

AGENDA MANAGEMENT SHEET

Name of Committee

Cabinet

Date of Committee

18 October 2007

Report Title

Short, Medium and Long-term Waste Treatment Options

Summary

The report outlines our proposals for reducing the amount of waste that we send to landfill by investing in alternative treatment options.

For further information please contact

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Would the recommended decision be contrary to the Budget and Policy Framework?

Yes/No

Background Papers

CONSULTATION ALREADY UNDERTAKEN:-

Details to be specified

Other Committees

Strategic Director's Management Team (SDMT),
Leaders Liaison Group, Warwickshire Waste Partnership

Local Member(s)

(With brief comments, if appropriate)

.....

Other Elected Members

Councillor J Appleton)
Councillor K Browne) for information
Councillor Mrs E Goode)

Cabinet Member

(Reports to The Cabinet, to be cleared with appropriate Cabinet Member)

Councillor M Heatley

Chief Executive

.....

Legal

I Marriott – comments incorporated

Finance

M Wadhwana – comments incorporated

- Other Chief Officers D Carter, Performance and Development
D Clarke, Resources
- District Councils
- Health Authority
- Police
- Other Bodies/Individuals

FINAL DECISION **YES/NO** (*If 'No' complete Suggested Next Steps*)

SUGGESTED NEXT STEPS :

Details to be specified

- Further consideration by this Committee
- To Council
- To Cabinet
- To an O & S Committee
- To an Area Committee
- Further Consultation

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Short, Medium and Long-term Waste Treatment Options

**Report of the Strategic Director for
Environment and Economy**

Recommendation

That Cabinet:

- (1) Agrees that we should no longer seek to develop our own waste treatment facility, such as an Energy from Waste Facility (EfW) or Mechanical Biological Treatment facility in Warwickshire.
- (2) Agrees that we should work in partnership with neighbouring authorities to develop shared solutions and entering into contractual arrangements with third parties, for the diversion of residual waste away from landfill.
- (3) Agrees to lift the 21,000 tonne per year cap on inputs to Coventry and Solihull's Energy from Waste facility.
- (4) Supports the development and implementation of plans to enable us to reach our recycling targets Local Area Agreement (LAA) targets and those established in Warwickshire's Municipal Waste Management Strategy.
- (5) Works with the Districts to improve their recycling and composting performance. This may include providing financial incentives (additional funding, bonus schemes) for improved performance.
- (6) Notes the significant additional investment that will be required to deliver the waste treatment option in the future.
- (7) Approves the next steps in paragraph 7 as the way forward.

1. Background

- 1.1 Warwickshire's Municipal Waste Management Strategy sets out how the Warwickshire authorities plan to reduce the amount of waste sent to landfill while reducing the amount of waste generated and increasing recycling and composting.
- 1.2 The main aims of our agreed Strategy are:-
- (i) Reduce the amount of waste produced in Warwickshire.
 - (ii) Recycle and compost 40% of our waste by 2010.
 - (iii) After maximising recycling and composting treat all remaining waste using a thermal treatment system to produce heat and energy from a non-fossil source.
- 1.3 To meet our landfill diversion targets we need to develop alternative treatment options for managing Warwickshire's Municipal Waste. In our Waste Strategy we state a preference for thermal treatment such as Energy from Waste (EfW) as our long-term treatment solution. Since the Strategy was adopted other options have emerged, these include working in partnership with Coventry City Council and Solihull Metropolitan Borough Council to develop a shared EfW facility and developing a Mechanical Biological Treatment based solution.
- 1.4 We have now reached a critical point in the implementation of the Strategy where we need to consider which option or combination of options we wish to concentrate on and pursue. The option(s) that we focus on will determine the approach we adopt when purchasing land and developing supporting transfer facilities. This issue was raised in the external Gateway Review that was carried out in June 2007 – the recommendations and progress towards implementing the recommendations are summarised in **Appendix A**.
- 1.5 An options risk workshop was held to evaluate our long-term options, the outcome of which is summarised in this report, for details of the options assessed at the workshop and the risk scores, refer to **Appendix B**.
- 1.6 The following report summarises our proposed short, medium and long-term options for managing Warwickshire's municipal waste.

2. Short-Term Options

- 2.1 To enable us to meet our recycling targets and Landfill Directive targets until 2010 we are proposing the following (some of the proposals will extend beyond 2010 but they will contribute to diverting waste from landfill):
- (i) Lift the 21,000 tonne per year cap on the permitted input to Coventry and Solihull's Energy from Waste facility (the cap was applied by Cabinet in 2005).

- (ii) Increase the input to Coventry and Solihull's EfW to the current contract maximum of 30,000 tonnes (the current contract expires in 2010).
- (iii) Negotiate an extension (subject to EU Procurement Regulations) to the current contract and maximise inputs until the current facility closes, (we need to send at least 40,000 tonnes to the facility in 2009/10 to enable us to reach our landfill diversion targets).
- (iv) Seek competitive tenders for the treatment of a proportion of our residual waste (this is to test the market and determine if there are any alternatives to landfill)
- (v) Ensure that WCC has access to sufficient long-term landfill capacity. Recent studies indicate that Warwickshire has the largest landfill capacity in the West Midlands region, with an estimated life of 11 years. However this capacity will be used by authorities and organisations from outside Warwickshire, therefore it is vital that we reserve sufficient capacity for our future needs.
- (vi) Ensure that WCC has contracts for the processing (Windrow Composting) of green waste collected at Household Waste Recycling Centres.
- (vii) Continue to invest in waste education and awareness campaigns, supporting our district partners to introduce new schemes and initiatives. This is necessary to encourage waste minimisation and reduce the amount of waste produced in Warwickshire and to increase participation in existing recycling schemes and initiatives. A Countywide Waste Minimisation Strategy has been produced which will be launched in November.

3. Medium-Term Options

- 3.1 The following medium-term options will also contribute to meeting our 2010 landfill targets. They will take longer to implement and will have a longer duration than the short-term options, however some decisions regarding these options will need to be taken now.
- (i) Following evaluation, award the contract for processing biowaste collected with existing green waste collections (this will be discussed in a separate report to this Cabinet entitled – 'Contracts for Biowaste Treatment'.
 - (ii) Develop a budget strategy to cover the cost of biowaste treatment, both the interim solution for Warwick District Council from April 2008 and the longer 15 year investment.
 - (iii) It is estimated that in the first year it will cost an additional £215,000 and approximately £400,000 pa in future years.

- (iv) Identify strategic locations for transfer facilities. Resources have been allocated within the waste management capital budget to fund the development of transfer facilities.
- (v) Develop a long-term LATs trading strategy to cover the period post 2010. This should provide an indication of the number of allowances that it will be necessary to purchase.

4. Long-term Options

- 4.1 We have assessed our options for the long-term treatment of residual waste and have selected the options that we consider would be deliverable and would enable us to meet our landfill diversion targets.
- 4.2 Based on the outcome of the risk assessment workshop, it is considered that options where we develop our own residual waste treatment facilities, such as Energy from Waste, in Warwickshire, pose a high risk and could suffer from delivery problems. Therefore it is proposed that we do not currently pursue these options. (Further information on the risk workshop is provided in **Appendix B**).
- 4.3 Following discussions at Leaders Liaison Group on 12 September and with the Warwickshire Waste Partnership on 25 September we propose to focus on solutions which involve working in partnership with other authorities or entering into contractual arrangements with third parties or other authorities.

5. Modelling our Preferred Approach

- 5.1 Based on our preferred approach, a number of long-term residual waste treatment options have been modelled to determine how they perform with respect to cost and meeting Landfill Diversion and Recycling targets. A 'Do Nothing' option has also been modelled as a base case comparator.
- 5.2 The options modelled include different combinations of the following:-
 - (i) Landfill Allowance Trading –buying allowances in years when we have a deficit.
 - (ii) Short-term Coventry EfW facility– increasing inputs into the existing facility at Coventry
 - (iii) Long-term Coventry EfW facility – Developing a new, shared EfW facility in partnership with Coventry City Council and Solihull Metropolitan Borough Council.
 - (iv) Staffordshire EfW – Inputting a proportion of Warwickshire's waste (40,000 tonnes) to a new EfW facility in Staffordshire.
 - (v) Biowaste – the collection of food waste with green waste collections, processed in a enclosed treatment system (in-vessel composting).

5.3 Table 1 below shows the options modelled.

Table 1

Option	Details of each option
1 – Do Nothing	Pay fines
2 – Predominantly LATs Trading	LATs Trading,
3 – LATs & Biowaste	LATs Trading & Biowaste processing
4 – Utilising 2 x EfW facilities	LATs trading, Short-term Coventry, Long-term Coventry, Staffordshire EfW
5 – Long-term use of SCC EfW & biowaste	LATs trading, Short-term Coventry, Staffordshire EfW & biowaste
6-Long-term use of Coventry EfW facility & biowaste	LATs trading, Short-term Coventry, Long-term Coventry, and biowaste
7 - Utilising 2 x EfW facilities & biowaste	LATs trading, Short-term Coventry, Long-term Coventry, Staffordshire EfW, & biowaste

5.4 The results of the modelling and a discussion of their implications are summarised in the following charts in **Appendix C** which show how each option performs with respect to cost, meeting landfill allowance targets and recycling targets.

5.5 An option incorporating **Mechanical Biological Treatment (MBT)** has not been modelled as at the time the modelling assumptions were agreed it was considered that developing our own MBT plant was not a viable option. However, since that decision was made there have been developments with respect to MBT and the potential markets for products produced by the process in Warwickshire. We will continue to monitor and review the situation with respect to MBT.

6. Conclusions

6.1 The cost of managing Warwickshire’s waste will increase significantly as pressure to divert waste away from landfill increases.

6.2 The results of the modelling indicate that the options where we maximise our input into energy from waste facilities and minimise our reliance on purchasing landfill allowances perform the best.

6.3 Clearly we need to investigate and address the reasons why the modelling indicates that we do not meet our recycling targets and in conjunction with our District partners put in place measures to ensure that we continue to improve our recycling and composting performance.

7. Next Steps

To progress from this stage, there are a number of key steps that we need to take. These are summarised below.

7.1	The modelling carried out so far provides an indication of the performance of the options modelled, we now need to refine the models and carry out sensitivity analysis and determine the optimum tonnages for each option. This information will help to inform a funding strategy for the implementation of the Waste Strategy.
7.2	Commit to working in partnership with Staffordshire County Council and input residual waste into their proposed Energy from Waste (EfW) plant. Provide support for the development of their Outline Business Case for the application of PFI Credits.
7.3	Develop a more formal arrangement for progressing joint working with Coventry and Solihull, and report to Cabinet on 6 December.
7.4	Investigate a PFI based procurement with Coventry City Council and Solihull Metropolitan Borough Council to facilitate the development of a shared EfW facility.
7.5	Negotiate an extension to Coventry Contract (subject to EU Procurement Regulations), maximising inputs into the EfW facility for the duration of its operational life.
7.6	Seek tenders for residual waste treatment capacity.
7.7	Monitor the situation with regarding Mechanical Biological Treatment developments.
7.8	Determine why predicted recycling and composting performance is so low and in conjunction with our District partners develop plans to ensure that we meet our targets.
7.9	Work with the Districts to improve recycling rates. This may include giving consideration to provide financial incentives (additional funding, bonus schemes) for improved performance.
7.10	Provide biowaste treatment facilities (in-vessel composting) to coincide with the introduction of Warwick District Councils – alternate weekly collection scheme (due to start April 2008).
7.11	We adopt the approach to work in partnership with other authorities to develop shared facilities for the treatment of our residual waste. Our preferred solution would encompass the options identified in Option 7 – utilising 2 Energy from Waste facilities (Coventry and Staffordshire) and processing biowaste.

JOHN DEEGAN
Strategic Director for Environment and Economy
Shire Hall
Warwick

4 October 2007

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Short, Medium and Long-Term Waste Treatment Options

GATEWAY REVIEW

At the beginning of June, an external Gateway Review of the Waste Strategy Implementation (WSI) Project was carried out by the 4Ps. The review took place over a three day period where 21 stakeholders with a direct involvement or interest in the WSI project were interviewed. Following the review the 4Ps project team produced a report with recommendations for improving the project. The key points made by the review team are summarised below along with progress with implementation.

Recommendation	Implementation Status
Appraisal of the options, costs and risks associated with implementing the waste strategy should be provided to support the decision making process.	Information is contained within this report
A Member Board is established to oversee the implementation of the Waste Strategy.	It was agreed at the Leaders Liaison meeting that this recommendation should not be pursued at the moment.
A 'Project Champion' is appointed at Strategic Director Level	John Deegan is now the Project Champion
Consider developing a residual waste treatment solution that involves working with neighbouring authorities	This has been considered and the results are contained within this report
Arrangements should be made for developing MRFs and biowaste treatment facilities	This has been considered and the results are contained in this report
Enhance the Warwickshire Waste Partnership and appoint a Waste Partnership officer	Options for strengthening the Warwickshire Waste Partnership have been developed. A role of a partnership officer is being considered.
Carry out an options analysis on residual waste treatment options	This has been carried out and the results are contained within this report.
Need to strengthen the resources allocated to the delivery of the project	This is being addressed.

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Short, Medium and Long-Term Waste Treatment Options

- INITIAL OPTIONS RISK ASSESSMENT

Each option was assessed against the following criteria.

- (i) Timescale
- (ii) Technical deliverability
- (iii) Planning
- (iv) Affordability
- (v) LATs compliance
- (vi) Political acceptability

The scoring system used was:-

- 1 = perceived low risk
- 3 = perceived medium risk
- 5 = perceived high risk

The attendees at the workshop were split into two groups and asked to score each option against the criteria.

Each option was given a total score, with a high score indicating a higher potential level of risk. The total maximum score was 30 and 6 the lowest.

It should be noted that the option with the lowest risk score is not necessarily the most suitable solution, as in some instances (namely inputting a proportion of our residual waste into a facility such as a new facility in Staffordshire) the option does not provide a complete solution for all of our residual waste and would need to be developed in conjunction with other options.

The scores for each option is given at the end of the risk assessment summary table in the following sections.

<p>Option A – Development of an Energy from Waste Facility in Warwickshire</p> <p>Stand alone facility, located in Warwickshire, processing 150-200,000 tonnes of waste a year. Estimated capital development costs £100 million, estimated gate fee £70- 80/tonne. Funding mechanism, PFI¹.</p>
<p>RISK ASSESSMENT RESULTS</p> <p>Total Risk Assessment Score : 22</p>

¹ PFI – Private Finance Initiative, is a funding mechanism whereby the Government will contribute up to half the capital costs of development. It is essentially a Public Private Partnership with the added benefit of credits.

Option B – Development of a shared EfW with Coventry CC & Solihull MBC

Development of a shared facility, located in Coventry, processing 300-400,000 tonnes of waste a year, Warwickshire could input 100,000 plus to the facility. Estimated capital development costs £150 million, estimated gate fee £70- 80/tonne. Potential funding mechanism PFI.

RISK ASSESSMENT RESULTS

Total Risk Assessment Score: 16

Option C – Development of Mechanical Biological Treatment Facility in Warwickshire

Development of a stand alone facility, located in Warwickshire , processing 140-200,000 tonnes of waste a year. Estimated capital development costs £25 million, estimated gate fee £50/tonne. Could be funded through PFI or other mechanism (Design, Build, Finance, Operate contract).

RISK ASSESSMENT RESULTS

Total Risk Assessment Score : 20

Option D – Input Warwickshire’s residual waste to Staffordshire’s proposed EfW facility in Staffordshire

This is not a complete solution and will need to be developed in conjunction with another option. Input 25,000 – 50,000 to a new EfW facility in Staffordshire. We would pay a gate fee to Staffordshire to use their facility, which they are funding through PFI.

RISK ASSESSMENT RESULTS

Total Risk Assessment Score : 16

Option E – Do Nothing

No investment in residual waste treatment

RISK ASSESSMENT

Total Risk Assessment Score : 17

Option A – Warks EfW 22
Option C Warks MBT 20
Option F Do nothing 17
Option B Cov & Sol EfW 16
Option D Staffs EfW 16

High Risk



Lower Risk

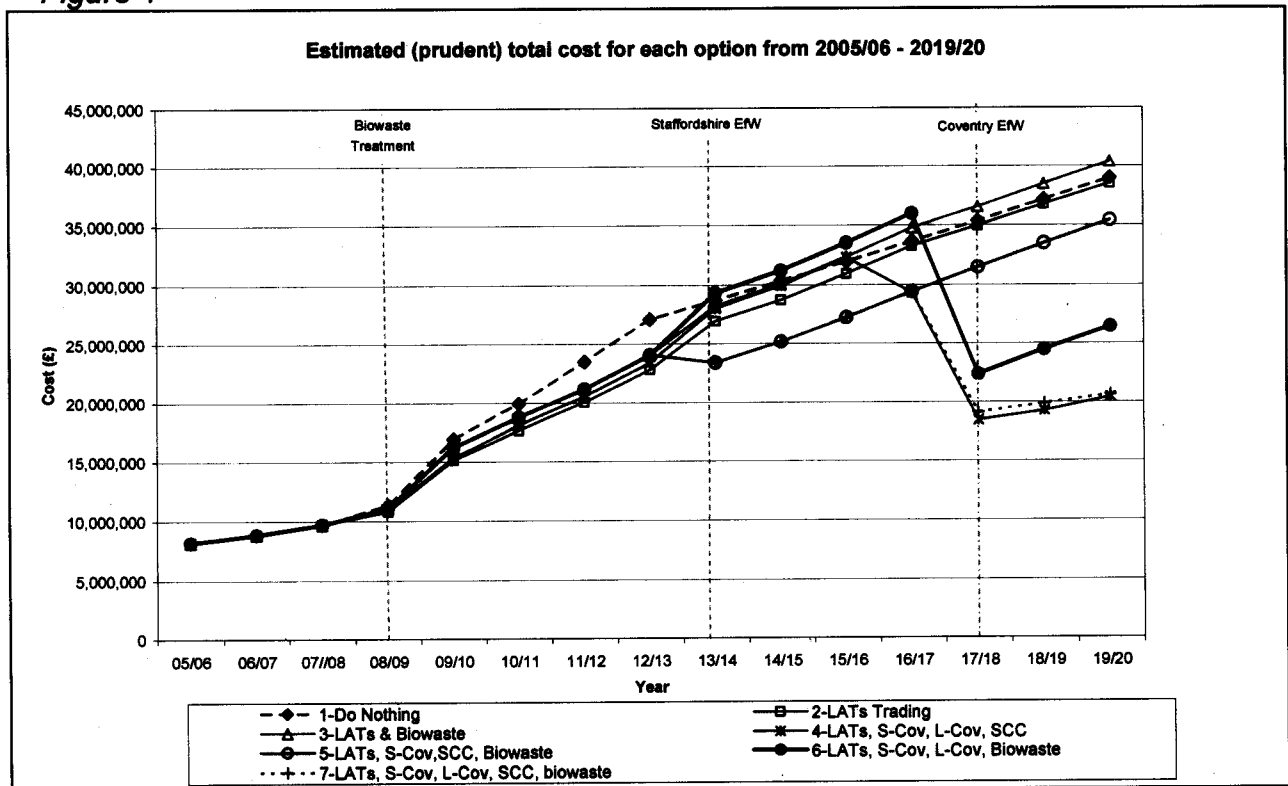
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Short, Medium and Long-term Waste Treatment Options

COST OF OPTIONS MODELLED

The following chart shows very clearly that the cost of treating Warwickshire's waste will increase significantly in the coming years.

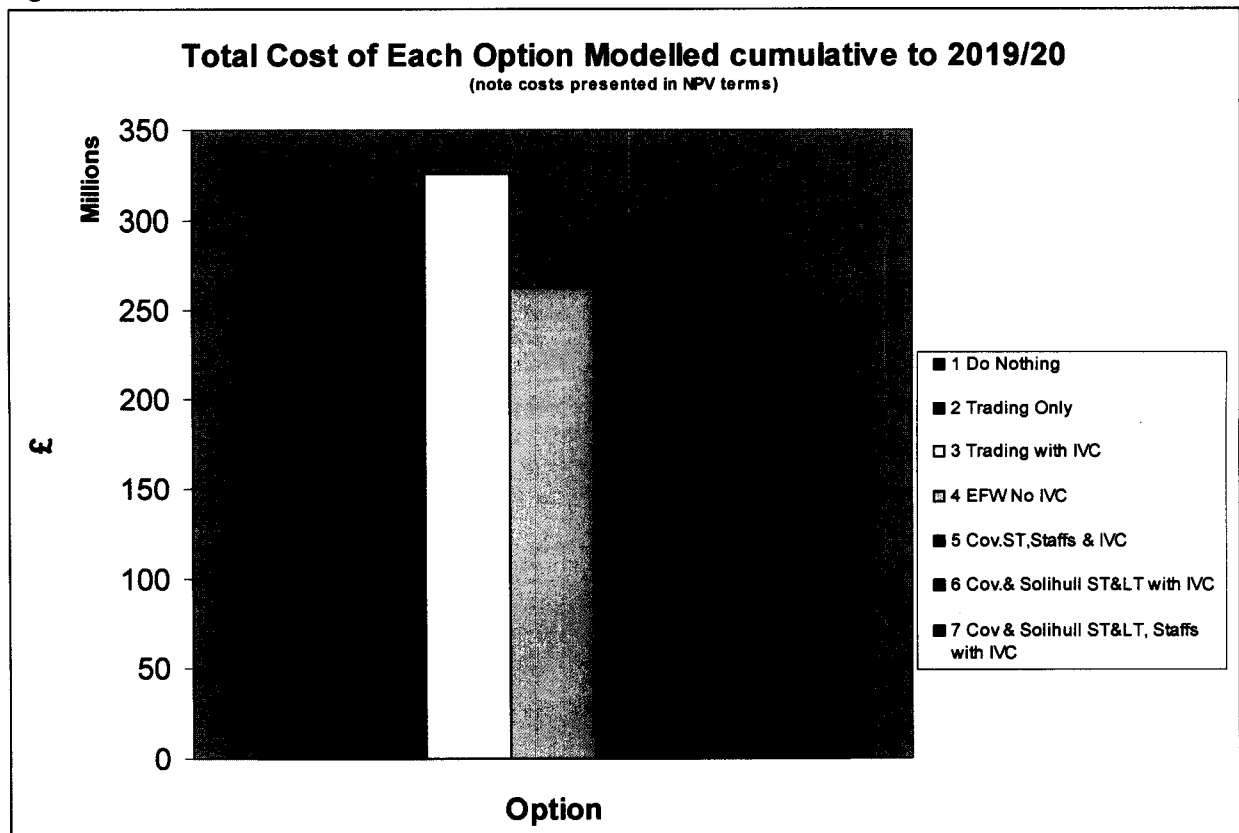
Figure 1



The grey dotted lines on the above chart show when it is estimated that the following facilities become operational, biowaste treatment 2008/09, Staffordshire EfW 2013/14, New Shared Coventry EfW facility 2017/18.

The bar chart expresses these costs in a different way – the cumulative costs to 2019/20.

Figure 2



Costs of waste management are projected to at least double over the next five years and likely to treble by 2014/15. The initial increase in costs is due to the steep rise in landfill tax.

Landfill tax is currently set at £24 per tonne, it will increase annually by £8 per tonne, until 2011 when the level of tax will be re-evaluated, in 2011 the rate of landfill tax will be £48 per tonne.

The estimated costs of landfill tax for 2007/8 is £4.3m. For the 'Do Nothing' option for 2009/10 the costs of landfill tax is projected to be approximately £8.5m.

From 2009/10 onwards Warwickshire will be in a deficit LATS position and will need to purchase allowances and or increase recycling performance.

The price of LATS will be an important determinant of future funding requirements. To meet our landfill allowance obligations for all except the Do Nothing option we will need to buy allowances in some years. LATS prices are set to rise as most authorities will need to buy in the future before long term processing facilities become operational. LATS for the current year and next year are trading at a low of £4 per tonne because of surplus allowances

on the market. Future allowances will become more expensive as the threat of fines of £150 per tonne become imminent.

The data in *Figures 1 and 2*, clearly show that the options where we either do nothing or rely heavily on LATs trading to meet our targets are the most costly.

The least costly options are the ones that rely on long-term inputs into EfW facilities, namely the following options

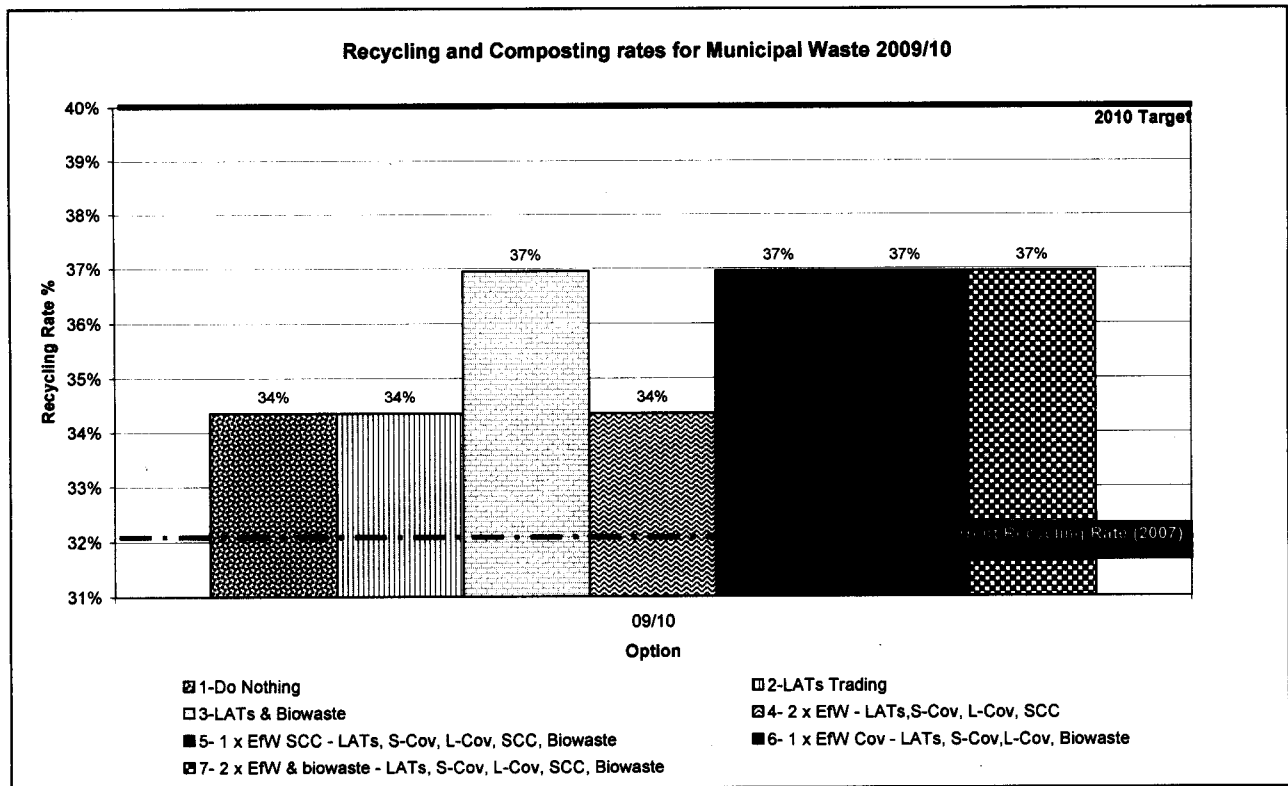
- (i) Option 4 – 2 x EfW – Coventry and Staffordshire.
- (ii) Option 6 – 1 x EfW – Coventry and biowaste.
- (iii) Option 7 - 2 x EfW – Coventry , Staffordshire and biowaste.

For the modelling it was assumed that where waste is not being processed either in an EfW or in a biowaste processing facility, the waste is landfilled and allowances purchased.

The difference in cost between Option 6 (1 x EfW – Coventry and biowaste) and the cheaper options 4 and 7, is explained by the fact that Option 6 does not include waste going to Staffordshire's EfW facility, the model assumes that this waste would be landfilled, therefore increasing the cost (cost of landfill and potentially allowances). In practice we would maximise our input into a single facility wherever possible to avoid having to send waste to landfill and the need to purchase allowances.

Recycling Performance of Options Modelled

Figure 3



The data shows the recycling rate for municipal waste. The recycling rate for household waste would be a percentage point higher.

The data in *Figure 3* clearly shows that none of the options modelled meet our 2010 recycling target of 40%. This is a cause for considerable concern as the 40% target is not only a Warwickshire Waste Strategy target but the National target in the revised English Waste Strategy. Each authority's performance will contribute to reaching the National target therefore it is essential that we improve our performance. We are currently working towards interim targets which were set for 2007/08, these retained the 2006/07 targets but increased the lowest level to 20% (this affects Rugby Borough Council only as their 2006/07 target was 18%), with an upper target of only 30%. We are still waiting to see if we will be given further targets. If future targets are not set it may prove problematic as there will be little incentive for borough and district councils to increase their recycling levels over and above these rather unchallenging statutory targets.

A recycling target of 40% by 2010 has also been agreed as our Local Area Agreement (LAA) target. With respect to increasing the levels of recycling, our District partners have the potential to have the greatest impact on recycling levels by making changes to their collection methods and enforcing participation in existing schemes. We will endeavour to support the Districts with new schemes and initiatives, particularly with respect to increasing

awareness around recycling and composting to increase levels of recycling and composting in Warwickshire. We have already allocated over £1.1m this year in Capital support to the borough/district councils to improve this performance. All councils that have made bids have received allocations. However, we need to give further consideration to what the most effective methods of support to reduce residual waste and increase recycling, could be.

The data also shows that the options that incorporate the collection of biowaste (food and green waste) perform slightly better than where food waste is not collected.

2006/07 – BVPI comparisons (41 respondents so far)

The information in Table 1 below shows Warwickshire's (countywide performance) based on 2006/07 BVPI data.

Table 1

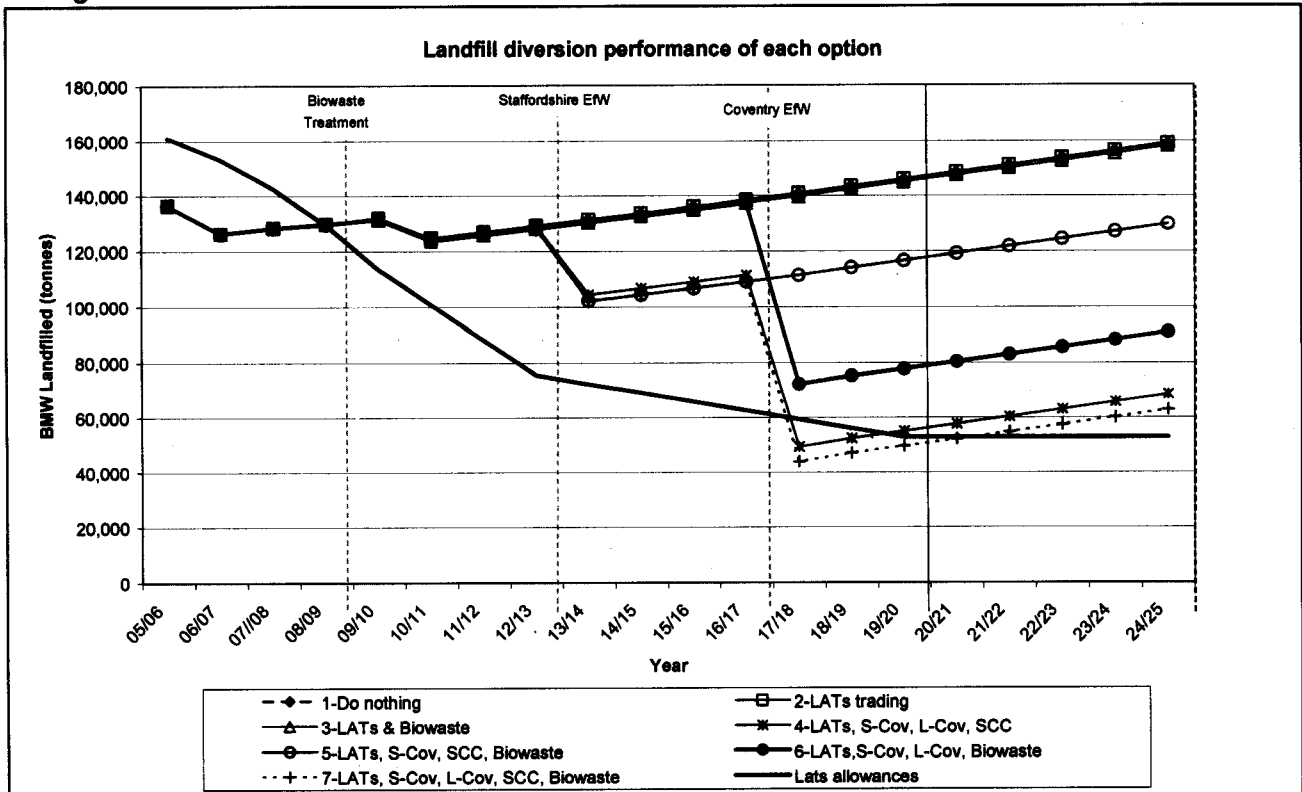
Performance	Recycling %	Composting %	Combined Recycling and Composting %
Best	Bournemouth 29.10	Cambridgeshire 26.42	Cambridgeshire 48.51
Worse	Gateshead 12.95	Portsmouth 3.65	East London 18.37
Average	19.82	13.97	33.79
Warwickshire CC	15.93	16.79	32.72

The figures in Table 1 show that we are performing below average with respect to recycling and combined recycling and composting levels. We are performing slightly above average on our composting performance, but this is still a long way off the highest performing authority, Cambridgeshire which is composting almost 10% more than Warwickshire.

Clearly, in conjunction with our District partners we need to identify why the models predict the we will not reach our targets. We then need to take steps to increase recycling and composting to ensure that we do meet and exceed our targets wherever possible.

Landfill Diversion Performance of Options Modelled

Figure 4



The grey dotted lines on the above chart show when it is estimated that the following facilities become operational, biowaste treatment 2008/09, Staffordshire EfW 2013/14, New Shared Coventry EfW facility 2017/18. The red dotted line shows the last Landfill Directive target year.

The thick black line shows Warwickshire's reducing annual landfill allocations which have been set to enable us to comply with the EU Landfill Directive.

The options that incorporate long-term EfW perform the best with respect to landfill diversion. Figure 4 shows that a reduction in the amount of BMW landfilled is achieved when the proposed facility at Staffordshire becomes operational, (applies to options 4, 5 and 7), and again once the facility at Coventry becomes operational in 2016/17.

All of the options (apart from 1 – Do Nothing, which involves paying fines) rely on purchasing landfill allowances from 2010 until 2016/17 when the new EfW at Coventry is operational. Even with waste being diverted to Staffordshire's EfW we would still need to purchase some allowances.

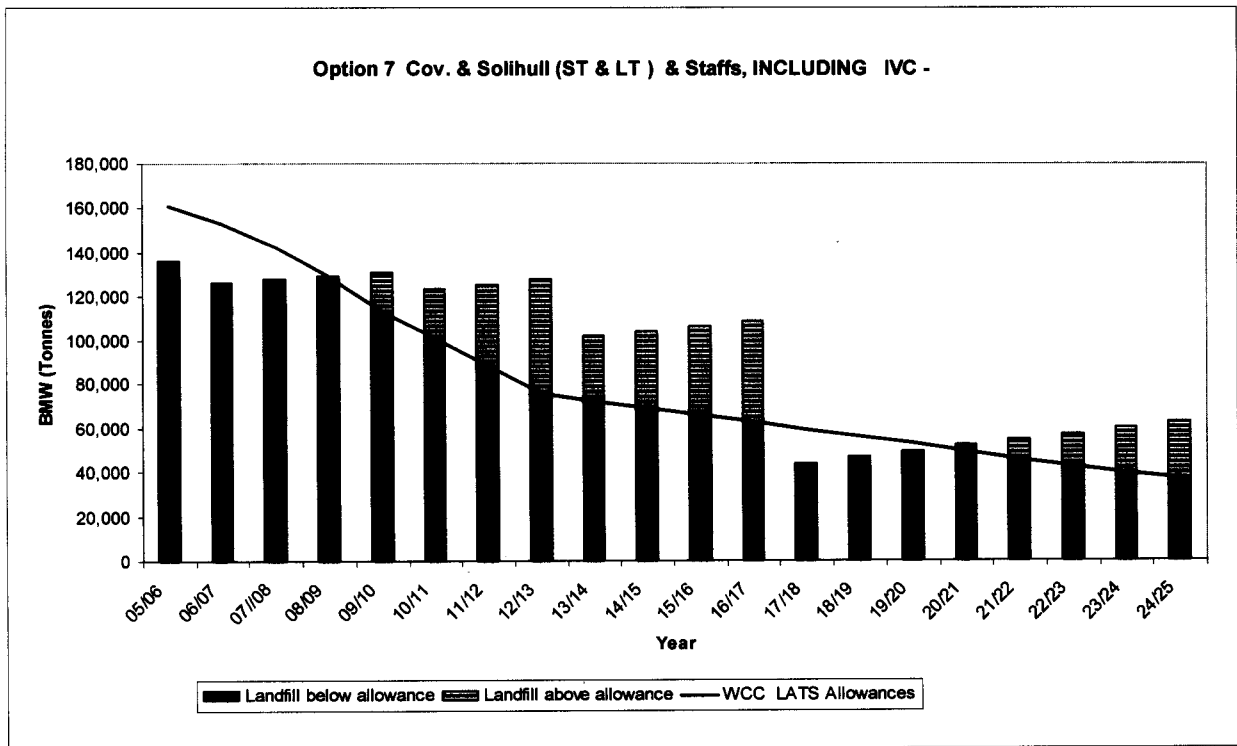
Overall, option 7 (2 x EfW - Coventry, Staffordshire and Biowaste) appears to perform the best with respect to landfill diversion. This is due to the option maximising on available EfW capacity with waste being sent to two different facilities (Coventry and Staffordshire and processing biowaste).

Based on our current predictions, we will exceed our 2020 targets in 2021/22, therefore we would be increasing the amount of waste that we landfill as opposed to achieving a continual reduction.

The following charts focus on Option 7 – which includes: 2 x EfW – Coventry , Staffordshire & biowaste.

The following chart (Figure 5) shows more clearly how Option 7 will meet our Landfill Diversion targets in 2020, but by 2021/22 we will again start to exceed our available treatment capacity.

Figure 5



Clearly even under option 7 it can be seen there is a need to improve recycling performance and increase the amount we send to EFW facilities thereby reducing the need to purchase Landfill Allowances.

The data in *Figure 6* shows that if we reach our target of 40% recycling in 2010 and 42% in 2013 we will improve our LATs position and will need to buy fewer allowances. In addition, if we increase our input into the shared facility at Coventry we will have sufficient treatment capacity until 2025 and beyond (we have assumed that permitted tonnage to landfill will decrease from 2020 onwards), based on this model, we would be sending 192,000 tonnes of residual waste to the facility in 2025 (we have estimated that we would be generating 413,563 tonnes of municipal waste in the same year).

Figure 6

