees to introduce garden waste charging from 1st April 2018, we would recommend that a Project Plan is prepared for the management and marketing of the service in order to maximise resident uptake.

The Council should also introduce a Policy from April 2018 of only collecting garden waste from wheeled bin. This will allow charging to be managed and it will improve the safety of collection.

Discussions with Oadby and Wigston Council officers indicated that an introduction of a chargeable garden waste scheme would not incur additional costs as systems are already in place to accommodate this. The only cost to the Council from this service change would be the capital cost of issuing Green Waste Bin Stickers, which is estimated at around £7.5k (including printing and posting).

4.6 Benchmarking local authorities and waste management contractors

Chapter 2 concluded that all four Leicestershire and Leicester authorities that were benchmarked and soft market tested all provide alternative weekly collection of residual, co-mingled recyclables, and green waste in wheeled bins. 240l wheeled bins are provided for co-mingled recyclables and green waste but there is a preference for 180l wheeled bins for residual waste. The waste management contractors consider that alternative weekly collection will provide the best value for money service to the Council.

The soft market testing shows that some authorities collect residual waste in sacks or bins (120l) on a weekly basis, although the majority provide alternative weekly (fortnightly) collection. There was no experience of fly-tipping of household waste as a result of introducing alternative weekly collection.

All four local authorities that were benchmarked and soft market tested have also outsourced their waste collection. It is understood that the Council outsourced waste collection a number of years ago but this did not work well for the Council and waste services was brought back in house. Outsourcing is very likely to provide greater cost savings than can be realised by the Council. Biffa (Leicester) and FCC (Harborough) have said they would be interested if the Council waste collection services were contracted out. This should provide economies of scale in the sharing of crews and vehicles, and it is likely that the whole of the depot could be leased with a greater lease income and a lower remediation capital cost.

4.7 Risks

The original consultancy brief included an assessment of legal, TEEP, H&S, environmental crime etc issues. SLR is not aware of any specific legal issues that have arisen from this options study. The Council can decide to charge households for garden waste collection and may choose the method, frequency and capacity of household waste collections.

We consider the collection services are TUPE compliant and health and safety concerns are summarised above. Environmental crime issues are not normally associated with the collection of household waste by local authorities.

We would not expect a significant change in householder (customer) satisfaction if there is a switch from sacks to wheeled bins. Some households prefer residual waste wheeled bins collected on an alternative weekly basis and some prefer weekly sack collection.

It is understood that the Council do not have a policy for the provision of waste collection receptacles by property developers. We would recommend that the Council prepare a policy for the waste receptacles for property conversions.

4.8 Conclusions

It is estimated that around £300k cost savings may be made by the Council against waste collection services by charging for garden waste. The safety of collection may also be improved by changing from sack/box collections to wheeled bin collections. Weekly wheeled bin collections will be more expensive to the Council whereas alternative weekly wheeled bin collections are cost neutral.

We would recommend that the Council adopts a Waste Collection Policy of:

- Collecting garden waste fortnightly from charged 240l wheeled bins over a full year;
- Collecting residual waste alternatively weekly from 180l wheeled bins with co-mingled recyclable wastes (paper, card, plastics, metal and glass) also collected from 240l wheeled bins; and
- Allowing variations on the above where exceptional circumstances are justified.

We recommend the Council prepares an Implementation Plan for service change including route optimisation for wheeled bin collection rounds.

If greater cost savings are required in the capex and opex of waste management services, then the Council should consider outsourcing the services, possibly with other Council environmental services. Waste contractors will be able to provide economies of scale that the Council cannot realise.

APPENDIX 01

Leicestershire WCAs benchmarking questions

Benchmarking survey

Oadby & Wigston Borough Council is carrying out a waste options policy review with the aim of providing better value for money services, without reducing service performance and quality.

Please complete the following questionnaire and return by e-mail to Martin Hone (martin.hone@btinternet), Chief Financial Officer, Oadby & Wigston Borough Council, no later than Friday 6th October.

Question	Answer
Residual waste collection	
Collection frequency (weekly, fortnightly, other)	
Container type and size (e.g. 180l wheeled bin; 60l sack)	
Average number of properties serviced per day	
Approximate collection cost per property	
Number of missed bins per 100,000 properties (2016/17)	
Location for the delivery / disposal of residual waste to the County	
Dry recyclables collection	
Collection frequency (weekly, fortnightly, other)	
Container number, type and size (e.g. 240l bin; 3 *55l boxes) for the collection of paper, glass, plastics and metals	
Average number of properties serviced per day	
Approximate collection cost per property	
Number of missed bins per 100,000 properties (2016/17)	
Arrangements for the processing of dry recyclables (e.g. Council MRF; County accept; outsourced to the private sector)	
Arrangements for the collection of glass	
Arrangements for the collection of cardboard	
Any other recyclables collected (e,g, batteries, small WEEE)	
Garden Waste	
Charged or free collection	
Collection frequency (fortnightly, other)	
Months provided (e.g. March to October)	
Container type and size (e.g. 240l bin; 60l sack)	
Average number of properties serviced per day	

Approximate collection cost per property	
Number of missed bins per 100,000 properties (2016/17)	
If charged, cost per bin / sack or property	
If charged, % take up (e,g. 40% of properties)	
Annual profit (£) from garden waste collection services	
Service provision, waste collection services	
Number of residential properties	
In house or private sector delivery	
Percentage recycling rate (dry and degradable %)	
Provision / promotion of trade waste collection services	
Is food waste collected, if so how?	
Annual profit (£) from trade waste collection services	
'Task and finish' or regulated hours	
Customer satisfaction levels (%)	
Bulky waste collection costs	
Absorbent Hygiene Products (AHP) collection provided?	
Service Change	
Any proposed future service changes	

APPENDIX 02

Soft market testing questions

Soft Market Testing Survey

Oadby & Wigston Borough Council is carrying out a waste options policy review with the aim of providing better value for money services, without reducing service performance and quality. It is considering all options for improved delivery of waste collection services.

Oadby & Wigston is a small urban borough in Leicestershire (Leicester) with 22,500 households. Waste collection services are provided in house. Current waste collection services include:

- Weekly sack refuse collection, 3 rounds
- Weekly bag dry recyclable collection, 3 rounds
- Free fortnightly sack and bin garden waste collection
- Fortnightly box and bottle glass and cooking oil collection

The Council consider that they provide a reasonably good collection services with ~47% recycling

rate. They would seek to retain this recycling rate.

The Council owns the following collection fleet:

- 3 new open back RCVs
- 4 old twin pack dry recyclables vehicles
- 2 open back garden RCVs
- 1 20t bulky collection vehicle
- 1 10t glass collection vehicle
- 1 10t hiab bottle bank truck
- 1 spare RCV

Residual waste and recyclables are collected over 4 days on Task and Finish for up to 8 hours. Residual waste is collected in sacks from around 1,900 households per round

Leicestershire has dictated that dry recyclable wastes should be collected co-mingled from April 2018. Cooking oil collection will cease.

The Council owns a 2ha site with:

- Office building
- Maintenance workshop
- Small MRF which is to be closed
- Hardstandings

Consideration is being given to:

- Charging for garden services
- Alternative weekly collection using wheeled bins
- 5 day residual and recyclable collections

Please consider the following questions:

Question	Answer
Residual waste collection	
How many of your contracts retain weekly residual collection in sacks?	
How many of your contracts have weekly residual collection in wheeled bins?	
What residual waste wheeled bin size would you consider appropriate for fortnightly collection (240l, 180l, 140l)?:	
What is the average number of properties serviced per day for dry recyclable wheeled bin collections in an urban area e.g. 1,300 properties/day?	
Would you recommend a 5 days collection rather than 4 days collection?	
Have you experienced increased fly-tipping from alternative weekly collection?	
Dry recyclables collection	
What dry recyclable wheeled bin size would you consider appropriate for fortnightly collection (240l, 180l, 140l)?:	
Garden Waste	
What household participation (%) would you expect if you were to set a charge around £30?	
Would you propose garden waste collection for 8 months of a full year?	
What is the average number of properties serviced per day for garden waste wheeled bin collections in an urban area at around 40% participation?	
What typical reduction in recycling rate have you experienced through the introduction of paid garden service?	
Outsource waste collection services	
Would you be likely to tender for waste collection services if they were outsourced?	
What would make a procurement attractive to you?	
Service Change	
What service changes may provide best value for money for the Council?	

APPENDIX 03

Model Assumptions

Element	Assumption
General	
Recycling service	All options assume a co-mingled recycling service apart from option 'A. Business as usual - LCC Dictate; collections as current service'.
Recycling vehicles	All options assume that the Council will purchase new 26T RCVs to carry out the co-mingled recycling collections service, apart from option 'A. Business as usual - LCC Dictate; collections as current service'.
Waste collection methods	Where a weekly service is provided, it is assumed that waste is collected in bags. In the case of fortnightly collections, residents are provided with bins by the Council. 180l bins are used for residual collections and 240l bins are used for recyclables and garden waste collections. 180l residual bins are large enough for fortnightly collections from most households, and they provide a higher recycling rate that larger residual bins. For options 5 and 6, residual waste is collected in 140l bins and recyclables continue to be collected in bags provided by the Council.
Cooking oil collections	Cooking oil collections are considered redundant and are therefore excluded from all options. It is assumed that the net financial impact of scraping the cooking oil collections is negligible.
Bulky waste collections	It is assumed that there is no change in the bulky waste collections service and the annual net cost impact of the service is the same throughout the modelling period.
Future of MRF	All options assume that the MRF becomes redundant following the introduction of the LCC's Dictate and the MRF is therefore closed. The site is restored and the land is leased for an annual fee.
Household and population projections	
Household projections	The latest available ONS household projections have been used for Oadby and Wigston. The number of households provided by the Council has been used to calibrate future projections.
Household projection variants	The following household variants have been assumed to model a high and low household numbers case: • + 5% increase in the calibrated ONS projected household numbers over the modelling period • - 5% decrease in the calibrated ONS projected household numbers over the modelling period
Household numbers in 2016	22,890
Number of flats in 2016	1,391 - based on the 2011 census and projected to 2016 using the calibrated ONS household increase rate.
Proportion of flats to households in 2016	c. 6%
Average number of flats per block	9
Population projections	The latest available ONS population projections have been used for Oadby and Wigston. The 2016 mid year ONS estimate has been used to calibrate future projections.
Population projection variants	The following population variants have been assumed to model a high and low population numbers case: • + 5% increase in the calibrated ONS projected population numbers over the modelling period

	• - 5% decrease in the calibrated ONS projected population numbers over the modelling period
Population in 2016	55,825
Household recycling participation	
Proportion of households participating in the current dry recycling collections service	70%
Proportion of households (excl. flats) participating in the current garden waste collections service	70%
Household garden waste participation following introduction of chargeable collections (excl. flats)	40%
Household participation - general	The household participation assumptions by option can be found in the 'Option Assumptions' tab along with commentary.
Household recycling yields	
Co-mingled dry recyclables yield including glass (kg/hh/yr)	233 - based on the median yield for Authorities in East Midlands.
Co-mingled dry recyclables yield including glass for weekly residual and fortnightly recyclables collection service (kg/hh/yr)	193 - based on the median yield for Authorities in England.
Increase in material recycling due to a move to fortnightly residual collections as identified by WRAP	8% increase in proportion of dry recyclable with fortnightly residual - for more information refer to tab 'Scenarios Evidence Base'.
Proportion of the kerbside garden waste that is diverted from kerbside due to a change in service and ends up to HWRC or home composting	c. 75% assumed
Material yields	It is assumed that material yields per household remain constant throughout the modelling period, but the model provides the option to choose from high, intermediate and low waste arisings (see 'Scenario Comparison' tab).
Vehicles and vehicle costs	

Current vehicle numbers on the road	• 3 residual waste collection vehicles • 3 twin pack recycling collection vehicles • 1 glass collection vehicle • 2 garden waste collection vehicles • 1 bulky waste collection vehicle
Vehicle capacities	• 26 tonne RCV loading capacity: 11 tonnes or 22 m3 • 10 tonne RCV loading capacity: 4 tonnes or 8 m3
Vehicle capital costs	• 26 tonne RCV capital cost: £155,000 or c. £21,500 annualised capital cost assuming 2.3% financing over an 8 year payback • 10 tonne RCV capital cost: £85,000 or c. £12,000 annualised capital cost assuming 2.3% financing over an 8 year payback
Vehicle running costs	• 26 tonne RCV: £22,000 per annum • 10 tonne RCV: £15,000 per annum
Price of petrol per litre (£/ltr)	1.17
Current average fuel consumption per vehicle (ltr/year)	• Residual: 8,680 • Recycling: 6,551 • Garden: 5,775 • Glass: 3,073
Future fuel consumption per vehicle (ltr/year)	It is assumed that future fuel consumption per vehicle is mainly affected by the Council's projected variation in number of households (i.e. slight increase in fuel consumption).
Redundant vehicles	It is assumed that any redundant vehicles are not re-sold.
Staff and staff costs	
Staff per vehicle	• 3 per residual waste collection vehicle (2 loaders, 1 driver) • 3 per twin pack recycling collection vehicle (2 loaders, 1 driver) • 2 per glass collection vehicle (1 loader, 1 driver/loader) • 3 per garden waste collection vehicle (2 loaders, 1 driver) • 2 per bulky waste collection vehicle (1 loader, 1 driver/loader)
Staff costs	• Loader: total of £24,600 (including pension, NI and holiday/sickness allowance) • Driver: total of £33,600 (including pension, NI and holiday/sickness allowance)
Waste containers	
Collection containers costs (incl. delivery)	• 240l bin: £16 • 180l bin: £15 • 55 litre box: £3.8 • Communal bin: £260 • Disposable bags: £1.3 per bag
Assumed bin life expectancy	10 years
Assumed bin replacement rate	10%
Assumed bin financing rate	2.3%

Number of garden waste bins in 2016	17,000
Assumed number of garden bins per household	1.1 - based on the number of garden waste bins and the total number of households participating in garden waste collections
Average number of recycling bags used per household per pickup	3
Redundant containers	It is assumed that any redundant containers are not re-sold.
Other costs	
Other collection costs (i.e. indirect expenses)	circa £300,000 based on the file 'Refuse and Recycling budget 2017-18.xls'. These are assumed to remain approximately constant over the modelling period.
Communication costs	£1.50 per household per annum where service changes occur
Garden waste fee (where applicable)	
Yearly fee for provision of first garden waste bin (£/bin)	30
Yearly fee for provision of second garden waste bin (£/bin)	20
Kerbside collection assumptions	
Please note that it is critical to estimate these assumptions as accurately as possible. The model results are particularly sensitive to these assumptions.	
Residual waste bag pick-ups per vehicle per round	1,908 - This number is calculated as follows: (current household numbers / 4 days of collections per week / 3 residual collection vehicles on the road). If this number is different, please advise and provide reasons for difference (a number in the region of 1,500 has been mentioned previously by the Council).
Resulting pick-up time per household bags	10 seconds - This number is calculated as follows: 3,600 seconds in an hour / (residual waste bag pick-ups per vehicle per round / shift length on pickups), where shift length on pickups is estimated as follows: 6 hour shift current - approximately 1 hour for trip to disposal site and return to the depot = 5 hours.
Bin pick-ups per vehicle per round	1,300 - Assumed average value in the market
Assumed time per bin pick-up	20 seconds - This number is calculated as follows: 3,600 seconds in an hour / (bin pick-ups per vehicle per round / shift length on pickups), where shift length on pickups is estimated as follows: 8 hour max shift - approximately 1 hour for trip to disposal site and return to the depot = 7 hours.
Assumed proportion of time per round that is spent driving through town to service all households	60%
Assumed proportion of time per round that is spent on waste pick-ups	40%

Round trip to dictated disposal site (LCC Dictate) - residual	45 mins
Round trip to dictated disposal site (LCC Dictate) - recycling	45 mins
Round trip to disposal site - garden	30 mins - will this also be dictated by LCC?
Maximum shift length (excluding any lunch breaks)	8 hours
Current return trip times to and from the disposal site / depot	• Residual: 45 mins • Recycling: 20 mins • Garden: 30 mins • Communal bin: £260 • Disposable bags: £1.3 per bag
MRF site	
MRF plant demolition and site clearance capex	£100,000 - or £13,828 annualised over the modelling period
Income from leasing the MRF site	£75,000 per annum
Onward management costs	
Dry recycling credit value (£/t)	42.6 - it is assumed that recycling credits do not apply to any of the options.
Tip and away payments	It is assumed that no 'tip and away' payments are received in any of the options.
Gate disposal fees and recyclables revenues	Following the introduction of the LCC Dictate it is assumed that there is no cost or profit to the Council from the disposal of residual waste or the sale of recyclable waste as the disposal responsibilities lie with LCC.
MRF net cost/profit	Based on the data in file 'Refuse and Recycling budget 2017-18.xls', the MRF incurred a net cost of circa £50,000 to the Council in financial year 2015/16.
Other summary assumptions	
Waste arisings	No change in household waste arisings per household by 2018
Commercial waste	No commercial waste collection by the Council
Other waste	Food waste, WEEE and textiles are not collected by the Council

Oadby & Wigston Council
Waste Options Service Review Questions – 15/11/17

Question	Reply
Can we consider a hardship fund for those who can't afford to pay for green waste collection?	Yes. However, we are need to quantify "hardship" and what evidence is required to prove this.
Do we have a sliding scale of charges for green waste bins (i.e. 2nd/3rd bins cheaper than the first)?	Yes. In the model we have assumed that 2nd bins are charged at £20/year. Based on the current number of households and total number of green bins collected we have assumed that each household has approximately 1.1 green bins. Therefore, it has been indicatively assumed that around 1,500 households a year will apply for a second green waste bin. We have not included an estimate for 3rd bins. If you could provide more accurate estimates of 2nd and 3rd green waste bins per household then the model could be updated to include these.
How do we collect the fees for green waste collection?	Fees will be collected through our current collection methods, with no additional costs incurred.
How much does the charging for green waste cost?	Administration costs will be subsumed into existing work flows. The cost of issuing stickers for bins will be in the region of £7k-£8k given the anticipated take up rates.
Is there is an EU Directive that forbids co-mingling of recycling?	There was significant debate regarding this in 2014/15 when the TEEP (technically, environmentally and economically practicable) Regulations were set up. The Waste Framework Directive (WFD) requires councils, as of January 2015, to provide separate collection of paper, metals, plastjics and glass. The EU Waste Framework Directive sets out the ground rules for waste across Europe. In England, separate collections are required where they are TEEP and appropriate to meet the necessary quality standards for the relevant recycling sectors. Local Authorities are required to conduct an Assessment to determine the route they take and to justify comingled collection if that is what they have chosen. Although there is no official Defra guidance on this, a Route Map was published in 2014 to help councils understand their legal obligations http://www.wrap.org.uk/sites/files/wrap/Route%20Map%20Revised%20Dec%2014.pdf The WFD is implemented in England and Wales through the Waste (England and Wales) Regulations 2011 which were later amended in 2012. Scotland and Northern Ireland

	have a separate approach. Many local authorities in England collect comingled paper, plastics, metal and glass and sort them in a Materials Recovery Facility (MRF). Some collect paper separately to manage the quality of paper recovery. Oadby & Wigston Borough Council are required to deliver dry recyclable materials to the Cesspak MRF in accordance with the requirements of Leicestershire County Council dictate Notices dated 8th September. These state "the Notices do not require the Waste to be separated".
Is there evidence that fly-tipping increases when green waste charges are introduced?	The waste industry has not reported problems with the fly-tipping of garden waste where green waste wheeled bin charging has been introduced. Also, the soft market testing with waste management contractors concluded that fly-tipping of residual waste does not increase where there is alternative weekly collection.
Is there evidence that co-mingling recycling improves recycling rates?	There is some evidence that co-mingled dry recyclable collections recycle more waste as they can be more convenient to householders http://www.economist.com/node/9249262.
Is there evidence that the introduction of wheeled bins increase crime?	There is no evidence that the introduction of wheeled bins increase crimes. There is not a mechanism between collection of waste in wheeled bins and crime.
Is there evidence that wheeled bins encourage vermin?	No. Wheeled bins will attract less vermin than bags e.g. foxes.
Is there evidence that wheeled bins "smell" and "the contents rot" and are a "health hazard"?	No. Many authorities in England collect residual waste alternate weekly (fortnightly) using wheeled bins without problem of smell, rotten waste and health hazards. Residents collect residual waste in their property in bin bags and place these in the wheeled bin.
Is there any benefit of "doubling up" on shifts/split shifts?	It may be possible to save money on vehicle capital expenditure if a single vehicle is used by two crews per day (i.e. same vehicle used for a morning and a night shift). This may not generate any operating cost savings, however, as the number of crews required will likely be the same. Nonetheless, consideration should be given on issues such as traffic and noise (i.e. collections should ideally take place outside peak traffic times or late at night due to potential noise nuisance to residents).
Could the green waste scheme include the use of bags?	Yes, if collected from bags that the Council charge for to supply, and only the approved bags are collected. Health and safety of collection crews, and street cleanliness is better where green waste is collected in bins. Moreover, it is likely that bins will prove a more cost effective and sustainable solution over time than disposable bags. The usage

	of bags would also generate additional administrative costs and open up the risk that properties that have not paid for the service still benefit.
Do we have to recycle?	Yes. See Leicestershire County Council dictate Notices dated 8th September 2017.
Can we stop collecting glass?	No. Leicestershire County Council dictate Notices dated 8th September 2017 includes the collection of glass. Glass is one of the four materials that require collection under the TEEP Regulations. Other countries provide street corner Eurobins or bring sites for the collection of glass, but recycling rates may be lower.

Appendix 05

Proc and cons of different collection options

Option	Pros	Cons
Source separated collections	• Potentially less contamination in the recyclables stream. • If the Council was operating their own MRF this would mean lower processing costs and higher end product quality with higher market value. However from 1st of April 2018 the Council will have to comply with the LCC dictate and take recyclables to the Casepak MRF.	• Potentially lower recyclables yields and by extent a lower recycling rate. • Requirement for specialised vehicles (i.e. twin pack RCVs) which reduce flexibility of collections and potentially increase costs. • Complex routing to ensure efficient service. • Less convenient for the residents compared to a co-mingled service.
Co-mingled collections	• Potentially higher recyclables yields and higher overall recycling rate. • Convenient service for residents as all material ends up in the same bin. • Greater flexibility because it is possible to use the same vehicles as for the residual collections. • More efficient service and easier to plan as it involves a single recyclables stream compared to collecting materials separately.	• Potentially higher contamination of unrecyclable materials in the recyclable stream which may cause surcharges by the recyclables processor, although this should not be an issue if there is communication with the residents.
Weekly collections in bags	• Allows faster collections. • Residents may find it convenient.	• Health and safety concerns for the collection crews. Sharp objects hidden inside the bags can cause injuries. Issues with lifting of heavy bags which may lead to long term injuries and back problems. Difficult to regulate number of bags lifted by the collection staff, which results in staff carrying multiple bags to finish early.

		• Issues with street cleanliness and vermin. Dogs, cats, foxes, rats and other animals rip the bags open which results in street littering. This is a burden for the Council's public cleaning services. • Bags may also rip when handled by the collection crews. • Odour issues. • Arguably on collection days bags result in poor aesthetics. • For recyclables services, where bags are provided by the Council, bags are an ongoing cost and result in higher cost over time overall compared to bins. • For the case of co-mingled recyclables services which include glass, there will be significant health and safety issues for the collection crews. It may be possible to use specially designed thick and endurable sacks, however these will come at a significant additional annual expense to the Council.
Fortnightly collections in bags	• Allows very fast collections which may result in cost savings.	• Unless a separate food and nappy waste collection service is provided, fortnightly collection of residual waste will cause significant issues with vermin, odour and cleanliness. • Will likely cause discontent to residents. • All issues identified above for the weekly collections in bags.
Weekly collections in bins	• Improved street cleanliness. • Significant improvements to the health and safety of the collection crews.	• Less efficient than weekly collection in bags. Likely to increase collection costs. • More costly that fortnightly collection in bins

	• Can easily accommodate co-mingling of recyclables, including glass.	
Fortnightly collections in bins	• Improved street cleanliness. No issues with vermin or odour compared to fortnightly and even weekly collections in bags. • Significant improvements to the health and safety of the collection crews. • Fortnightly collections in bins can be as efficient and cost effective as weekly collections in bags. Depending on the efficiency of crews collecting bags and the size of the area covered, fortnightly bin collections can prove more cost effective than weekly bag collections. • If smaller bins are used for residual waste collections (i.e. 180l) and larger for recyclables (i.e. 240l), evidence shows that this can improve recycling rates. • Can easily accommodate co-mingling of recyclables, including glass.	• Some residents may disapprove of fortnightly collections in bins initially, however this is an extensively implemented practice which is widely accepted by residents all over the UK. Evidence shows that a number of residents actually prefer bins, because they address issues with vermin, which can be significant in the case of bags.
Fortnightly collections – general	• Research shows that by limiting the available residual waste capacity of residents by use of small residual waste bins on a fortnightly basis, while ensuring that recyclables capacity is ample, incentivises residents to recycle more which in turn increases recycling rates. • Opting for fortnightly collections in many cases can provide cost savings and prove more cost effective.	

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