West Midlands Regional Assembly

West Midlands Landfill Capacity Study

2009 Update

Study Report
June 2009

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Executive Summary

Scott Wilson Limited was engaged by the West Midlands Regional Assembly to update the Landfill Capacity Study that was completed in 2007 in light of:

- Changes in legislative requirements and national waste strategy;
- Changes in the overall economic climate within both the region and the wider UK; and
- Increases in the rate of landfill and aggregate taxes paid by operators.

This report outlines the methodology that was employed including updating of data sources and growth predictions and consultation with the operators to determine the commercial and other factors that would impact the longer term provision of landfill capacity. The report is supported by a number of spreadsheet models that were used to predict the capacity requirements for the region and the outputs from these models are presented in Appendices C and D.

In completing the study a number of conclusions have been drawn which are discussed in Sections 6 and 7 of the report. In summary these are:

- Total landfill capacity for the region has reduced by around 13% since the first capacity study was completed in 2007. The study confirmed that current capacity is around 62.5 million cubic metres although this includes 13.6 million cubic metres that is currently non-operational and will only be released at the discretion of the operators;

- Potential landfill capacity at mineral sites with a planning obligation to restore by import of materials remains around 23 million cubic metres. However 65% of this capacity won't become available until after 2035 and the 35% that should be released between 2007 and 2031 will be dependant on operators and the impact of the current economic climate. At best the indications were that potential new capacity release will be delayed by around 5 years;

- Recent mineral planning applications indicate that operators are changing their approach to restoration and new void created at these sites will most likely not be used as landfill in the longer term. This has significant long term implications for release of void space for landfill in the future;

- Capacity indications based on WMRSS adjusted for economic impact indicate that total capacity will be consumed around 2019/2020. Authorities and operators will need to proactively engage with each other regarding the timing of the release of additional void space to fill the capacity gap and current indications are that release should begin to be progressed from around 2014/15, although this needs to be kept under constant review;

- Modelling using alternative growth and diversion strategies indicate that landfill capacity requirements to 2031 could be reduced by as much as 29 million cubic metres and extend landfill availability to as late as 2027/28. However, modelling is dependant on the provision of more accurate data to confirm the current indications and delivery to achieve the diversions will rely on alternative waste management infrastructure in the short to medium term;

- The study provides a strong basis for the adoption of a policy of 'net self-sufficiency' whereby the region will provide for management in-region of an amount of waste equivalent to that which is exported to other regions for landfill disposal;

- There continues to be a need to keep the model updated with the most recent data sets and consideration should be given to establishing a more accurate base for commercial, industrial and construction waste streams; and

- It will be important that a proactive relationship continues to be maintained with both mineral and waste operators in respect of the provision of future landfill capacity.

1 Introduction

1.1 Background

Scott Wilson Limited was engaged by the West Midlands Regional Assembly in 2007 to undertake a study to assess and predict the future landfill capacity requirements for the West Midlands region.

This study was completed in order to support the Regional Assembly and the West Midlands Regional Technical Advisory Board (WMRTAB) in developing an accurate picture of the existing landfill capacity in the region together with the availability of potential new landfill capacity from existing mineral sites.

In the period since the previous capacity study was undertaken, a number of external influencing factors have changed, including:

- Increases in the rate of landfill and aggregate taxes paid by operators;
- Changes in waste legislative requirements;
- Changes in National Waste Strategy; and
- Changes in the overall economic climate both within the region and the wider UK.

To this end, the Regional Assembly is now seeking to update the earlier capacity study and has appointed Scott Wilson Ltd to review its earlier study and capacity predictions utilising information gathered from planning, regulatory and commercial sources to assess the impact.

The results of this review were developed in light of the recent changes and establish a new base form which landfill capacity requirements for the Region can be assessed. The results and conclusions are presented in this report.

1.2 Study Outline

1.2.1 Study Aims

The aims of the study are to:

- Review the 2007 methodology for surveying existing and planned waste landfill capacity to ensure it is adequate to meet current needs;
- Apply the methodology and update 2007 data at regional, sub-regional and waste planning authority area levels on waste landfill capacity and when it might become available;
- Evaluate the implications of current economic drivers on available landfill capacity both at the present time and in the future, in particular the Landfill Tax escalator; and

- Ascertain the opinions of waste management companies of how the current economic situation may affect their investment programmes.

The waste scenarios and growth predictions were extended to cover the time period from 2007/08 up to 2030/31 and draws primarily from data collated between 2002 and 2007 by the Environment Agency, DEFRA and local authorities using the most up-to-date data available at the time of the study.

1.2.2 Steering Committee

The development of this study has been overseen by a Waste Steering Group, comprising representatives from the Environment Agency, the West Midlands Regional Assembly, the Government Office West Midlands and the Waste Planning Authorities.

1.3 Report Format

The report is structured as follows:

- Section 2 sets out the legislative and policy context of the study and highlights key pieces of waste legislation;
- Section 3 outlines the background to the project including a summary of the previous capacity reviews;
- Section 4 outlines the main methodology processes used in the study;
- Section 5 summarises the primary data sources used, and definitions employed in relation to waste type and landfill type;
- Section 6 outlines the growth predictions used and provides an overview of the cumulative tonnage produced for each waste type and the corresponding landfill capacity requirements;
- Section 7 outlines the existing criteria for site location/selection, as defined by planning status and Environment Agency requirements, and presents an outline of existing landfill capacity and the forecast capacity requirements;
- Section 8 provides recommendations for ensuring the model remains current with the passage of time; and
- Section 9 summarises the findings and conclusions of the study.

Supporting information is included in the Appendices where appropriate.

2 Study Methodology

2.1 Data Collection and Review

Up-to-date information and data was sought from several sources and is presented in Table 2.1 below.

Table 2.1 Data Sources

Data	Year	Source	Comment
Municipal Waste	2002/03 2003/04 2004/05 2005/06 2006/07 2007/08	Environment Agency Strategic Waste Management Data sets, giving information on: ▪ Waste produced ▪ Waste management fate	▪ Headline release figures for the region ▪ Data released only after verification checks have been completed ▪ 2007/08 data was used as the new base year for onward growth prediction
Commercial & Industrial Waste	2002/03	National waste production survey as published in the Strategic Waste Management Assessment (SWMA) for the West Midlands	Data for C&I waste in the SWMA has been modified to exclude hazardous waste for which separate data is available
	2006/07	National C&I Waste Study 2009 undertaken by ADAS for the English Regions of the UK.	The study provided estimates of arisings for the 2006/07 year for each region based on the methodology employed by Urban Mines for the Northwest. Also made some predictions for 2020.
Construction & Demolition Waste	2002/03 2003/04 2005/06	Symonds/ODPM Report	Regional data in the report has been dis-aggregated to provide for data for individual waste planning authorities using a development index based on housing growth
Hazardous Waste	2004/05 2006/07 2007/08	Environment Agency Hazardous Waste Interrogator – provided information on ▪ Waste produced ▪ Waste management fate ▪ Geographic disposal routes	Fully validated by the EA and is fully searchable to WCA level for both arisings and fates NOTE – 'special' waste only for the 2004/05 data & covers period in which co-disposal to landfill ceased, therefore known to be skewed prior to/after 16th July
	2004/05 2006/07 2007/08	Environment Agency Headline Summary data sets giving information on: ▪ Waste produced ▪ Waste management fate	▪ Headline release figures for the region. ▪ Data released only after verification checks have been completed ▪ 2007/08 data was used as the new base year for onward growth prediction

WML/PPC Site List	2006/07	Environment Agency Site-List (REGIS - Regulation Information System) for the West Midlands (includes RATS, waste returns, figures)	Tabulated register of sites deemed by the EA operational or non-operational, covering all authorised sites, as presented in Appendix D.
Public Registers	2007	Environment Agency searchable public register information, via http://www2.environment-agency.gov.uk/epr/?lang=_e	Register of organisations or individuals producing hazardous waste in excess of *de minimis* amount, i.e. 200kg/yr see http://publications.environment-agency.gov.uk/pdf/GEHO0506BKTT-e-e.pdf NOTE – searchable by defined radii on location or grid reference, but NO production quantity data

A desktop review of the information was completed which included:

- A review of national and regional strategy documents to identify any changes to strategy and policy since the previous study was completed;
- A review of changes to legal and economic drivers that could influence landfill intake rates and available capacity;
- Review of planning permissions since the commencement of 2007 to identify any changes to existing or new sites that could impact directly on the landfill capacity or the potential capacity available from mineral sites;
- Analysis of waste growth, site inputs and disposal trends from data provided by the Environment Agency. This would assist establishing a new base for landfill capacity and waste growth; and
- A review of feedback from site operators in respect of their business plans and the impact that was being seen at the landfill site due to recent legislative and economic trends.

2.2 Growth and Capacity Modelling

Subsequent to receipt of feedback from the data collection and review processes, work was undertaken to revise the earlier capacity modelling spreadsheet. Changes that were reviewed included:

- Base year for onward predictions was changed to the most recent year for verified data set;
- Diversion targets and growth rates were varied to reflect strategic and economic changes; and
- Site information was updated to the latest known capacity information – this was initially based on historic data from the 2007 assessment, reviewed to provide more accurate indications based on data and information primarily sourced from the operators, and reviewed against information from the Environment Agency.

The model was run with the current data sets and waste management criteria to produce a new estimate of existing and future hazardous waste management capacity for the Region, based on known and predicted input data sets, (i.e. the 'now' and the 'future').

2.3 Final Reporting

The output of the study is a final written report that is supported by:

- Growth and capacity modelling spreadsheet;
- A final definition of need – underwritten by historic data, but firmly seated in substantiated predictions of future arisings; and
- A final definition of capacity – underwritten by historic data, permitted capacity information and input from the operators in respect of forward business planning.

Report conclusions where possible identify recommendations for future policy considerations.

3 Changes Since 2006 Landfill Capacity Study

3.1 Legislative Framework

3.1.1 Landfill Directive

The Landfill Directive (99/31/EC) is implemented in England through the Landfill (England and Wales) Regulations 2002 (SI 1559) and its subsequent amendments. As outlined in the earlier report, the directive is aimed at improving waste management practices in relation to landfill as well as providing the framework against which the National strategy targets are set.

Since the last study was completed, the Regulations have introduced a requirement that all hazardous and non-hazardous waste being sent to landfill must first go through some form of pre-treatment. Implications for landfill from this measure are expected to see a lower volume of waste going for final disposal as material is first sent for treatment/recovery.

3.1.2 Environmental Permitting Regulations

The Environmental Permitting (England and Wales) Regulations 2007 took effect from 6th April 2008, and provide a new permitting framework against which all waste facilities including landfill will be regulated. The initial implementation of the Regulations included Pollution Prevention and Control (PPC) regulated activities, such as landfill sites, and Waste Management Licensing (WML) regulated activities, such as transfer stations.

Initial implementation of the Regulations during 2008 is not yet expected to have made any significance difference on the operation of landfills or the associated capacity. However, in October 2008, the Environment Agency consulted on changes to the section of the regulations pertaining to exemption activities, including those associated with construction wastes generated during land remediation projects.

The changes that are proposed to take effect from 1st October 2010 will see the need for operators remediating land to apply for an environmental permit rather than an exemption for amounts of more than 300 tonnes. The application and ongoing subsistence charges associated with the new permit procedure will increase costs to operators, and this may lead them to dispose of material to landfill rather than look at reuse options on a site.

3.1.3 Site Waste Management Plan Regulations

The Site Waste Management Plan Regulations 2008 took effect from 6th April 2008 and were aimed at providing a structured approach to management of wastes generated from construction projects in excess of £300,000. The regulations promote a hierarchical approach to the management of construction wastes, with the focus being on minimisation followed by reuse, recycling and recovery options before landfill disposal is considered.

It is too early to confirm if the introduction of the scheme has made significant changes to the way the construction industry views, generates and manages waste, although it is anticipated that in the longer term a reduction in volumes going to landfill is likely to be seen.

3.1.4 Other Regulations and Directives

At the time of completing the last capacity study it was noted that a number of other directives and regulations relating to specific waste streams were in the process of being made effective under UK law. These directives and regulations include but are not limited to:

- Directives 2002/96/EC and 2003/108/EC on Waste Electronic and Electrical Equipment (WEEE) that were enacted through WEEE Regulations 2006;
- Restrictions of the Use of Certain Hazardous Substances (RoHS) In Electrical and Electronic Equipment;
- Waste Oil Directive (75/439/EEC, as amended by Directive 87/101/EEC);
- ELV Regulations 2003 (SI 2635) and 2005 (SI 263) transpose the requirements of the End of Life Vehicles Directive (2005/53/EC);
- Batteries Directive (2006/66/EC);
- PCB/PCT Directive (96/59/EC);
- Control of Asbestos Regulations 2006 (SI 2739);
- Hazardous Waste Regulations 2005; and
- Waste Management Regulations 2006.

Implementation of the new regulatory regimes as indicated in the list above is aimed at providing among other requirements appropriate waste management approaches for the individual waste streams, many of which are hazardous in nature. The focus from a waste management perspective is again hierarchical, with minimisation before reuse, and recycling and recovery before landfill disposal.

The introduction of the new regulatory framework has already seen an increase in certain recycling and recovery facilities (e.g. WEEE) and as they become established it is anticipated that further facilities will come on-stream thus reducing the need for landfill capacity for these wastes in the longer term.

3.2 National Waste Strategy

At the time the previous study was completed a public consultation on the proposed review of the National Waste Strategy (WS 2000) was being completed, and the Regional Assembly had adopted some of the indicated targets within the proposed waste policies for the Regional Spatial Strategy (RSS). These targets were subsequently used to predict waste growth and diversion within the West Midlands region, and were used as the basis for landfill capacity requirements.

In the interim period, the Waste Strategy 2007 (WS2007) has been issued and now forms the adopted national waste strategy, developed to provide further strategic direction for the minimisation and sustainable management of waste for the period until 2020. The document is based on waste data collated since WS2000 and sets out a number of targets and national goals

for improvements in waste management in England and Wales. Key targets have been set for recycling, recovery and diversion from landfill for the household, commercial, industrial, agricultural, construction and demolition waste sectors, including those defined as hazardous.

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In addition to diversion and recovery targets, WS2007 includes sector-based growth scenarios that differ from the previous landfill study, and these have been taken into account in completion of this capacity review.

3.3 Regional Strategy

3.3.1 Regional Spatial Strategy

Since the last landfill study was undertaken, the Regional Assembly has completed the publication of the Phase One Revision in respect of the Black Country sub-region, and a revised RSS was submitted in December 2007, following consultation.

3.3.2 Waste Growth and Diversion Targets

At the time of completing the previous landfill capacity study, the Regional Assembly was consulting on a draft waste management policy based on several different growth and diversion scenarios for the main waste streams (municipal, commercial & industrial and construction & demolition).

This consultation was completed prior to the submission of the new RSS (December 2007), and the region finalised the RSS policies based on revised growth predictions and new diversion targets. The new growth scenarios are discussed in detail in Section 4 of this report and have been taken into account during the re-evaluation of landfill capacity requirements.

The revised RSS also acknowledged that, given the current overall regional performance against the WS 2000 targets, and the need for new contracts and investments in the short and medium term, that any more stringent targets would be unrealistic. Therefore the RSS was revised to adopt the national WS 2000 targets, namely:

- To recover value from at least 40% of municipal waste by 2005; 45% by 2010 and 67% by 2015;
- To recycle or compost at least 25% of household waste by 2005; 30% by 2010 and 33% by 2015; and
- To reduce the proportion of industrial and commercial waste which is disposed to landfill to at the most 85% of the 1998 targets by 2005.

The new targets have been adopted during this landfill capacity review and are discussed in more detail in Section 5 below.

3.4 Data Sources

To ensure that this capacity study provided a sound base for forward prediction of capacity requirements, the most recent data sets for waste production, waste management 'fates' and licensed facilities was sought. This has resulted in a realignment of the majority of the base years for onward growth and diversion predictions.

3.5 Definitions

During the 2007 landfill capacity study, a common definition for facility type was developed and it these definitions continue to be taken forward in this study. The definitions which have been employed are:

- 'Merchant' facilities which are operated on a fully commercial basis and available to accept relevant waste from all production sources;
- 'Restricted' facilities are those sites that are used for the management of waste from a single producer and are not operated on a commercial basis; and
- 'Planning obligated' facilities are existing mineral sites that have a planning obligation to restore the site in such a way as can only be achieved by the import of materials – such imported material may or may not include waste, and each of these sites will need to go through an environmental permitting process before it can accept waste.

The above facility types are further classified by the type of waste they can accept, i.e. inert, non-hazardous, non-hazardous with stabilised non-reactive hazardous waste capacity and hazardous, and also by their operational status, i.e. operational or non-operational.

To provide an accurate evaluation of landfill capacity available for use within the Region, the study focussed primarily on the merchant sites that are available for waste disposal.

3.6 Economic Drivers

3.6.1 Landfill Tax

These regulations introduced the classification of waste into 'active' and inactive' types for the purposes of applying a tax on wastes disposed of to land, i.e. in a landfill or landraise site.

At the time of completing the 2007 study, the Landfill Tax had been increasing at £3 per tonne per year since 2002 for active wastes, and was planned to continue to rise in this manner until it reached £35 per tonne in 2012. The calculations in the RSS Review Options that were used for the earlier landfill study were undertaken on the basis of the £3 per tonne per year increase. In 2007 the tax stood at £24 per tonne for active waste and £2 per tonne for inactive waste.

Since the last study was completed, the rate of tax increases was changed from the 1st April 2008. The new figures were:

- £2.50 per tonne for inactive wastes – without escalator; while

- The tax for active waste was to escalate annually by £8 until at least 2010, at which stage it will have reached a rate of £48/tonne.

This financial impetus is aimed at increasing the quantity of waste diverted from landfill to other disposal/treatment facilities. At the time of writing, landfill tax for active waste had been increased from 1st April 2009, to £40 per tonne for active waste, and the 2009 budget made a commitment to applying the escalator until at least 2013, at £8/year, at which time the tax will stand at £72/tonne.

Similarly, in light of recent changes to legislation since 1996, largely stemming from the Landfill Directive (1999/31/EC) and a recent legal determination, in which the importation of waste for 'use at a landfill site (HMRC v Waste Recycling Group [2008], the 'WRG case') was ruled to be tax-exempt, the budget 2009 contained a commitment to review what constitutes an 'inert' waste how and why landfill tax is levied on it, as it is received at a landfill site. The net result of these reviews is difficult to predict, and, as any changes will most likely not be implemented until the 2010 budget, potential impacts on the outcome of this review remain incapable of being substantiated at the date of writing. However, it is considered that, over the shot-term, impacts are likely to be neutral.

3.6.2 Aggregates Levy

The Aggregates Levy was introduced in 2002 to stimulate a reduction in the impact of aggregate extraction on the environment through the introduction of a tax on the extraction of primary aggregates. At the time of the 2007 study, the levy was £1.60 per tonne, but has since risen to £1.95 per tonne from 1st April 2008.

This levy influences the recycling and reuse of secondary aggregate materials which traditionally may have been sent for disposal.

3.6.3 National Economy

During the course of late 2008 to early 2009, the UK economy slowed dramatically, and moved into a recession, resulting in a decrease in consumer spending and industry investment. Recent predictions of the UK's Economic Outlook (Budget Statement, 2009) indicate that:

- UK GDP will fall by around 3.5% during 2009, show an increase of 1.25% over 2010, with recovery thereafter an annual increase of 3.5% becoming evident over the course of that year;
- Consumer spending growth is predicted to be at -3% during 2009, essentially net neutral during 2010, before rising at around 3% during 2011. This is due to high debt levels, tighter credit controls, falling housing wealth and rising unemployment;
- Business investment growth is expected to fall sharply during 2009;
- Housing market prices are expected to fall by a around 15 – 20% during 2009 and this will have a knock-on effect on housing investment;
- Public spending is expected to be cut back sharply in the medium term to bring a budget deficit that is predicted to rise by 12.4% GDP in the 2009/2010 period under control; and

- Slower global growth, predicted in the 2009 Budget to average around a reduction of 1.25% for 2009 for the world as a whole, and 4% for the G7 nations, is expected to dampen the exports market, including that for recovered materials.

The above combined effect is anticipated to impact positively on waste production levels from commercial, industrial and construction sources, but may well in turn place restrictions on investment opportunities for new waste infrastructure.

3.7 Other Drivers

3.7.1 Construction, Demolition and Excavation Waste

Specific schemes are provided across this sector, relating to individual material streams (e.g. plasterboard, aggregates, packaging, etc). These schemes incorporate the respective industry bodies with support from DEFRA's Market Transformation Programme (MTP – www.mtprog.com) or WRAP (www.wrap.org.uk), and are aimed at providing quality assurance schemes and establishing markets for certain waste materials. As these schemes become established, they should assist with landfill diversion in the longer term.

3.7.2 Commercial and Industrial Waste

Assistance in waste minimisation and resource reuse across the commercial and industrial waste sectors in general is provided through DEFRA, across a number of agencies (http://www.defra.gov.uk/environment/waste/brew/index.htm). The schemes are aimed at a wide range of waste streams, and are intended to reduce the amount of waste produced across the sector.

3.7.3 Chemical and Similar Wastes

Under the active participation and guidance of the Chemical Industries Association's (CIA - www.cia.org.uk/newsite/responsible_care/guiding.htm), industries that produce or otherwise handle chemicals have been committed for a number of years to resource management and waste minimisation.

4 Predicted Waste Arisings

4.1 Introduction

This section of the report reviews the growth assumptions and targets in terms of the baseline situation developed within the WMRSS December 2007, WMRSS hereafter, and the differences from the previous landfill capacity study.

In addition, consideration is given to the expected impact of the external economic influences on anticipated future growth.

4.2 Growth Scenarios

Waste growth assumptions are outlined below and further detail is provided in Appendix B.

4.2.1 Municipal Waste (MSW)

Growth predictions for municipal waste streams in the WMRSS are based on:

- Housing predictions converted to an average household growth rate;
- Assuming that the average household growth rate equates to the predicted MSW growth rate, plus a further 1% until 2011; and
- Average household growth rate equates to MSW growth from 2001 onwards.

For the purpose of this update, the forward growth predictions have been taken from the 2007 actual MSW production, as this was the last year of verified data.

In relation to the impact of economic influences, current anecdotal information suggests that at present there has been no significant impact observed in respect of MSW growth. However, a review of the most recent waste data sets from 2005 to 2007 inclusive shows that:

- Household municipal waste for the region showed a 2.4% increase between 2005 and 2006 but this was followed by a 2.1% decrease in the 2006 to 2007 period. It is too early to determine if the decrease in 2007 will continue in this down ward trend;
- Non-household municipal waste for the region showed 6.5% decrease between 2005 and 2006 with a further 2.6% decrease in 2006 to 2007;
- Overall municipal waste showed a similar 2.1% decrease during the period 2006 to 2007 but again at this stage it is too early to confirm if there is a downward trend forming. As such no adjustment for economic impact has been modelled at this stage and the same growth prediction is used for all scenarios.

4.2.2 Commercial and Industrial Waste (C&I)

Growth predictions for C&I waste streams in the WMRSS are based on:

- The predictions outlined in the Waste Strategy Review (Feb 2006) document, rather than the revised national strategy (WS 2007);
- Assuming that commercial waste increases from the 2002/03 base by 13% in 2010, by 33% in 2012 and by 52% in 2020; and
- Industrial waste production decreases from the 2002/03 base by 5% in 2010, and then increases by 1% by 2015 and a further 1% by 2020.

The ADAS 2006/07 C&I waste tonnage will be used as the revised baseline year for this update and will be used for forward growth predictions. The base case growth predictions are based on the above assumptions.

In relation to other external influences, three further scenarios were developed:

- Scenario 1 adjusts the WMRSS base-case growth to account for economic downturn influences – In this scenario, growth is predicted to be affected in line with the economic changes being experienced in commercial and industrial sectors during 2009 – 2011;
- Scenario 2 changes the growth model to reflect the WS 2007 Strategy predictions adjusted for the economic impact over the period 2009 – 2011;
- Scenario 3 changes the Scenario 2 growth model to reflect the ADAS C&I predictions adjusted for the economic impact over the period 2009 – 2011.

4.2.3 Construction, Demolition and Excavation Waste (C, D &E)

Growth predictions for CD&E waste streams in the WMRSS are based on:

- Surveys undertaken by Symonds Group on behalf of the Office of the Deputy Prime Minister;
- Assuming that the quantity of CD & E waste changes in line with housing levels (i.e. 8% reduction for the period 2000 to 2007, a 4% reduction for the period 2007 – 2011 and static from 2011); and
- The quantity generated in each WPA area is estimated using the 'development' index to disaggregate the regional total.

For the purposes of this update, the growth predictions have been taken forward from the 2005 Symonds survey, as this was the last year of verified data.

In relation to other external influences, like the C&I waste two further scenarios were developed:

- Scenario 1 adjusts the WMRSS base case growth to account for economic downturn influences – in this scenario, growth is predicted to be affected in line with the economic changes being experienced in commercial and industrial sectors during the period 2009 – 2011; and
- Scenario 2 changes the growth model to reflect the WS 2007 Strategy predictions as adjusted for the economic impact in 2009 – 2011.
- Scenario 3 uses the same growth predictions as Scenario 2.

4.2.4 Hazardous Waste

Growth predictions for hazardous waste streams for the base case are taken forward on the same basis as the previous study, namely:

- Growth reductions of 2% per annum between 2007 and 2010 to reflect minimisation efforts in industry; and
- Static from 2011 onwards.

For the purpose of this update, the growth predictions have been taken forward from the 2007 actual hazardous production data from the Environment Agency, as this was the last year of verified data.

For scenarios 1 to 3 inclusive the 2008 – 2010 growth reflects the economic impact.

4.3 Base Case Growth (WMRSS 2007 Basis)

4.3.1 Municipal Waste

Municipal waste growth is closely related to the changes observed in housing development for the Region, and decisions made about the amount and distribution of houses built across the region will therefore affect the quantity of municipal waste generated.

For the purpose of the study, waste growth has been predicted at:

- Annual growth equivalent to average household growth plus 1% until 2011; and
- Annual growth equivalent to average household growth from 2011 onwards.

Table 4.3.1 below summarises the predicted growth for the region with the year on year growth tabulated in Appendix C.

Table 4.3.1 Summary of Municipal Waste Growth

Planning Authority	2010/11	2015/16	2020/21	2025/26	2030/31	Cumulative Total
Birmingham	603505	625284	647849	671229	695452	15367635
Coventry	180160	185689	191387	197261	203315	4545399
Dudley	154192	159407	164798	170372	176134	3911143
Sandwell	150403	156630	163115	169869	176901	3864873
Solihull	105186	108051	110995	114019	117125	2638219
Walsall	145480	150504	155702	161080	166643	3694679
Wolverhampton	149813	155146	160669	166389	172311	3811644
Met Area Sub-Total	***1488739***	***1540712***	***1594517***	***1650217***	***1707882***	**37833591**
Shropshire	184461	192245	200356	208810	217621	4746485
Telford and Wrekin	100642	108231	116393	125170	134608	2741363
Staffordshire	492913	508272	524110	540441	557281	12446129
Stoke-On-Trent	136830	140862	145013	149286	153685	3444982
Warwickshire	319548	330920	342696	354892	367522	8129993
Worcestershire	313977	322627	331514	340647	350031	7879127
Herefordshire	101476	105877	110468	115258	120257	2616384
Shire Area Sub-Total	***1649848***	***1709033***	***1770550***	***1834504***	***1901004***	**42004463**
West Midlands Total	***3138587***	***3249745***	***3365067***	***3484721***	***3608886***	**79838054**

4.3.2 Commercial and Industrial Waste

The WMRSS adopted the growth predictions outlined in the Review of the Waste Strategy 2000. Waste growth has therefore been predicted at:

- Commercial waste is predicted to have grown from 2002/03 levels by 13% in 2010, by 33% in 2015 and by 52% in 2020 – growth beyond this has been predicted as being static; and
- Industrial waste is predicted to reduce from 2002/03 levels by 5% in 2010, and will then have a 1% increase by 2015 and a further 1% increase by 2020 – growth beyond this has been predicted as being static.

Table 4.3.2 below summarises the predicted growth for the region with the year on year growth tabulated in Appendix C.

Table 4.3.2 Summary of Commercial and Industrial Waste Growth

Planning Authority	2010/11	2015/16	2020/21	2025/26	2030/31	Cumulative Total
Birmingham	967208	1169590	1648007	1648007	1648007	32921738
Coventry	340398	411624	579997	579997	579997	11586438
Dudley	345888	418263	589353	589353	589353	11773326
Sandwell	510597	617436	869996	869996	869996	17379655
Solihull	155559	188109	265054	265054	265054	5294913
Walsall	347720	420478	592472	592472	592472	11835648
Wolverhampton	284582	344129	484893	484893	484893	9686567
Met Area Sub-Total	***2951953***	***3569628***	***5029774***	***5029774***	***5029774***	**100478284**
Shropshire	313523	358746	464259	464259	464259	9680569
Telford and Wrekin	294552	337038	436165	436165	436165	9094775
Staffordshire Including Stoke	1410266	1649455	2211066	2211066	2211066	45284010
Warwickshire	604473	749673	1094194	1094194	1094194	21485293
Worcestershire	586695	716392	1023461	1023461	1023461	20307132
Herefordshire	251448	289864	379710	379710	379710	7868328
Shire Area Sub-Total	***3460957***	***4101167***	***5608854***	***5608854***	***5608854***	**113720106**
West Midlands Total	***6412910***	***7670796***	***10638628***	***10638628***	***10638628***	**214198390**

4.3.3 Construction, Demolition and Excavation Waste

Data on the generation and management of construction and demolition waste was derived from the Symonds/ODPM 2005 report. The report provided several options for the dis-aggregation of the regional waste estimates, and the 'development' index used was based on Development Option 4.

For this study, the 'development' index was recalculated to reflect the latest housing options presented in the WMRSS and the updated Annual % Share of Housing Development is shown in the Table 4.3.3a below.

Table 4.3.3a Annual Share of Housing Development					
Planning Authority	**Housing Share %**		**Planning Authority**	**Housing Share %**	
	2007 - 2011	**2011 Onwards**		**2007 - 2011**	**2011 Onwards**
Birmingham	0.1963	0.2048	Shropshire	0.0589	0.0614
Coventry	0.0425	0.0567	Telford and Wrekin	0.087	0.0478
Dudley	0.0458	0.0666	Staffordshire	0.1636	0.1092
Sandwell	0.0589	0.0666	Stoke-On-Trent	0.0393	0.041
Solihull	0.0262	0.0321	Warwickshire	0.0982	0.0922
Walsall	0.0327	0.0563	Worcestershire	0.0785	0.0683
Wolverhampton	0.0327	0.0563	Herefordshire	0.0393	0.041

CD&E waste growth is predicted on the basis that growth changes in line with housing development levels, i.e. an 8% reduction over 2007, a 4% reduction for the period 2007 – 2011 and then static from 2011).

Table 4.3.3b below summarises the predicted growth for the region with the year on year tabulated in Appendix C.

Table 4.3.3b Summary of Construction, Demolition and Excavation Waste Growth						
Planning Authority	**2010/11**	**2015/16**	**2020/21**	**2025/26**	**2030/31**	**Cumulative Total**
Birmingham	1814602	1893176	1893176	1893176	1893176	45154068
Coventry	392871	524136	524136	524136	524136	11946912
Dudley	423376	615652	615652	615652	615652	13840100
Sandwell	544473	615652	615652	615652	615652	14452972
Solihull	242193	296733	296733	296733	296733	6863674
Walsall	302280	520438	520438	520438	520438	11418172
Wolverhampton	302280	520438	520438	520438	520438	11418172
Met Area Sub-Total	***4022074***	***4986226***	***4986226***	***4986226***	***4986226***	**115094071**
Shropshire	544473	567583	567583	567583	567583	13539663
Telford and Wrekin	804230	441864	441864	441864	441864	12465642
Staffordshire	1512322	1009447	1009447	1009447	1009447	26833384
Stoke-On-Trent	363290	379005	379005	379005	379005	9039710
Warwickshire	907763	852299	852299	852299	852299	20787882
Worcestershire	725656	631367	631367	631367	631367	15668523
Herefordshire	363290	379005	379005	379005	379005	9039710
Shire Area Sub-Total	***5221024***	***4260570***	***4260570***	***4260570***	***4260570***	**107374514**
West Midlands Total	***9243098***	***9246796***	***9246796***	***9246796***	***9246796***	**222468584**

4.3.4 Hazardous Waste

Growth predictions for hazardous waste streams are taken forward on the same basis as the previous study, namely:

- Growth reductions of 2% per annum between 2007 and 2010, to reflect minimisation efforts in industry; and
- Static from 2011 onwards.

Table 4.3.4 below summarises the predicted growth for the region with the year on year growth tabulated in Appendix C.

Table 4.3.4 Summary of Hazardous Waste Growth						
Planning Authority	**2010/11**	**2015/16**	**2020/21**	**2025/26**	**2030/31**	**Cumulative Total**
Birmingham	50288	50288	50288	50288	50288	1213151
Coventry	24447	24447	24447	24447	24447	589751
Dudley	33596	33596	33596	33596	33596	810470
Sandwell	50613	50613	50613	50613	50613	1220985
Solihull	10782	10782	10782	10782	10782	260113
Walsall	40978	40978	40978	40978	40978	988549
Wolverhampton	44128	44128	44128	44128	44128	1064544
Met Area Sub-Total	***254831***	***254831***	***254831***	***254831***	***254831***	**6147564**
Shropshire	16094	16094	16094	16094	16094	388263
Telford and Wrekin	9097	9097	9097	9097	9097	219448
Staffordshire	72044	72044	72044	72044	72044	1738010
Stoke-On-Trent	22831	22831	22831	22831	22831	550788
Warwickshire	37115	37115	37115	37115	37115	895366
Worcestershire	64379	64379	64379	64379	64379	1553097
Herefordshire	12939	12939	12939	12939	12939	312132
Shire Area Sub-Total	***234500***	***234500***	***234500***	***234500***	***234500***	**5657104**
West Midlands Total	***489330***	***489330***	***489330***	***489330***	***489330***	**11804668**

4.4 Scenario 1 Growth (WMRSS Including Economic Influence)

4.4.1 Municipal Waste

In relation to the impact of economic influences, the current anecdotal information identified during the survey suggests that at present there has been no significant impact observed. To this end no change to municipal waste growth was undertaken.

4.4.2 Commercial and Industrial Waste

Scenario 1 uses the WMRSS growth assumptions as the main basis for the growth prediction. However, growth is predicted to be affected in line with economic changes being experienced in commercial and industrial sectors during the period 2009 – 2011.

The UK Economic Outlook (Budget Statement, 2009) presented information in relation to the expected impact on economic growth for the period 2008 to 2011. Using this information:

- Commercial growth was set to mirror the general GDP growth changes, namely a 0.7% growth in 2008, a 3.5% decline in 2009, and 1.25% growth in 2010, after which growth returns back to the WMRSS basis; and

- Industrial growth was set to mirror the manufacturing growth changes, namely a 2.75% decline in 2008, a 12.5% decline in 2009, and 0.5% growth in 2010, after which growth returns back to the WMRSS basis.

Table 4.4.2 below summarises the predicted growth for the region with the year on year growth tabulated in Appendix C.

Table 4.4.2 Summary of Scenario 1 C&I Waste Growth						
Planning Authority	**2010/11**	**2015/16**	**2020/21**	**2025/26**	**2030/31**	**Cumulative Total**
Birmingham	877564	1066995	1515193	1515193	1515193	30314586
Coventry	308849	375517	533255	533255	533255	10668879
Dudley	313830	381574	541857	541857	541857	10840970
Sandwell	463273	563275	799883	799883	799883	16003319
Solihull	141142	171608	243694	243694	243694	4875595
Walsall	315492	383594	544725	544725	544725	10898354
Wolverhampton	258206	313942	445815	445815	445815	8919464
Met Area Sub-Total	***2678356***	***3256506***	***4624423***	***4624423***	***4624423***	**92521167**
Shropshire	280793	323056	421836	421836	421836	8814434
Telford and Wrekin	263802	303507	396309	396309	396309	8281050
Staffordshire including Stoke	1269488	1493188	2019140	2019140	2019140	41424921
Warwickshire	551821	687790	1010612	1010612	1010612	19875215
Worcestershire	533567	654988	942684	942684	942684	18732824
Herefordshire	225585	261497	345620	345620	345620	7175896
Shire Area Sub-Total	***3125057***	***3724026***	***5136202***	***5136202***	***5136202***	**104304339**
West Midlands Total	***5803413***	***6980532***	***9760626***	***9760626***	***9760626***	**196825506**

4.4.3 Construction, Demolition and Excavation Waste

Scenario 1 uses the WMRSS growth assumptions as the main basis for the growth prediction however the growth is predicted to be affected in line with economic changes being experienced in commercial and industrial sectors during 2009 – 2011.

The UK Economic Outlook (PWC, March 2009) presented information in relation to the expected impact on economic growth for the periods 2008 to 2011. Using this information; construction growth was set to mirror the general sector growth changes, namely a 1% decline in 2008, a 4.25% decline in 2009, and 0.4% growth in 2010, after which growth returns back to the WMRSS basis. Table 4.4.3 below summarises the predicted growth for the region with the year on year growth tabulated in Appendix C.

Table 4.4.3 Summary of Scenario 1 CD&E Waste Growth						
Planning Authority	**2010/11**	**2015/16**	**2020/21**	**2025/26**	**2030/31**	**Cumulative Total**
Birmingham	1779850	1834407	1814160	1795953	1779578	43469217
Coventry	385347	507866	502260	497219	492686	11488549
Dudley	415268	596540	589956	584035	578710	13304522
Sandwell	534046	596540	589956	584035	578710	13908440
Solihull	237555	287522	284348	281495	278928	6602715
Walsall	296491	504283	498717	493712	489210	10969537
Wolverhampton	296491	504283	498717	493712	489210	10969537
Met Area Sub-Total	***3945047***	***4831440***	***4778116***	***4730161***	***4687034***	**110712519**
Shropshire	534046	549964	543894	538435	533526	13034504
Telford and Wrekin	788828	428148	423422	419173	415351	12044250
Staffordshire	1483359	978111	967316	957608	948877	25894734
Stoke-On-Trent	356333	367240	363186	359541	356263	8702410
Warwickshire	890378	825841	816727	808530	801158	20022653
Worcestershire	711759	611767	605015	598943	593482	15097723
Herefordshire	356333	367240	363186	359541	356263	8702410
Shire Area Sub-Total	***5121036***	***4128311***	***4082747***	***4041771***	***4004920***	**103498683**
West Midlands Total	***9066083***	***8959751***	***8860863***	***8771931***	***8691953***	**214211202**

4.4.4 Hazardous Waste

Scenario 1 uses the WMRSS growth assumptions as the main basis for the growth prediction. However, growth is predicted to be affected in line with economic changes being experienced in the commercial and industrial sectors during 2009 – 2011.

The UK Economic Outlook (Budget Statement, 2009) presented information in relation to the expected impact on economic growth for the period 2008 to 2011. Using this information:

- Commercial growth was set to mirror the general GDP growth changes, namely a 0.7% growth in 2008, a 3.5% decline in 2009, and 1.25% growth in 2010, after which growth returns back to the WMRSS basis; and

- Industrial growth was set to mirror the manufacturing growth changes, namely a 2.75% decline in 2008, a 12.5% decline in 2009, and 0.5% growth in 2010, after which growth returns back to the WMRSS basis.

Table 4.4.4 below summarises the predicted growth for the region with the year on year growth tabulated in Appendix C.

Table 4.4.4 Summary of Scenario 1 Hazardous Waste Growth

Planning Authority	2010/11	2015/16	2020/21	2025/26	2030/31	Cumulative Total
Birmingham	52507	52507	52507	52507	52507	1262172
Coventry	25525	25525	25525	25525	25525	613581
Dudley	35078	35078	35078	35078	35078	843220
Sandwell	52846	52846	52846	52846	52846	1270322
Solihull	11258	11258	11258	11258	11258	270624
Walsall	42786	42786	42786	42786	42786	1028494
Wolverhampton	46075	46075	46075	46075	46075	1107560
Met Area Sub-Total	***266074***	***266074***	***266074***	***266074***	***266074***	**6395973**
Shropshire	16804	16804	16804	16804	16804	403952
Telford and Wrekin	9498	9498	9498	9498	9498	228315
Staffordshire	75223	75223	75223	75223	75223	1808239
Stoke-On-Trent	23839	23839	23839	23839	23839	573044
Warwickshire	38753	38753	38753	38753	38753	931546
Worcestershire	67220	67220	67220	67220	67220	1615854
Herefordshire	13509	13509	13509	13509	13509	324744
Shire Area Sub-Total	***244846***	***244846***	***244846***	***244846***	***244846***	**5885695**
West Midlands Total	***510921***	***510921***	***510921***	***510921***	***510921***	**12281668**

4.5 Scenario 2 Growth (WS2007 Including Economic Influence)

4.5.1 Municipal Waste

A review of the WMRSS growth predictions against the growth scenarios identified in WS 2007 confirmed that the growth rates used closely followed the WS 2007 prediction of a 0.75% per annum increase. As such, no change was made to the municipal waste growth predictions.

4.5.2 Commercial and Industrial Waste

Scenario 2 uses the WS 2007 growth as the main basis for the growth prediction – this has commercial waste growing at 2.6% per annum until 2020, and then being static thereafter, and industrial waste growth being static for the whole period.

The growth adjustments for economic impact in 2008 to 2011 that were used in Scenario 1 were also applied in this Scenario.

Table 4.5.2 below summarises the predicted growth for the region with the year on year growth tabulated in Appendix C.

Table 4.5.2 Summary of Scenario 2 C&I Waste Growth

Planning Authority	2010/11	2015/16	2020/21	2025/26	2030/31	Cumulative Total
Birmingham	884712	957810	1035955	1035955	1035955	23696350
Coventry	311365	337091	364593	364593	364593	8339667
Dudley	316386	342527	370474	370474	370474	8474175
Sandwell	467047	505636	546889	546889	546889	12509494
Solihull	142291	154048	166616	166616	166616	3811164
Walsall	318062	344341	372435	372435	372435	8519044
Wolverhampton	260309	281817	304809	304809	304809	6972180
Met Area Sub-Total	***2700172***	***2923269***	***3161772***	***3161772***	***3161772***	**72322074**
Shropshire	282915	298878	315943	315943	315943	7354929
Telford and Wrekin	265796	280792	296825	296825	296825	6909872
Staffordshire including Stoke	1279374	1364748	1456018	1456018	1456018	33656128
Warwickshire	556467	609253	665683	665683	665683	15109136
Worcestershire	537970	584941	635156	635156	635156	14484911
Herefordshire	227307	240924	255482	255482	255482	5933091
Shire Area Sub-Total	***3149829***	***3379537***	***3625107***	***3625107***	***3625107***	**83448067**
West Midlands Total	***5850001***	***6302806***	***6786878***	***6786878***	***6786878***	**155770141**

4.5.3 Construction, Demolition and Excavation Waste

Growth predictions in the WMRSS were developed against the scenarios developed for WS 2007, and as such no change was made to the CD &E waste growth from those used in Scenario 1.

4.5.4 Hazardous

No change was made to the hazardous waste growth predictions from those used in Scenario 1.

4.6 Scenario 3 Growth (ADAS C&I Study with Economic Impact)

4.6.1 Municipal Waste

A review of the WMRSS growth predictions against the growth scenarios identified in WS 2007 confirmed that the growth rates used closely followed the WS 2007 prediction of a 0.75% per annum increase. As such, no change was made to the municipal waste growth predictions.

4.6.2 Commercial and Industrial Waste

Scenario 3 uses the ADAS growth as the main basis for the growth prediction – this has commercial waste growing at 1.06%% per annum until 2020 and industrial waste growth decreasing by 1.09% per annum until 2020. Both waste streams are assumed to be static after 2020.

The growth adjustments for economic impact in 2008 to 2011 that were used in Scenario 1 were also applied in this Scenario.

Table 4.6.2 below summarises the predicted growth for the region with the year on year growth tabulated in Appendix C.

Table 4.6.2 Summary of Scenario 3 C&I Waste Growth

Planning Authority	2010/11	2015/16	2020/21	2025/26	2030/31	Cumulative Total
Birmingham	884712	919267	929304	929304	929304	22180859
Coventry	311365	323526	327058	327058	327058	7806307
Dudley	316386	328744	332333	332333	332333	7932210
Sandwell	467047	485289	490587	490587	490587	11709453
Solihull	142291	147849	149463	149463	149463	3567423
Walsall	318062	330485	334093	334093	334093	7974212
Wolverhampton	260309	270476	273429	273429	273429	6526277
Met Area Sub-Total	***2700172***	***2805635***	***2836268***	***2836268***	***2836268***	**67696741**
Shropshire	282915	290598	287071	287071	287071	6955317
Telford and Wrekin	265796	273013	269700	269700	269700	6534442
Staffordshire including Stoke	1279374	1320107	1316145	1316145	1316145	31697775
Warwickshire	556467	581295	593795	593795	593795	14077837
Worcestershire	537970	560128	568523	568523	568523	13534451
Herefordshire	227307	233840	231726	231726	231726	5602942
Shire Area Sub-Total	***3149829***	***3258980***	***3266960***	***3266960***	***3266960***	**78402764**
West Midlands Total	***5850001***	***6064615***	***6103228***	***6103228***	***6103228***	**146099505**

4.6.3 Construction, Demolition and Excavation Waste

Growth predictions in the WMRSS were developed against the scenarios developed for WS 2007, and as such no change was made to the CD &E waste growth from those used in Scenario 1.

4.6.4 Hazardous

No change was made to the hazardous waste growth predictions from those used in Scenario 1.

5 Landfill Capacity – 2009 Study

5.1 Introduction

This section of the report reviews the impact on landfill capacity of the different growth scenarios.

5.2 Strategy Influences

5.2.1 National Diversion Targets

Waste Strategy 2007 (WS2007) provides strategic direction for the minimisation and sustainable management of waste for the period until 2020. The document is based on waste data collated since WS2000, and sets out a number of targets and national goals for improvements in waste management in England and Wales. Key targets have been set for recycling, recovery and diversion from landfill for the household, commercial, industrial, agricultural, construction and demolition waste sectors, including those defined as hazardous.

Current targets are set out in Table 5.2.1 below.

Table 5.2.1 WS 2007 Targets

	2005/06	2010/11	2015/16	2020/21
Industrial & Commercial (as % of 1998 actual)	85			
BMW to Landfill (as % of 1995 actual)		75	50	35
% Municipal Recovered (Incl. Recycle & Compost)		53	67	75
% Municipal Recycled and Composted		40	45	50
C&I Waste To Landfill (% of 2004)	-		-	
CD&E Waste To Landfill (% of 2004)	-		-	

5.2.2 Regional Diversion Targets

The revised WMRSS contains the strategic direction for waste management in the region. The WMRSS acknowledges that, given the current overall regional performance against the WS2000 targets and the need for new contracts and investments in the short and medium term, any more stringent targets would be unrealistic.

Current targets are set out in Table 5.2.1 below.

Table 5.2.2 WS 2000 Targets

	2005/06	2010/11	2015/16	2020/21
Industrial & Commercial (as % of 1998 actual)	85			
BMW to Landfill (as % of 1995 actual)		75	50	35
% Municipal Recovered (Incl. Recycle & Compost)	40	45	67	
% Municipal Recycled and Composted	25	30	33	
C&I Waste To Landfill (% of 2004)	-		-	
CD&E Waste To Landfill (% of 2004)	-		-	

5.3 Economic Influences

5.3.1 Landfill Tax

Since the last study was completed, the annual rate of increase in the tax went up to £8/tonne/annum from the 1st April 2008, and at the time of writing, landfill tax has increased to £40 per tonne for active waste.

These annual increases were expected to continue to at least 2010, when the tax will have reached £48 per tonne, but in the 2009 Budget were designated to continue until 2012/13, beyond which time the rate per tonne would be frozen, This financial impetus is aimed at increasing the quantity of waste diverted from landfill to other disposal/treatment facilities. In June 2008, Eunomia presented an impact assessment on the landfill tax (LFT) escalator that indicated:

- In relation to MSW diversions, comparisons between Scenario 1 (pre-LFT escalator change) and Scenario 2 (LFT escalator change) showed that the increase was broadly neutral in terms of achieving significant diversions; and

- In relation to the impact on business, comparisons indicated that the initial increase in the escalator resulted in around a 2.1% diversion of waste from landfill, a position that was maintained thereafter, but which was not predicted to show any progressive, annual, increases thereafter.

The above LFT escalator impacts have been incorporated as positive landfill diversions in Scenarios 1, 2 and 3 which take into account the impact of economic drivers, although this is overshadowed by the general economic impacts during 2009 and 2010.

The impact of the application of the £8/tonne escalator over the period to 2012/13 in relation to landfill diversion was not considered in the Impact Assessment undertaken as part of the budgetary process and it has not been possible to extrapolate the longer term impact in this study.

5.3.2 General Economic Downturn

During the course of late 2008 and early 2009, the UK economy moved into a recession, resulting in a decrease in consumer spending and industry investment. Recent main predictions in the UK Economic Outlook (Budget 2009) indicate that:

- General UK GDP increased by 0.7% in 2008, but is expected to decrease by 3.5% before beginning to recover in 2010, at 1.25%, with medium term predictions put the GDP up by 3.5% per annum in 2011 and beyond; and

- Manufacturing growth was down by 2.75% in 2008, down by a further 12.5% in 2009 and is only beginning to show recovery in 2010, with an increase of +0.5%.

The above economic growth impacts have been utilised in growth scenarios 1, 2 and 3. In relation to potential impact on the landfill diversion achieved, it was noted:

- One of the scenarios modelled by WS 2007 showed a potential delay of around 1 year in infrastructure delivery for MSW facilities – this was delay was factored into Scenario 2 showing a 1 year delay in recycling/recovery target achievement;

- In respect of non-MSW wastes (namely C&I and CD&E wastes), it was noted from anecdotal evidence from landfill site operators that a 20% reduction in landfill input was currently being experienced. It is expected that this reduction is a combination of waste production decreases due to the impact from the economy on the various business sectors and potentially due to further diversions being achieved as schemes such as site waste management plans and WRAP protocols start to take effect. This input reduction is anticipated to be experienced in both 2009 and 2010, and has been modelled in Scenarios 1, 2 and 3; and

- Planning obligated capacity derived from clay-pits (brick manufacture) becoming available is likely to be delayed by at least 5 years, as a direct result of the down-turn in the housing industry and a reflection of the level of brick stocks.

5.4 Capacity Calculated at 01 January 2009

During the study, the landfill capacity available at 01 January 2009 was determined from information provided by the Environment Agency, the Planning Authorities and operators. This information included details on:

- Existing landfill sites with valid planning permission and environmental permit authorisation;

- Mineral sites with planning permissions requiring restoration through the import of materials; and

- Capacity and phasing indications from the operators on current and potential sites.

5.4.1 Operational Landfill Capacity

Operational landfill capacity for the Region is located at landfill sites that are fully authorised under Environmental Permitting Regulations and were operational and accepting waste at the time of the study.

Table 6.4.1 Operational Landfill Capacity at 01 January 2009

Landfill Type	No of Sites	Capacity (m^3)
Inert	12	6,250,000
Non-Hazardous	24	41,661,400
Hazardous	1	400,000
Total	**37**	**48,311,400**

5.4.2 Non-Operational Capacity

Non-operational landfill capacity for the Region is located at landfill sites that are fully authorised under Environmental Permitting Regulations but which were not accepting waste at the time of the study. This availability of this capacity for use is dependant on commercial, operational or other factors outside the influence of the WMRA.

Table 6.4.2 Non-Operational Landfill Capacity at 01 January 2009		
Landfill Type	**No of Sites**	**Capacity (m^3)**
Inert	4	5,235,000
Non-Hazardous	5	8,400,000
Hazardous	-	0
Total	**9**	**13,635,000**

5.4.3 Planning Obligated Capacity

This potential capacity within the region is located at existing mineral sites that have a planning obligation to restore the site in such a way as can only be achieved by the import of materials. Imported material, may or may not include waste, thus potentially providing a further 11 new landfills for the region at a future date. It should be noted, however, that any site to be used for future landfill capacity will need to go through an environmental permitting process before it can accept waste.

Table 6.4.3 Planning Obligated Capacity at 01 January 2009		
Landfill Type	**No of Sites**	**Capacity (m^3)**
Inert	4	2,600,000
Non-Hazardous	7	20,500,000
Hazardous	0	0
Total	**11**	**23,100,000**

It was identified during this study that no new additional planning obligated capacity had been realised or had been identified for future use.

5.4.4 Restricted Capacity

Restricted landfill capacity is designated to be found at non-commercial sites previously defined as industrial waste landfills (A07). Such landfills tend to be situated on or adjacent to land used for an industrial process where the Industrial Operator has successfully obtained planning permission and a permit (i.e. WML/PPC) for a landfill to manage the disposal of a specific, process-related, waste.

Such sites are not currently available to accept other wastes on a commercial basis, nor are their individual capacities ever likely to be released for commercial development, as this is typically tied to the operational life of the plant they designed to serve, or they are unlikely to be suitable for the disposal of non-hazardous waste.

Within the West Midlands region, this study has identified 3 operational and 1 non-operational landfill sites associated with the power generation and cement manufacturing industries. Due to permitting determinations currently taking place, it was not possible to identify the potential available capacity at these sites during this study.

5.4.5 Hazardous Landfill Capacity

In relation to hazardous landfill, this study has identified that there is still currently only one authorised and operational hazardous landfill in the region, currently accepting predominantly one type of hazardous waste material.

In addition, 8 operational non-hazardous landfills are authorised to accept small quantities of hazardous waste materials that are classified as stable, non-reactive, hazardous waste (SNRHW), such as asbestos or high-concentration gypsum wastes. The amount of this material currently being deposited in the landfills is believed to be a small proportion of the overall material being deposited, and for economic reasons it is by no means certain that such capacities will be maintained into the future.

An analysis of the 2007 Hazardous Waste Interrogator showed that the West Midlands region:

- Consigned a total of 96,224 tonnes of hazardous waste to landfill, of which 39% was managed within the Region's own landfills (11,726 tonnes to hazardous landfill and 25,918 tonnes to SNRHW), and the remainder exported out-of-region for disposal, of which:

  i. 35.5% was sent to the East Midlands;
  ii. 10.1% was sent to the North West;
  iii. 8.6% was sent to the North East (8.6%); and
  iv. 5.7% was sent to the South West.

- Received a total of 16,439 tonnes from other Regions, of which the following amounts, all SNRHW, were received from the following Regions:

  i. London, 27.2%;
  ii. the East Midlands, 6.9%;
  iii. Wales, 5.3%; and
  iv. the North West 1.7%.

For the purpose of this study, it has been assumed that the status quo is maintained within the region in respect of landfill capacity for hazardous waste materials.

5.4.6 Total Landfill Capacity

Total landfill capacity for the region is summarised in Table 5.4.6 below. This shows that the capacity identified during the study is significantly less than that shown in the current Environment Agency published data.

Table 5.4.6 Total Landfill Capacity at 01 January 2009

	Environment Agency	2009 Capacity Study
Capacity At:	31 Dec 2007	01 January 2009
Authorised Capacity		
No. of Operational Sites	43	40
No. of Non-Operational Sites	187	9
Void Space (cubic metres)	83,644,000	62,546,400
Potential Capacity At Planning Obligated Sites		
No. of Sites Planning Obligations To Restore By Material Import	Not Quantified	11
Potential Void Space (cubic metres)	Not Quantified	23,100,000

There a number of differences between the figures presented in the above table, which can be explained as follows:

- *Number of operational sites* – three sites have ceased to receive large quantities of non-hazardous waste for which they are authorised, two for an inability for obtain an IPPC (now EP) and one as a result of the exhaustion of its void space capacity;

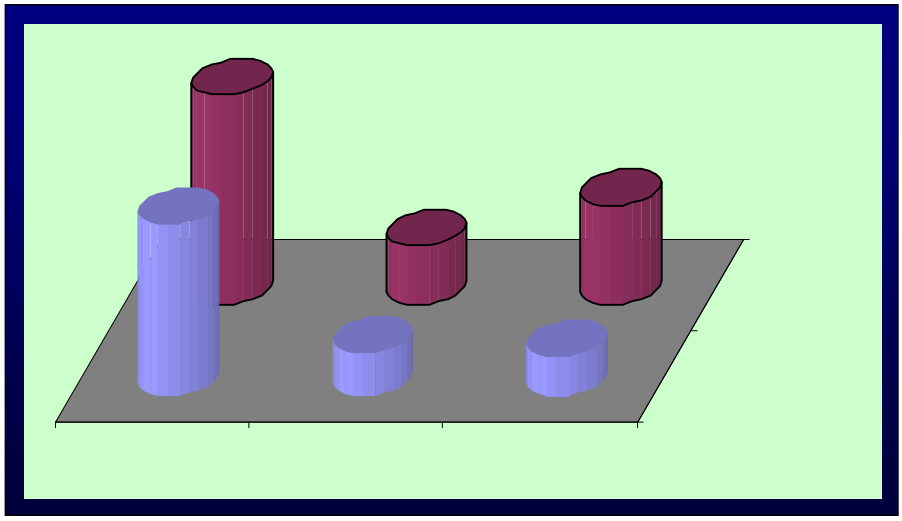
- *Number of non-operational sites* – the EA list includes all those with an extant or previous authorisation, irrespective of whether they are still to be developed/released, while the review figure excludes all those which have been closed, their authorisation surrendered, or completed, i.e. filled; and

- *Void space* – the difference can be explained by the amount of void space consumed between 01 January 2008 and 31 December 2008, together with two sites for which the nominal capacity has been removed, as this will never be realised as a result of a failure to obtain an IPPC (now EP) for reasons of failure to comply with minimum Landfill Directive requirements.

In addition, discussions with operators suggests that the question used by the EA to obtain information from them in respect of future capacities does not take planning time restrictions into account, while those figures provided by them for this review does.

The distribution of the above void capacity available for landfill capacity during the study period can be shown as:

Fig 5.4.6	Distribution of Void Capacity Across the Different Landfill Types



5.5 Capacity Scenario Development

5.5.1 WMRSS Base Case

This Scenario is based on the WSRSS growth predictions and the associated diversion targets (i.e. recovery, recycling and composting) as discussed in Section 5.2.2 above.

5.5.2 Scenario 1 – WMRSS adjusted for Economic Impact

This Scenario is based on the WSRSS growth predictions and the associated diversion targets (i.e. recovery, recycling and composting) as discussed in Section 5.2 above. In addition the model takes account of the predicted impact of economic downturn and the impact of landfill tax.

5.5.3 Scenario 2 – WS 2007 adjusted for Economic Impact

This Scenario is based on the WS2007 growth predictions and the associated WS2000 diversion targets (i.e. recovery, recycling and composting) as discussed in Section 5.2 above. In addition the model takes account of the:

- Predicted impact of economic downturn and the impact of landfill tax; and the
- Predicted one year delay in MSW infrastructure.

5.5.4 Scenario 3 – ADAS C&I Study adjusted for Economic Impact

This Scenario uses the ADAS growth predictions for C&I waste and uses the WS2007 diversion targets (i.e. recovery, recycling and composting) as discussed in Section 5.2 above. In addition the model takes account of the predicted impact of economic downturn and the impact of landfill tax.

5.6 Predicted Landfill Capacity Utilisation

Detailed predictions of landfill capacity requirements were based on a nominal placed waste density of:

- 1 tonne per cubic metre for non-hazardous waste (i.e. municipal and C&I), including a nominal allowance for daily cover; and
- 1.5 tonne per cubic metre for inert waste (i.e. C&D).

The detailed capacity requirements for each WPA over the period 2007/08 to 2030/31are given in Appendix D of this report, and the cumulative requirements for each waste type are summarised below.

5.6.1 WMRSS Base Case

The cumulative landfill capacity needs to meet the current WMRSS basis is shown in the table below.

Table 5.6.1 Cumulative Landfill Requirements – Base Case				
Planning Authority	**MSW**	**C&I**	**CD & E**	**Hazardous**
Birmingham	3407513	9575109	5301088	170265
Coventry	999374	3369853	1402567	54432
Dudley	721485	3381836	1624828	341420
Sandwell	919766	5054778	1696779	125088
Solihull	574834	1539997	805795	42567
Walsall	845957	3442334	1340493	18741
Wolverhampton	848616	2817285	1340493	264207
Met Area Sub-Total	**8317544**	**29181191**	**13512044**	**1016718**
Shropshire	804487	2843920	1589556	61719
Telford and Wrekin	606710	2671828	1463466	15345
Staffordshire	2075321	13248448	3150239	749038
Stoke-on-Trent	767496	6222816	1061262	64176
Warwickshire	1816234	5896562	2440497	108735
Worcestershire	1537554	2308230	1839485	289911
Herefordshire	595663	**33191802**	1061262	34142
Shire Area Sub-Total	**8203464**	**62372993**	**12605768**	**1323066**
West Midlands Total	**16521009**	9575109	**26117812**	**2339784**

5.6.2 Scenario 1 – WMRSS adjusted for Economic Impact

The cumulative landfill capacity needs to meet the current WMRSS basis taking account of economic impact on growth and landfill diversions (both GDP and LFT) is shown in the table below.

Table 5.6.2 Cumulative Landfill Requirements – Scenario 1				
Planning Authority	**MSW**	**C&I**	**CD & E**	**Hazardous**
Birmingham	3407513	8158289	4200440	177278
Coventry	999374	2871219	1104083	56674
Dudley	721485	2888528	1276395	355484
Sandwell	919766	4306828	1341451	130240
Solihull	574834	1312125	635686	44321
Walsall	845957	2932975	1049115	19513
Wolverhampton	848616	2400414	1049115	275089
Met Area Sub-Total	**8317544**	**24870377**	**10656285**	**1058598**
Shropshire	804487	2398112	1259552	64261
Telford and Wrekin	606710	2252997	1184900	15977
Staffordshire	2075321		2532352	779892
Stoke-on-Trent	767496	11219528	840917	66819
Warwickshire	1816234	5324989	1939819	113214
Worcestershire	1537554	5032559	1465562	301853
Herefordshire	595663	1949271	840917	35548
Shire Area Sub-Total	**8203464**	**28177455**	**10064018**	**1377565**
West Midlands Total	**16521009**	**53047833**	**20720303**	**2436163**

5.6.3 Scenario 2 – WS 2007 adjusted for Economic Impact

The cumulative landfill capacity needs to meet the WS predictions taking account of economic impact on growth and landfill diversions (both GDP and LFT) is shown in the table below.

Table 5.6.3 Cumulative Landfill Requirements – Scenario 2				
Planning Authority	**MSW**	**C&I**	**CD & E**	**Hazardous**
Birmingham	3672440	5567739	2731001	177278
Coventry	1078516	1959504	713210	56674
Dudley	718130	1963761	822823	355484
Sandwell	986299	2939254	870242	130240
Solihull	613838	895478	411518	44321
Walsall	902971	2001651	673790	19513
Wolverhampton	913386	1638197	673790	275089
Met Area Sub-Total	**8885579**	**16965583**	**6896374**	**1058598**
Shropshire	839771	1735865	818942	64261
Telford and Wrekin	643753	1630826	786489	15977
Staffordshire	2171467	7929130	1669502	779892
Stoke-on-Trent	825494		546740	66819
Warwickshire	1923884	3542964	1265055	113214
Worcestershire	1616465	3400769	957961	301853
Herefordshire	631307	1399440	546740	35548
Shire Area Sub-Total	**8652142**	**19638995**	**6591428**	**1377565**
West Midlands Total	**17537721**	**36604579**	**13487802**	**2436163**

5.6.4 Scenario 3 – ADAS C&I Study adjusted for Economic Impact

The cumulative landfill capacity needs to meet the WS predictions taking account of economic impact on growth and landfill diversions (both GDP and LFT) is shown in the table below.

Table 5.6.4 Cumulative Landfill Requirements – Scenario 3				
Planning Authority	**MSW**	**C&I**	**CD & E**	**Hazardous**
Birmingham	2446282	5250236	2731001	177278
Coventry	713559	1847762	713210	56674
Dudley	608726	1850216	822823	355484
Sandwell	679317	2771642	870242	130240
Solihull	410768	844413	411518	44321
Walsall	614553	1887506	673790	19513
Wolverhampton	610083	1544778	673790	275089
Met Area Sub-Total	**6083288**	**15996553**	**6896374**	**1058598**
Shropshire	731838	1652343	818942	64261
Telford and Wrekin	457565	1552358	786489	15977
Staffordshire	1867478	7519391	1669502	779892
Stoke-on-Trent	550627		546740	66819
Warwickshire	1378672	3326720	1265055	113214
Worcestershire	1300321	3201575	957961	301853
Herefordshire	448868	1330411	546740	35548
Shire Area Sub-Total	**6735368**	**18582798**	**6591428**	**1377565**
West Midlands Total	**12818657**	**34579350**	**13487802**	**2436163**

5.7 Predicted Total Landfill Capacity Needs

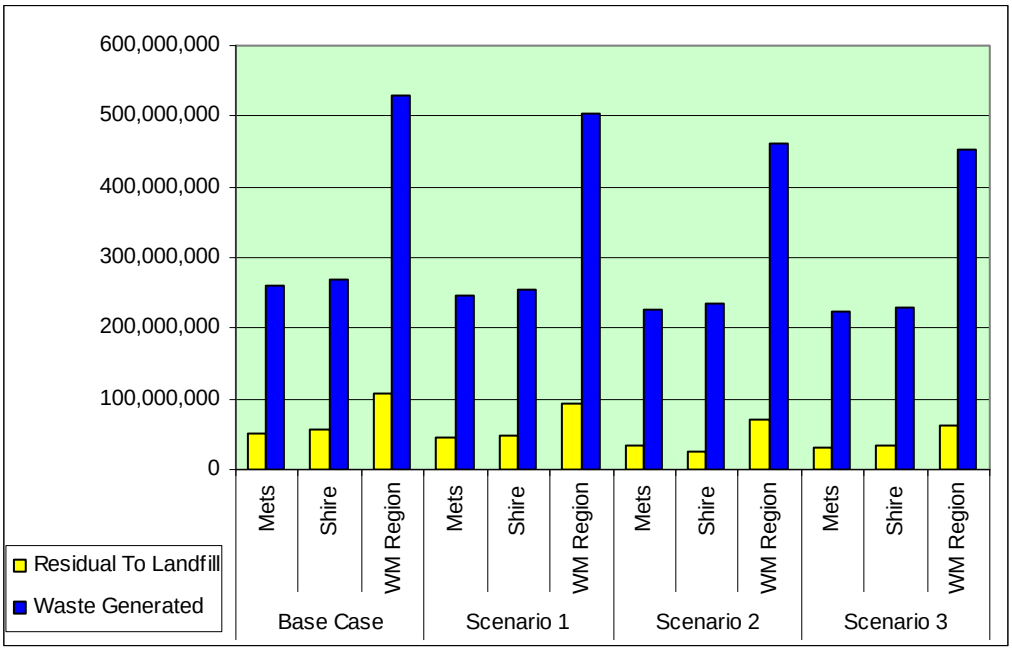
5.7.1 Total Capacity Needs

Based on a low, medium and high waste generation rates from the above growth predictions, the cumulative requirements for landfill of residual wastes can be summarised as:

Table 5.7.1: Total Cumulative Landfill Requirements 2007 - 2031, tonnes			
	Met Area	**Shire Area**	**West Midlands**
Base Case - WMRSS			
Waste Generated	259,553,510	268,756,186	528,309,696
Residual To Landfill	52,159,877	55,324,100	107,483,977
Scenario 1 – WMRSS Including Economic Impact			
Waste Generated	247,468,066	255,697,612	503,165,678
Residual To Landfill	45,035,184	47,822,502	92,857,686
Scenario 2 – WS 2007 Including Economic Impact			
Waste Generated	227,268,973	234,841,340	462,110,313
Residual To Landfill	34,002,319	36,260,130	70,262,449
Scenario 3 – ADAS C&I Study Including Economic Impact			
Waste Generated	222,643,640	229,796,037	452,439,677
Residual To Landfill	30,034,813	33,287,159	63,321,972

This can be represented graphically as:

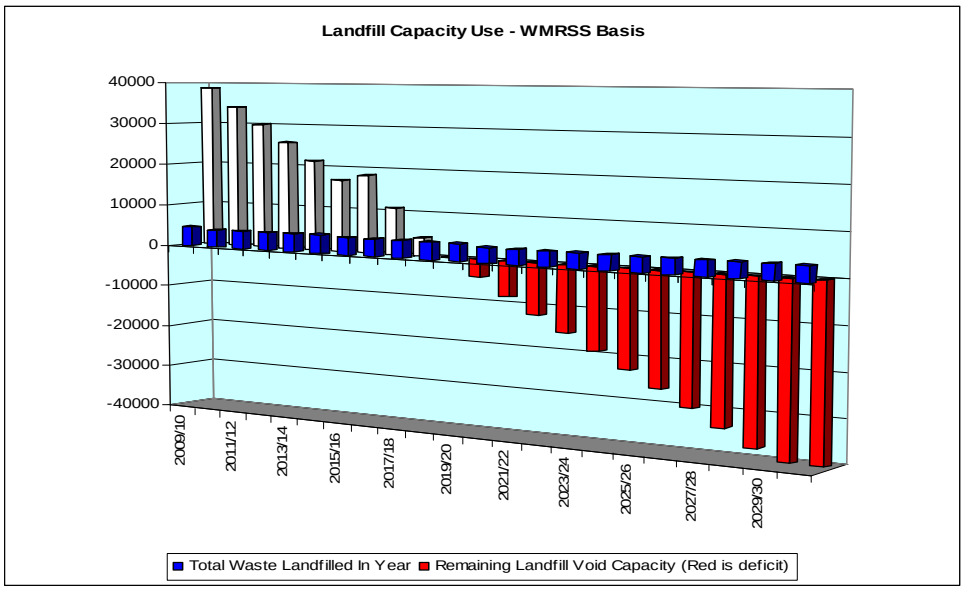
Figure 5.7.1 Total Cumulative Landfill Requirements 2007 - 2031, tonnes



5.7.2 Capacity Exhaustion – Base Case

Translating the above WMRSS capacity requirements into predicted use pattern, it has been identified that inert capacity is expected to have been exhausted by 2016/2017 and non-hazardous capacity is expected to expire in 2020/21. Inclusions of planning obligated capacity in the timescales indicated by operators had no impact on the indicated date of expiry.

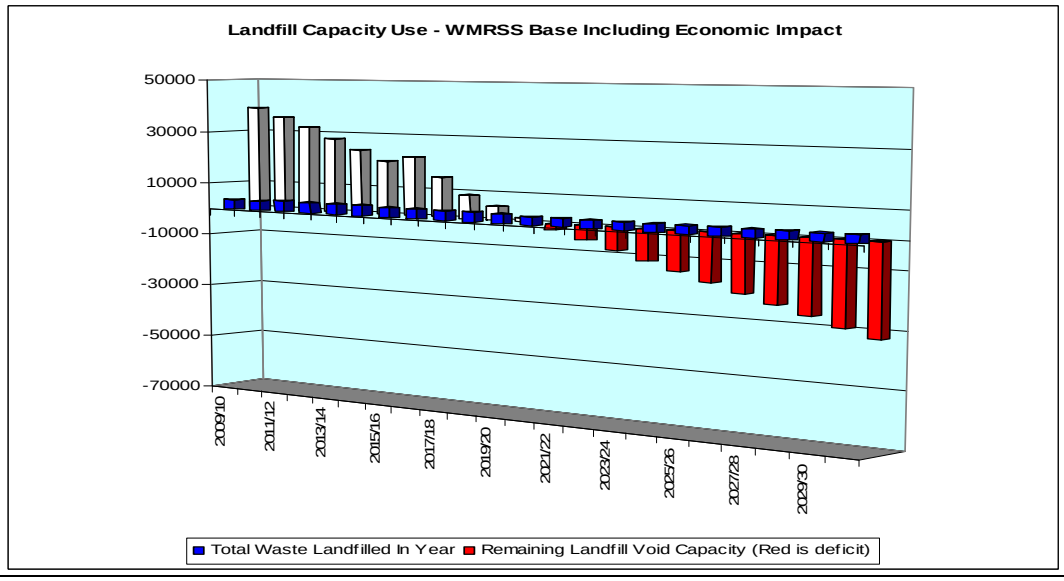
Figure 5.7.2 Capacity Expiry – Base Case



5.7.3 Capacity Exhaustion – Scenario 1 (WMRSS adjusted for Economic Impact)

Translating the above WMRSS (December 2007) capacity requirements adjusted for economic impact into predicted use pattern, it has been identified that inert capacity is expected have been exhausted by 2017/2018, while non-hazardous capacity is expected to have been exhausted by 2021/22. This is equivalent to an extra year of landfill availability. Inclusions of planning obligated capacity in the timescales indicated by operators increased non-hazardous capacity by 1 year on the indicated date of exhaustion, as the majority of this is not due to be released until well after this time.

Figure 5.7.3 Capacity Exhaustion – Scenario 1



5.7.4 Capacity Exhaustion – Scenario 2 (WS 2007 adjusted for Economic Impact)

Translating the above WS2007 capacity requirements adjusted for economic impact into predicted use pattern, it has been identified that inert capacity is expected to have been exhausted by 2023/2024, while non-hazardous capacity is expected to have been exhausted by 2025/26. This in effect provides an additional five/six years landfill capacity over the current baseline. Inclusions of planning obligated capacity in the timescales indicated by operators had no impact on the indicated date of exhaustion, as the majority of this is not due to be released until well after this time.

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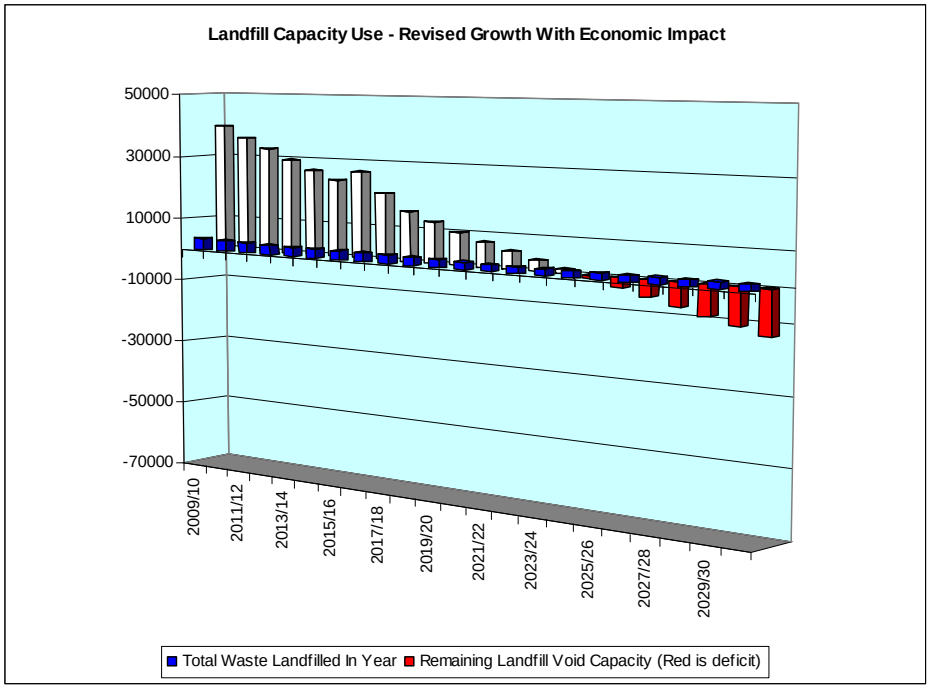
Figure 5.7.4 Capacity Exhaustion – Scenario 2



5.7.5 Capacity Exhaustion – Scenario 3 (ADAS C&I Study and Economic Impact)

Translating the above WS2007 capacity requirements adjusted for economic impact into predicted use pattern, it has been identified that inert capacity is expected to have been exhausted by 2023/2024, while non-hazardous capacity is expected to have been exhausted by 2028/29. This in effect provides an additional six/seven years landfill capacity over the current baseline. Inclusions of planning obligated capacity in the timescales indicated by operators had no impact on the indicated date of exhaustion, as the majority of this is not due to be released until well after this time.

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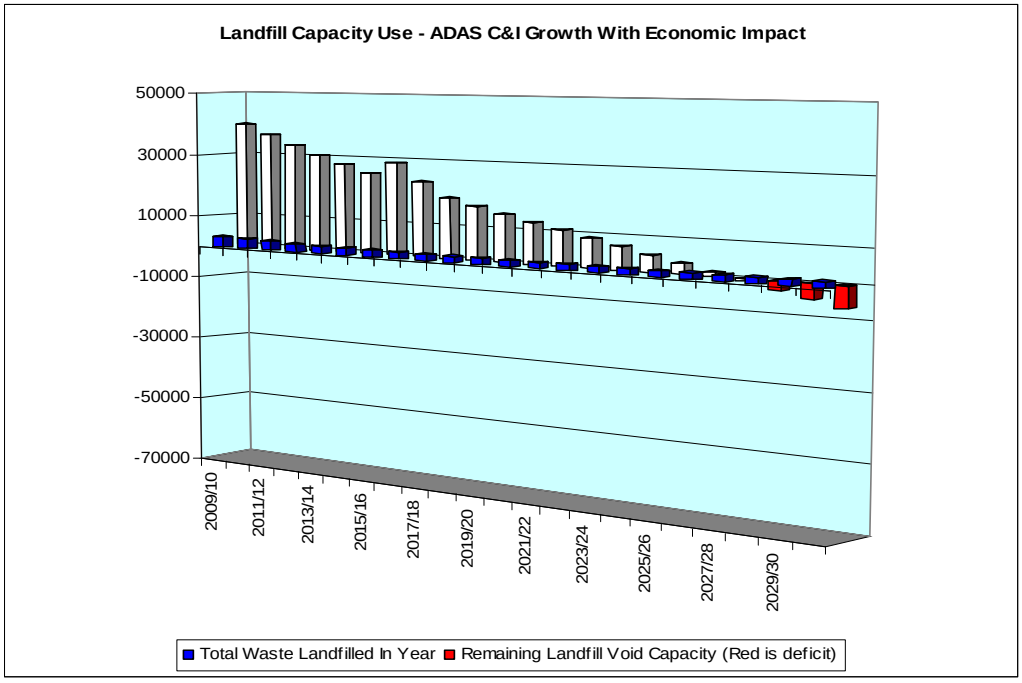
Figure 5.7.5 Capacity Exhaustion – Scenario 3



5.7.6 Planning For Capacity Needs

In respect of planning for future capacity needs, this is currently governed by the WMRSS which sets out diversion targets and aims for future capacity provision. In reviewing the outputs of the study in respect of the WMRSS, it is valid to use the outputs from Scenario 1 that take into account the current economic drivers. The indicated planning requirements on this basis are outlined below.

Inert Landfill

In respect of the inert landfill capacity in the region, the current volumes indicate approximately 6,250,000 m^3 void capacity remains. Based on the modelling undertaken using the WMRSS basis the region has sufficient capacity left for around 8 – 9 years (i.e. to 2017/18) at best.

Non-Hazardous Landfill

In respect of the non-hazardous capacity in the region, the current volumes indicate approximately 41,661,000 m^3 void capacity remains. Based on the modelling undertaken using the WMRSS basis the region has sufficient capacity left for around 11 – 12 years (i.e. to 2020/21) at best.

Hazardous

In respect of true hazardous waste capacity within the region, the current volumes indicate approximately 400,000 m^3 void capacity remains. This capacity is primarily handling a single hazardous waste stream and is therefore not available as a true merchant facility. At 2007

disposal rates there is approximately 34 years remaining life if the site continues to be operated on a restricted basis.

In respect of SNRHW capacity, accurate data on long term availability remains poor as the capacity is delivered through individual cells at non-hazardous landfills. Release of future capacity at these sites remains in the hands of the operators and is primarily driven by market forces.

In addition to the materials handled at the in-region landfills, the West Midlands currently exports around 58,500 tonnes of hazardous materials to landfills in other UK regions. This material is primarily 'true hazardous' (i.e. not capable of going to a SNRHW cell) and if this was all directed to the current hazardous landfill it would reduce the available life to around 6 years.

6 Discussion of Results

6.1 Data Availability

During this study the opportunity was undertaken to update the models using the most current validated data available at the time of writing.

However, it would be beneficial to continue to update the model with respect additional data in a number of key areas:

- Municipal waste production data is currently available to 2007 – this was a significant improvement over the last landfill study and provided a stronger base on which to predict forward growth – it is recommended that as each subsequent year's validated data set is made available that the model continues to be updated;

- It was noted during the assessment of the available MSW data sets that 2007 showed a marginal decrease in the amount of waste produced. It is too early to confirm if this was the commencement of a period of MSW growth reduction for the region and it is recommended that the trend is analysed further when the 2008 and 2009 data sets become available and the forward growth projections revised if necessary;

- For targets for the recovery, recycling and recovery of MSW, it is important to recognise that the current economic climate may have a negative impact on delivering the necessary infrastructure in time although the WMRA were developing additional projects to help deliver the infrastructure. The model will need to be kept valid with any predicted delays in achieving the relevant targets;

- Hazardous waste data is currently available to 2007 although it is recognised that only 2 years of data is available under the current regulatory regime; this means that it continues to be difficult to accurately confirm any trends in respect of management and generation of hazardous waste – as such the model should continue to be updated as each subsequent year's data is released to ensure ongoing validity of the predictions;

- Data pertaining to arisings of C&I waste streams was strengthened with the provision of a recent C&I study undertaken by ADAS for the England regions. This ADAS study provides a more recent base for C&I waste streams but it was identified that many of the regions, West Midlands included would need to revisit the growth predictors as limited information was available at the time the study was completed. It is recommended that the region looks to establishing a new growth basis for C&I waste by taking forward the ADAS study within its boundaries;

- Data pertaining to arisings of CD&E waste streams continues to be poor, and it is recommended that the region looks to establishing a new basis by reviewing the actual arisings from within its boundaries; and

- Information pertaining to agricultural waste remains extremely limited, and is unlikely to be available in a useable format for trend analysis until recent legislative changes become established – once data relating to the ongoing management of this waste stream is released, WMRA should evaluate the landfill capacity requirements.

6.2 External Drivers

This study has in part attempted to interpret the expected impact of a number of external influences on the expected capacity utilisation, and these are summarised in Table 6.2 to follow. It should however, be noted that to separate the anticipated impact into the individual drivers is virtually impossible, as most drivers have an inter-relationship, for example. new legislation aimed at minimising landfill deposits will support the fiscal intention of taxes such as LFT.

In delivering the updated models, anecdotal evidence from the operators and other general industry sources indicate the reduction in landfill inputs currently being experienced is most likely to be a combination of primarily fiscal drivers (i.e. economic growth, and to a lesser extent landfill tax) and (perhaps to a lesser extent) new diversion schemes starting to come into effect (e.g. use of new WRAP quality protocols, site waste management plans etc). As such the models are mainly believed to reflect the impact of the fiscal drivers, as the impact of the other factors are unlikely to become evident for at least 1 – 2 years, particularly while the economy stabilises and new schemes take effect.

Table 6.2 Anticipated Impact of External Drivers on Landfill Demand

Driver	Issue	Expected Impact	
		Capacity Availability	Inputs
Legislation	Landfill Directive – need for pre-treatment	+	-
	Environmental Permitting – exemption changes	-	+
	Site Waste Management Plans	++	-/-
	LATs	+++	-/-/-
	Other Waste Specific Changes (e.g. WEEE)	++	-/-
Strategy	National	+++	-/-/-
	Regional	++	-/-
Economic	Landfill tax	++	-/-
	Aggregates tax	+	-
	Economy	+	-
Sector Initiatives	Construction	+	-
	Commercial and Industrial	+	-
	Chemical	+	-

6.3 Capacity Implications

In developing the capacity utilisation model, the number of potential scenarios has been reduced from the 9 used in the previous study, but all scenarios continue to remain dependant on the different growth and diversion predictions employed. During this review study, all models were brought up-to-date with the most current data sources available, and account was taken on the expected influence of external factors.

Following a detailed review of the predictions, it was possible to conclude that:

a. The development of a site as a future landfill void continues to be dependant upon the identified site meeting criteria specified by the Planning Authorities, the Environment Agency and the site operators;

b. The influence of the criteria specified by the Environment Agency, particularly in relation to the potential impact on ground water (i.e. RGN 3), will continue to be the key determining factor on the suitability of a site for landfill development; as such future new landfill void

capacity is most likely to be restricted to areas within the region with clay as the main geological strata;

c. Operator influence on the availability of void capacity continues to be critical, and any potential site will have to meet operator-defined criteria relating to financial feasibility, liability/risk management, operational restrictions and stakeholder management – this study reconfirmed that all current non-operational landfill void capacity and potential capacity at planning-obligated mineral sites will only be released for use in phases determined by the operator providing the overall feasibility of the site is maintained into the future;

d. The release of future landfill capacity will be heavily impacted by the current economic climate on the brick and other associated industries, and indications obtained during the study showed that existing sites that have potential planning obligated capacity are likely to be delayed for at least 5 years in releasing that capacity;

e. The level of permitted landfill capacity in the region has decreased from the excess of 72 million cubic metres in 2007 to around 62.5 million cubic metres in January 2009. – potential additional future capacity from planning obligated mineral sites remains around 23 million, although at least 15 million cubic metres is not expected to be released until after 2035;

f. Diversion, recycling and recovery targets for municipal waste streams were based on national strategy WS2000 targets, and the current WMRSS does not take into consideration the revised targets for all waste streams presented in the revised WS2007 strategy – evidence from Scenario 2 and Scenario 3 indicated that if the Region was in a position to realign the regional strategy with WS2007 and thereby achieve the more demanding diversion targets, then overall landfill capacity within the region could potentially be extended by at least 4 – 5 years (i.e. until at least 2023/24) and dependant on revised C&I growth predictions could potentially be extended by about 7 – 8 years (ie until 2027/2028);

g. The availability of landfill capacity should continue to be a significant determining factor for future strategy development – this study has reaffirmed the previous conclusion that non-operational capacity and planning obligated capacity will only become available in phases at the discretion of the operator, and as such, availability is by no means guaranteed particularly in the current economic climate; and

h. The availability of additional landfill capacity released from future mineral sites or extensions to existing mineral sites was also assessed – it was identified that in a number of occasions, new applications for mineral sites submitted during the period between the two studies were to be restored to a low-level without the importation of waste, even at sites located adjacent to existing landfills, and it is felt that this has possible long term future implications for the development of landfill capacity in the region.

6.4 Capacity Distribution

There has been no significant change to the distribution of capacity within region since the last study.

6.5 Policy Considerations

6.5.1 Net Self-Sufficiency

Data reviewed during this study confirms that to seek to move towards complete self-sufficiency at a Regional level for landfill is considered to be impractical – commerce and infrastructure availability elsewhere throughout England and Wales will essentially render this unachievable.

However, as a matter of policy, a formal declaration of whether the Region wishes to move towards some degree of self-sufficiency in respect of waste disposal via landfill ought to be considered and adopted.

It is therefore considered that to move towards a revised definition of self-sufficiency, 'net self-sufficiency' ought to be adopted, where 'net self-sufficiency' in this instance is defined as 'providing for the management in-region of an amount of waste equivalent to that exported to other regions for landfill disposal'.

It is felt that targets for attaining net self-sufficiency ought to be adopted over the next 5 years, although information to allow this to be judged is not readily available from within the EA, this ought to be provided over a similar timescale.

It is considered that the adoption of an aspirational move towards net self-sufficiency would demonstrate regional commitment towards sustainable waste management, as espoused by PPS10. This commitment could then be reflected in emerging waste development frameworks, with their possible allocation of site-specific activities.

6.5.2 New Growth and Diversion Basis

It is noted that in WS2007, the diversion targets for MSW higher than they were in WS2000. If the region chose to realign its RSS commitments more in this direction, treatment capacity and delivery notwithstanding, landfill capacity needs would be reduced, which would extend capacity in the order of 4 to 5 years (i.e. until 2023/24).

Modelling undertaken as part of this study has assumed that the RSS commitment to C&I diversion is maintained at WS2000 levels, whereas any proposal to realign these with WS2007 targets would result in a decrease in diversion amounts. As above, until the region takes a definite decision on which Waste Strategy commitment it seeks to mirror, modelling of this is not considered appropriate.

For C, D&E wastes, new targets associated with the concept of halving the amount of these wastes sent to landfill will reduce the landfill capacity required. Again, until the region takes such a decision, modelling of this is not considered appropriate although the potential impact is believe to be significant.

6.5.3 Provision of New Capacity

In the short-term, the modelling presented above strongly suggests that new landfill capacity will not be needed on a Regional basis until at least 2019/2020 although efforts to deliver this as actual available void will need to start in sufficient time to allow an effective lead to account for any model uncertainty and satisfaction of planning and regulatory requirements. As such it is

considered that the additional releases ought to begin to be considered at or around 2014/2015, in order to avoid capacity gaps and the uncertainty they bring.

It will be equally important to ensure that an over-release of (relatively) cheap void space too early is avoided as this could result in a perverse reaction in respect of the development of alternative management methods (i.e. it could well delay their release, especially in times of economic hardship).

It is also recognised from increasingly strong anecdotal evidence, that the investment programs of waste management companies, both 'traditional' and new-comers, are being scaled back in the light of slowing growth and a tightness in the money markets, particularly for those projects not underwritten by a PFI/PPP contribution. This is not only directly related to how operators may view the commercial risks associated with capital-intensive ventures, such as either a new landfill or a new treatment facility, but also how the construction industry views any potential recovery.

This is particularly important in respect of the continued release of medium- and long-term capacity associated with brickworks, as, even though the majority of this release lies in 2035 and beyond, there are significant reserves which are due to be released before this in order to ensure continuity at a number of key sites. In addition, should the economic climate dictate that brick-clay pits are deemed un-economic, it is always possible that what is regarded in this review as a potential long-term, significant, release could be transferred into shorter-term, less significant release, with contingent knock-on effects.

It is therefore critical that the WMRA closely monitor this situation and proactively engage with the waste and mineral operators to ensure that the capacity indications provided in this study remain valid.

6.5.4 Engaging Industry

As a result of both the apparent non-release of incoming mineral reserves, the above possible delays in continuity reserves and possible uncertainties associated with the real availability of brick-clay reserves, it is considered essential that the WMRA, through its RTAB, engages in continual discussion with both the waste and minerals industries.

It is considered essential that the RTAB maintains an accurate and real-time position of the rate of consumption of current, and the timing of future releases of, landfill capacity.

As a result of possible delays in investment programs, it is considered essential that the RTAB and the investment arm of the Regional government, maintain an accurate and real-time position of the emerging status of individual projects, and where necessary assists in whatever way appropriate and possible.

7 Conclusion

7.1 Current Landfill Capacity

The review of the Landfill Capacity Study for the West Midlands using the most recent data sets and feedback from operators has confirmed that overall landfill capacity has decreased from around 72 million cubic metres in 2007 to around 62.5 million cubic metres in 2009.

The total capacity includes 13.6 million cubic metres of non-operational capacity that is not currently available to accept waste and the future release of this capacity will be dependant on the business decisions made by the individual site operators.

In addition to the current capacity, a further 23 million cubic metres of potential void space at mineral sites with a planning obligation to restore by import of materials. It was confirmed in the study that:

- 15 million cubic metres of the potential capacity is not expected to be released until after 2035 and as late as 2050;
- The 8 million cubic metres that could potentially be released during the period covered by this study will be greatly impacted on the viability and future plans surrounding the brick industry. The current indications are that the release of this potential capacity will be delayed by at least 5 years;
- Recent planning applications by mineral operators indicate that there is a move by the industry to avoid restoration by material import for future developments and this could have significant implications for landfill capacity in the long term (ie beyond 2030).

7.2 Future Capacity Requirements

The study confirmed that delivery of new waste infrastructure and meeting diversion targets in line with the WMRSS would leave a landfill capacity requirement for the period 2007 to 2031 of around 92.9 million cubic metres once the impact of economic drivers was considered. On this basis the study confirmed that a shortfall in overall capacity would occur around 2019/2020.

Further analysis identified that:

- If the region were in position to realign with the WS2007 growth predictions (Scenario 2) that the landfill capacity requirements for the region would reduce to around 70.3 million cubic metres, with the shortfall occurring around 2023/24; and
- If further analysis of the C&I waste arising confirmed the ADAS study growth predictions (Scenario 3) for the region and the MSW diversion targets for WS2007 could be met, then the landfill capacity requirements would reduce to around 63.3 million cubic metres and the shortfall would occur around 2027/28.

7.3 Providing New Future Capacity

The study has identified that the worse case for provision of new landfill capacity is 2019/2020 when the WMRSS forward predictions indicate that total capacity will expire. In order to deliver capacity in sufficient time to meet this capacity gap, the Regional Assembly and associated planning authorities will need to balance:

- Lead times sufficient to convert planned capacity into actual void space while meeting both planning and regulatory requirements;
- Avoiding the over-release of relatively cheap void space too early thus providing an incentive for over reliance on landfill and negatively impacting on delivery of other infrastructure;
- Economic impacts on delivery of new waste treatment and recovery infrastructure that could result in delivery delays and drive a short term over reliance on landfill; and
- Economic impact on the release of landfill capacity by the operators that could result in both non-operational and potential new capacity not being realised.

Based on the information provided during the study (both anecdotal and actual data) the current indications are that operators/authorities should look to progress the release of additional capacity from about 204/15. This situation should however, continue to be closely monitored as the full impact of the economic crisis is realised and there will need to be an ongoing proactive dialogue between the authorities and the operators.

7.4 Policy Considerations

From the outcomes of the study, it was possible to make a number of recommendations in respect of policy considerations, namely:

- The region should consider adopting a policy of 'net self-sufficiency' in respect of landfill capacity where this is defined as *'providing for the management in-region of an amount of waste equivalent to that exported to other regions for landfill disposal';*
- The region should consider the revision of the landfill diversion targets in line with WS2007 in light of regional infrastructure support and delivery projects;
- Proactive engagement of both the waste and the mineral operators in the region to ensure that there is adequate landfill capacity available going forward and that the timing of new capacity release is optimised in respect of commercial, regulatory and planning terms; and
- The Regional Assembly and its partners should consider establishing a more accurate basis for both C&I waste and CD&E waste within its boundaries in order to improve future planning for infrastructure for the management (treatment, recovery or disposal) of these waste streams.

7.5 Study Updates

Section 6.1 highlights ongoing issues with the availability of accurate data and trend analysis. It is recommended that the study continues to be updated as new information becomes available.

Appendix A Glossary

Biodegradable waste	Waste that is capable of decomposing through the action of bacteria or other microbes. This includes material such as paper, food waste and green garden waste.
Construction & Demolition Waste	Waste arising from the construction, repair, maintenance and demolition of buildings and structures, including roads. It consists mostly of brick, concrete, hardcore, sub-soil and topsoil, but can also contain quantities of timber, metal, plastics and occasionally hazardous waste materials.
ELV	End of Life Vehicle - scrap cars and other vehicles.
EU Directive	A European Union legal instruction that is binding on all Member States and is translated through the implementation of national legislation on a prescribed time-scale.
Environment Agency (EA)	The principal environmental regulatory body in England and Wales. Responsible for promoting improvements in waste management, permitting waste management facilities including landfills and ensuring consistency in regulation across England and Wales.
Hazardous Waste	Broadly any waste on the European Hazardous Waste list that has one or more of fourteen hazardous properties.
Landfill	This is a waste management facility incorporating the engineered deposit of waste into or onto (land raise) land.
Local Development Framework (LDF)	LDF is the term used to describe a group of documents produced by the Local Planning Authority detailing: • Development plan documents • Supplementary planning documents • Statement of community involvement • Local development scheme • Annual monitoring reports
Merchant Landfill	A landfill run as a commercial operation that receives waste from many producers.
Municipal Waste	Household and other wastes collected by a caste collection authority or its nominated contractor.
Operational Landfill	These fully authorised facilities were operational at the time of the study and were accepting waste. The capacity at these facilities was assumed to be available without restriction for the purpose of this study.

Non-operational Landfill	These facilities were fully authorised (either PPC or WML) at the time of the study but were deemed to be pre-operational or non-operational. These sites were not accepting waste and for the purpose of the study the capacity could not be deemed to be available without restriction as the decision to bring the capacity on-line will be dependant on commercial, operational or other factors outside the control of the WMRA.
Planning Obligated Site	Existing mineral sites that have a planning obligation to restore the site by the import of materials. Such imported material used at a future date, may or may not include waste - any site to be used for future landfill capacity will need to go through a PPC permitting process before it can accept waste.
Planning Policy Statement (PPS)	A new system of Government planning advice replacing earlier Government planning guidance on specific topics (eg. PPS 10 Planning For Sustainable Waste Management.
Pollution Prevention and Control (PPC)	This is the new regulatory system for the permitting of specified waste management activities including landfills. These regulations supersede the earlier WML Regulations for many waste management activities and continue to be regulated by the Environment Agency.
Regional Spatial Strategy (RSS)	The strategy for the region over a 15 - 20 year time prepared by the Regional Planning Body. The RSS identifies scale and distribution of new housing, regeneration areas, along with priorities for environment, transport, infrastructure, economic development, minerals, waste management and agriculture.
Regional Technical Advisory Body (RTAB)	Provides specialist advice on waste to the Regional Planning Body in relation to the issues, options and strategies for managing waste produced within the region.
Restricted Landfill	A landfill that is used only by the site operator for specific waste streams associated with a particular industrial process.
SWMA	Strategic Waste Management Assessment published by the Environment Agency.
Unitary Authority	A single local authority that has the responsibilities of waste planning, collection and disposal.
WEEE	Waste Electrical and Electronic Equipment as defined by the EU Directive.
Waste Collection Authority (WCA)	A local authority (i.e. district, borough or unitary) responsible for the collection of household waste within its area.
Waste Disposal Authority (WDA)	A local authority (i.e. a county or unitary) responsible for the management of the waste collected and delivered to its constituent collection authorities. The processing and /or final disposal of the waste is normally contracted to the private sector

	waste management industry.
Waste Management Industry	Private sectors businesses involved in the collection, treatment, and final disposal of waste.
Waste Management Licensing (WML)	This is the system of licensing used to regulate waste management activities, ensuring that operations are carried out in such a way to protect the environment and human health. This system is regulated by the Environment Agency. Many waste treatment and disposal activities originally permitted under this system are now regulated under the newer Pollution Prevention and Control Regulations.

Appendix B Modelling Assumptions (Base Case)

1. Municipal Waste Assumptions:

In preparing projections of the future generation and management of MSW, the following assumptions have been made:

***Waste Quantity*:**

- The number of new dwellings which are expected to be built using the latest WMRSS projections (December 2007) have been converted to numbers of new households for each Strategic Planning Authority by making an allowance for demolitions and unoccupied dwellings;
- The average number of new households over the forecast period (2001 – 2031) is then converted into an average annual household growth rate (by WPA) by dividing average annual growth into the number of households in 2003 (taken from 2006 Government projections);
- Since the generation of municipal waste is closely related to the number of households, these average annual household growth rates are taken as a proxy of the rate of growth of municipal solid waste (MSW). The growth rates are therefore applied to the latest household waste data (2007-8) in order to generate annual projections of the quantity of MSW;
- Since the quantity of MSW is currently growing faster than the number of households, it has been assumed that MSW will grow at the annual household growth rate in each area, plus 1% for the period until 2010/11;
- From 2011, waste growth is assumed to fall to a level consistent with the household growth rate;
- The projections assume 68% of municipal waste is biodegradable (for consistency with the Waste and Emissions Trading Act);

Waste Management:

- Waste composted is based on actual data for the latest year available (2007/08), followed by incremental increases to 30% of recycling targets by 2010. Composted waste is assumed to be 100% biodegradable;
- Waste recycled is based on actual data where available, increased to reach 30% of recycling targets by 2010. Recycled waste is assumed to be 50% biodegradable;
- The projections assume that the targets for recycling set out in “Waste Strategy 2000” and that Best Value performance standards, along with any ‘stretch targets’ that apply following a Public Service Agreement between individual local authorities and central Government will be met; The projections do not apply national recovery targets, but assume that Landfill Directive targets for biodegradable municipal waste (taken from provisional LATS allowances prepared by DEFRA in July 2004) will be met;
- The level of municipal waste requiring diversion away from landfill has been calculated from the combined requirements of national recycling targets and LATS allowances for biodegradable municipal waste;

- The capacity required to attain these standards is based on an assumption that the quantity of waste diverted represents 80% of throughput for recycling and 70% of throughput for other forms of waste treatment;

- The quantity of residual waste which will require further management or disposal to landfill has been calculated by deducting the quantity requiring diversion from the total arising for that year.

2. Industrial & Commercial Waste Assumptions

In preparing projections of the future generation and management of Industrial & Commercial waste, the following assumptions have been made:

Waste Quantity:

- The 2002 base quantities for each Strategic authority area are derived from the WMRA Phase 2 Capacity Study (excluding 'Special waste' arising) and not from EA survey data for 2002/03 because this was not available broken down into individual WPA areas. There is a 0.3mt difference between the two sources for the region as a whole for this year (the EA survey data is higher, but this may reflect the fact that they were measuring how waste was managed in these areas, rather than where it was generated);

- The quantities of waste indicated in the table for the years from 2002 have been calculated using the assumptions adopted by the Government in the National Waste Strategy Review (Feb 2006), which reflect predicted economic growth and changes in the sectoral mix of the UK economy. The quantity of waste has not been included as a variable and therefore remains constant for all three performance based options;

- The projections assume that 1998-99 imports and exports as shown in the Environment Agency's 'Strategic Waste Management Assessment' remain unchanged, with a reduction to allow for Special Waste movements in 1998.

Waste Management:

- The level of municipal waste requiring diversion away from landfill for each of the three performance options has been calculated using the performance standards shown in the table below:

Diversion from Landfill as a % of total commercial and Industrial waste	**Existing Performance 2002* %**	**2010 %**	**2015 %**	**2020 %**	**2025 %**
WMRSS (December 2007)	58	45	67		
WS 2007	58	53	67	75	75

* Existing Performance measured using average quantity of I&C waste landfilled in the region (EA SWMA Update 2002-03) as a proportion of the projected quantity of I&C waste arising in the region (Phase 2 Capacity Report)

- The capacity required to attain these standards is based on an assumption that the quantity of waste diverted represents 80% of throughput for recycling and 70% of throughput for other forms of waste treatment;

- The quantity of residual waste which will require further management or disposal to landfill has been calculated by deducting the quantity requiring diversion from the total arising for that year.

3. Cumulative Requirement for Municipal Commercial & Industrial (MCI) Waste: Assumptions

- The cumulative quantity of landfill required for each strategic authority area for the period 2007 – 2026 has been calculated by combining the quantities of residual Municipal, Industrial and Commercial waste and Construction, Demolition and Excavation Waste.

4. Hazardous Waste Assumptions

In preparing the growth prediction for hazardous waste, the following assumptions have been made:

- **Projected future generation** is determined using the 2007/08 data from the Hazardous Waste Interrogator database. Projections of waste arising assume that there will be a reduction of 2% per annum to reflect waste minimisation efforts, and static after 2010. Imports and exports to the Region are assumed to be static. Assumptions have been applied pro-rata to individual sub-regional authorities.

5. Commercial and Demolition Waste Assumptions

In preparing the growth prediction for construction and demolition waste, the following assumptions have been made:

- **Projected Future Arisings** has been derived from the Symonds/ODPM 2005 report using a dis-aggregation index based on WMRSS (December 2007) on predicted housing development rates. The quantity of C& D waste is assumed to change in line with the levels of housing development based on 8% reduction 2000 - 2007, 4% reduction 2007 -2011 and static from 2011 – 2021;

- **Landfill Disposal** as taken from the Symonds/ODPM 2005 report, is assumed to be land disposal + 90% of unrecorded waste + a proportion of waste transferred consistent with the overall proportion disposed/recovered. The projection maintains landfill at 2005 rates (approximately 11.7% of arisings) and material sent to landfill is assumed to require capacity at inert landfills.

Appendix C Detailed Growth Predictions

BASE CASE

Municipal	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	CUM.
Birmingham	573548	583365	593349	603505	607799	612124	616479	620866	625284	629733	634214	638727	643272	647849	652459	657101	661777	666486	671229	676005	680815	685659	690538	695452	15367635
Coventry	171749	174508	177311	180160	181252	182351	183457	184569	185689	186815	187948	189087	190234	191387	192548	193716	194890	196072	197261	198457	199661	200872	202090	203315	4545399
Dudley	146729	149176	151663	154192	155221	156257	157300	158350	159407	160471	161542	162620	163706	164798	165898	167006	168120	169243	170372	171509	172654	173806	174967	176134	3911143
Sandwell	142504	145090	147723	150403	151629	152864	154109	155365	156630	157906	159193	160490	161797	163115	164444	165784	167134	168496	169869	171252	172648	174054	175472	176901	3864873
Solihull	100475	102021	103591	105186	105753	106323	106896	107472	108051	108634	109219	109808	110400	110995	111593	112195	112800	113408	114019	114634	115251	115873	116497	117125	2638219
Walsall	138382	140709	143075	145480	146471	147469	148474	149486	150504	151530	152562	153602	154649	155702	156763	157831	158907	159990	161080	162177	163282	164395	165515	166643	3694679
Wolverhampton	142417	144841	147306	149813	150865	151924	152991	154065	155146	156235	157332	158437	159549	160669	161797	162933	164077	165229	166389	167557	168733	169917	171110	172311	3811644
Met Area Total	***1415804***	***1439709***	***1464019***	***1488739***	***1498990***	***1509313***	***1519707***	***1530173***	***1540712***	***1551325***	***1562011***	***1572771***	***1583606***	***1594517***	***1605503***	***1616566***	***1627705***	***1638922***	***1650217***	***1661591***	***1673044***	***1684576***	***1696189***	***1707882***	**37833591**
Shropshire	174694	177891	181146	184461	185992	187536	189093	190662	192245	193840	195449	197071	198707	200356	202019	203696	205387	207091	208810	210543	212291	214053	215829	217621	4746485
Telford and Wrekin	93553	95859	98221	100642	102116	103612	105129	106669	108231	109816	111425	113057	114713	116393	118097	119827	121582	123363	125170	127003	128863	130750	132665	134608	2741363
Staffordshire	469775	477365	485077	492913	495948	499001	502072	505163	508272	511401	514549	517717	520904	524110	527336	530582	533849	537135	540441	543768	547115	550483	553872	557281	12446129
Stoke-On-Trent	130534	132600	134698	136830	137627	138429	139235	140046	140862	141682	142508	143338	144173	145013	145857	146707	147562	148421	149286	150155	151030	151910	152795	153685	3444982
Warwickshire	303773	308943	314200	319548	321790	324049	326323	328613	330920	333242	335581	337936	340308	342696	345101	347523	349963	352419	354892	357383	359891	362417	364960	367522	8129993
Worcestershire	299863	304496	309200	313977	315688	317409	319139	320878	322627	324385	326153	327930	329717	331514	333321	335137	336964	338800	340647	342503	344370	346246	348133	350031	7879127
Herefordshire	96039	97818	99630	101476	102341	103214	104094	104982	105877	106779	107690	108608	109534	110468	111410	112360	113318	114284	115258	116241	117232	118232	119240	120257	2616384
Shire & Unitary Total	***1568231***	***1594971***	***1622174***	***1649848***	***1661503***	***1673248***	***1685085***	***1697013***	***1709033***	***1721147***	***1733354***	***1745657***	***1758055***	***1770550***	***1783143***	***1795833***	***1808623***	***1821513***	***1834504***	***1847597***	***1860792***	***1874091***	***1887495***	***1901004***	**42004463**
West Midlands Total	***2984035***	***3034680***	***3086192***	***3138587***	***3160493***	***3182561***	***3204792***	***3227186***	***3249745***	***3272471***	***3295365***	***3318428***	***3341661***	***3365067***	***3388646***	***3412399***	***3436328***	***3460435***	***3484721***	***3509188***	***3533836***	***3558667***	***3583684***	***3608886***	**79838054**

CD& E Waste	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	CUM.
Birmingham	1870147	1851445	1832931	1814602	1814602	1893176	1893176	1893176	1893176	1893176	1893176	1893176	1893176	1893176	1893176	1893176	1893176	1893176	1893176	1893176	1893176	1893176	1893176	1893176	45154068
Coventry	404897	400848	396839	392871	392871	524136	524136	524136	524136	524136	524136	524136	524136	524136	524136	524136	524136	524136	524136	524136	524136	524136	524136	524136	11946912
Dudley	436336	431972	427653	423376	423376	615652	615652	615652	615652	615652	615652	615652	615652	615652	615652	615652	615652	615652	615652	615652	615652	615652	615652	615652	13840100
Sandwell	561139	555528	549973	544473	544473	615652	615652	615652	615652	615652	615652	615652	615652	615652	615652	615652	615652	615652	615652	615652	615652	615652	615652	615652	14452972
Solihull	249607	247111	244640	242193	242193	296733	296733	296733	296733	296733	296733	296733	296733	296733	296733	296733	296733	296733	296733	296733	296733	296733	296733	296733	6863674
Walsall	311532	308417	305333	302280	302280	520438	520438	520438	520438	520438	520438	520438	520438	520438	520438	520438	520438	520438	520438	520438	520438	520438	520438	520438	11418172
Wolverhampton	311532	308417	305333	302280	302280	520438	520438	520438	520438	520438	520438	520438	520438	520438	520438	520438	520438	520438	520438	520438	520438	520438	520438	520438	11418172
Met Area Total	***4145191***	***4103739***	***4062701***	***4022074***	***4022074***	***4986226***	***4986226***	***4986226***	***4986226***	***4986226***	***4986226***	***4986226***	***4986226***	***4986226***	***4986226***	***4986226***	***4986226***	***4986226***	***4986226***	***4986226***	***4986226***	***4986226***	***4986226***	***4986226***	**115094071**
Shropshire	561139	555528	549973	544473	544473	567583	567583	567583	567583	567583	567583	567583	567583	567583	567583	567583	567583	567583	567583	567583	567583	567583	567583	567583	13539663
Telford and Wrekin	828848	820559	812354	804230	804230	441864	441864	441864	441864	441864	441864	441864	441864	441864	441864	441864	441864	441864	441864	441864	441864	441864	441864	441864	12465642
Staffordshire	1558615	1543028	1527598	1512322	1512322	1009447	1009447	1009447	1009447	1009447	1009447	1009447	1009447	1009447	1009447	1009447	1009447	1009447	1009447	1009447	1009447	1009447	1009447	1009447	26833384
Stoke-On-Trent	374410	370666	366960	363290	363290	379005	379005	379005	379005	379005	379005	379005	379005	379005	379005	379005	379005	379005	379005	379005	379005	379005	379005	379005	9039710
Warwickshire	935550	926194	916932	907763	907763	852299	852299	852299	852299	852299	852299	852299	852299	852299	852299	852299	852299	852299	852299	852299	852299	852299	852299	852299	20787882
Worcestershire	747868	740390	732986	725656	725656	631367	631367	631367	631367	631367	631367	631367	631367	631367	631367	631367	631367	631367	631367	631367	631367	631367	631367	631367	15668523
Herefordshire	374410	370666	366960	363290	363290	379005	379005	379005	379005	379005	379005	379005	379005	379005	379005	379005	379005	379005	379005	379005	379005	379005	379005	379005	9039710
Shire & Unitary Total	***5380840***	***5327032***	***5273762***	***5221024***	***5221024***	***4260570***	***4260570***	***4260570***	***4260570***	***4260570***	***4260570***	***4260570***	***4260570***	***4260570***	***4260570***	***4260570***	***4260570***	***4260570***	***4260570***	***4260570***	***4260570***	***4260570***	***4260570***	***4260570***	**107374514**
West Midlands Total	***9526031***	***9430771***	***9336463***	***9243098***	***9243098***	***9246796***	***9246796***	***9246796***	***9246796***	***9246796***	***9246796***	***9246796***	***9246796***	***9246796***	***9246796***	***9246796***	***9246796***	***9246796***	***9246796***	***9246796***	***9246796***	***9246796***	***9246796***	***9246796***	**222468584**

C & I Waste	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	CUM.
Birmingham	950773	956101	961579	967208	1002789	1040661	1080976	1123895	1169590	1247190	1332924	1427652	1532328	1648007	1648007	1648007	1648007	1648007	1648007	1648007	1648007	1648007	1648007	1648007	32921738
Coventry	334614	336489	338417	340398	352920	366249	380437	395542	411624	438935	469108	502446	539286	579997	579997	579997	579997	579997	579997	579997	579997	579997	579997	579997	11586438
Dudley	340010	341916	343875	345888	358612	372156	386573	401922	418263	446014	476674	510551	547985	589353	589353	589353	589353	589353	589353	589353	589353	589353	589353	589353	11773326
Sandwell	501921	504733	507625	510597	529380	549373	570656	593313	617436	658402	703661	753669	808929	869996	869996	869996	869996	869996	869996	869996	869996	869996	869996	869996	17379655
Solihull	152916	153773	154654	155559	161282	167373	173857	180760	188109	200590	214379	229614	246449	265054	265054	265054	265054	265054	265054	265054	265054	265054	265054	265054	5294913
Walsall	341811	343727	345696	347720	360511	374127	388620	404050	420478	448376	479198	513253	550885	592472	592472	592472	592472	592472	592472	592472	592472	592472	592472	592472	11835648
Wolverhampton	279746	281314	282925	284582	295051	306194	318056	330684	344129	366961	392186	420058	450857	484893	484893	484893	484893	484893	484893	484893	484893	484893	484893	484893	9686567
Met Area Total	***2901792***	***2918053***	***2934771***	***2951953***	***3060545***	***3176132***	***3299175***	***3430166***	***3569628***	***3806468***	***4068129***	***4357243***	***4676718***	***5029774***	***5029774***	***5029774***	***5029774***	***5029774***	***5029774***	***5029774***	***5029774***	***5029774***	***5029774***	***5029774***	**100478284**
Shropshire	311877	312388	312937	313523	321498	329973	338982	348561	358746	375899	394828	415722	438789	464259	464259	464259	464259	464259	464259	464259	464259	464259	464259	464259	9680569
Telford and Wrekin	293005	293486	294001	294552	302044	310006	318470	327469	337038	353152	370936	390566	412236	436165	436165	436165	436165	436165	436165	436165	436165	436165	436165	436165	9094775
Staffordshire & Stoke-On-Trent	1396399	1400834	1405456	1410266	1452383	1497178	1544828	1595520	1649455	1740655	1841355	1952562	2075388	2211066	2211066	2211066	2211066	2211066	2211066	2211066	2211066	2211066	2211066	2211066	45284010
Warwickshire	590821	595267	599817	604473	629978	657138	686062	716865	749673	805520	867240	935454	1010852	1094194	1094194	1094194	1094194	1094194	1094194	1094194	1094194	1094194	1094194	1094194	21485293
Worcestershire	575473	579118	582858	586695	609488	633755	659590	687099	716392	766186	821206	882006	949199	1023461	1023461	1023461	1023461	1023461	1023461	1023461	1023461	1023461	1023461	1023461	20307132
Herefordshire	249739	250278	250847	251448	258218	265416	273070	281208	289864	304464	320580	338371	358015	379710	379710	379710	379710	379710	379710	379710	379710	379710	379710	379710	7868328
Shire & Unitary Total	***3417313***	***3431371***	***3445917***	***3460957***	***3573610***	***3693467***	***3821002***	***3956723***	***4101167***	***4345876***	***4616145***	***4914680***	***5244479***	***5608854***	***5608854***	***5608854***	***5608854***	***5608854***	***5608854***	***5608854***	***5608854***	***5608854***	***5608854***	***5608854***	**113720106**
West Midlands Total	***6319105***	***6349424***	***6380688***	***6412910***	***6634155***	***6869599***	***7120178***	***7386889***	***7670796***	***8152344***	***8684274***	***9271923***	***9921198***	***10638628***	***10638628***	***10638628***	***10638628***	***10638628***	***10638628***	***10638628***	***10638628***	***10638628***	***10638628***	***10638628***	**214198390**

Hazardous Waste	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	CUM.
Birmingham	53430	52361	51314	50288	50288	50288	50288	50288	50288	50288	50288	50288	50288	50288	50288	50288	50288	50288	50288	50288	50288	50288	50288	50288	1213151
Coventry	25974	25455	24945	24447	24447	24447	24447	24447	24447	24447	24447	24447	24447	24447	24447	24447	24447	24447	24447	24447	24447	24447	24447	24447	589751
Dudley	35695	34981	34281	33596	33596	33596	33596	33596	33596	33596	33596	33596	33596	33596	33596	33596	33596	33596	33596	33596	33596	33596	33596	33596	810470
Sandwell	53775	52700	51646	50613	50613	50613	50613	50613	50613	50613	50613	50613	50613	50613	50613	50613	50613	50613	50613	50613	50613	50613	50613	50613	1220985
Solihull	11456	11227	11002	10782	10782	10782	10782	10782	10782	10782	10782	10782	10782	10782	10782	10782	10782	10782	10782	10782	10782	10782	10782	10782	260113
Walsall	43538	42667	41814	40978	40978	40978	40978	40978	40978	40978	40978	40978	40978	40978	40978	40978	40978	40978	40978	40978	40978	40978	40978	40978	988549
Wolverhampton	46885	45947	45028	44128	44128	44128	44128	44128	44128	44128	44128	44128	44128	44128	44128	44128	44128	44128	44128	44128	44128	44128	44128	44128	1064544
Met Area Total	***270753***	***265338***	***260031***	***254831***	***254831***	***254831***	***254831***	***254831***	***254831***	***254831***	***254831***	***254831***	***254831***	***254831***	***254831***	***254831***	***254831***	***254831***	***254831***	***254831***	***254831***	***254831***	***254831***	***254831***	**6147564**
Shropshire	17100	16758	16423	16094	16094	16094	16094	16094	16094	16094	16094	16094	16094	16094	16094	16094	16094	16094	16094	16094	16094	16094	16094	16094	388263
Telford and Wrekin	9665	9472	9282	9097	9097	9097	9097	9097	9097	9097	9097	9097	9097	9097	9097	9097	9097	9097	9097	9097	9097	9097	9097	9097	219448
Staffordshire	76546	75015	73515	72044	72044	72044	72044	72044	72044	72044	72044	72044	72044	72044	72044	72044	72044	72044	72044	72044	72044	72044	72044	72044	1738010
Stoke-On-Trent	24258	23773	23297	22831	22831	22831	22831	22831	22831	22831	22831	22831	22831	22831	22831	22831	22831	22831	22831	22831	22831	22831	22831	22831	550788
Warwickshire	39434	38645	37872	37115	37115	37115	37115	37115	37115	37115	37115	37115	37115	37115	37115	37115	37115	37115	37115	37115	37115	37115	37115	37115	895366
Worcestershire	68402	67034	65693	64379	64379	64379	64379	64379	64379	64379	64379	64379	64379	64379	64379	64379	64379	64379	64379	64379	64379	64379	64379	64379	1553097
Herefordshire	13747	13472	13203	12939	12939	12939	12939	12939	12939	12939	12939	12939	12939	12939	12939	12939	12939	12939	12939	12939	12939	12939	12939	12939	312132
Shire & Unitary Total	***249152***	***244169***	***239286***	***234500***	***234500***	***234500***	***234500***	***234500***	***234500***	***234500***	***234500***	***234500***	***234500***	***234500***	***234500***	***234500***	***234500***	***234500***	***234500***	***234500***	***234500***	***234500***	***234500***	***234500***	**5657104**
West Midlands Total	***519905***	***509507***	***499317***	***489330***	***489330***	***489330***	***489330***	***489330***	***489330***	***489330***	***489330***	***489330***	***489330***	***489330***	***489330***	***489330***	***489330***	***489330***	***489330***	***489330***	***489330***	***489330***	***489330***	***489330***	**11804668**

SCENARIO 1 WMRSS ADJUSTED FOR ECONOMIC IMPACT

Municipal Waste	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	CUM.
Birmingham	573548	583365	593349	603505	607799	612124	616479	620866	625284	629733	634214	638727	643272	647849	652459	657101	661777	666486	671229	676005	680815	685659	690538	695452	15367635
Coventry	171749	174508	177311	180160	181252	182351	183457	184569	185689	186815	187948	189087	190234	191387	192548	193716	194890	196072	197261	198457	199661	200872	202090	203315	4545399
Dudley	146729	149176	151663	154192	155221	156257	157300	158350	159407	160471	161542	162620	163706	164798	165898	167006	168120	169243	170372	171509	172654	173806	174967	176134	3911143
Sandwell	142504	145090	147723	150403	151629	152864	154109	155365	156630	157906	159193	160490	161797	163115	164444	165784	167134	168496	169869	171252	172648	174054	175472	176901	3864873
Solihull	100475	102021	103591	105186	105753	106323	106896	107472	108051	108634	109219	109808	110400	110995	111593	112195	112800	113408	114019	114634	115251	115873	116497	117125	2638219
Walsall	138382	140709	143075	145480	146471	147469	148474	149486	150504	151530	152562	153602	154649	155702	156763	157831	158907	159990	161080	162177	163282	164395	165515	166643	3694679
Wolverhampton	142417	144841	147306	149813	150865	151924	152991	154065	155146	156235	157332	158437	159549	160669	161797	162933	164077	165229	166389	167557	168733	169917	171110	172311	3811644
Met Area Total	***1415804***	***1439709***	***1464019***	***1488739***	***1498990***	***1509313***	***1519707***	***1530173***	***1540712***	***1551325***	***1562011***	***1572771***	***1583606***	***1594517***	***1605503***	***1616566***	***1627705***	***1638922***	***1650217***	***1661591***	***1673044***	***1684576***	***1696189***	***1707882***	**37833591**
Shropshire	174694	177891	181146	184461	185992	187536	189093	190662	192245	193840	195449	197071	198707	200356	202019	203696	205387	207091	208810	210543	212291	214053	215829	217621	4746485
Telford and Wrekin	93553	95859	98221	100642	102116	103612	105129	106669	108231	109816	111425	113057	114713	116393	118097	119827	121582	123363	125170	127003	128863	130750	132665	134608	2741363
Staffordshire	469775	477365	485077	492913	495948	499001	502072	505163	508272	511401	514549	517717	520904	524110	527336	530582	533849	537135	540441	543768	547115	550483	553872	557281	12446129
Stoke-On-Trent	130534	132600	134698	136830	137627	138429	139235	140046	140862	141682	142508	143338	144173	145013	145857	146707	147562	148421	149286	150155	151030	151910	152795	153685	3444982
Warwickshire	303773	308943	314200	319548	321790	324049	326323	328613	330920	333242	335581	337936	340308	342696	345101	347523	349963	352419	354892	357383	359891	362417	364960	367522	8129993
Worcestershire	299863	304496	309200	313977	315688	317409	319139	320878	322627	324385	326153	327930	329717	331514	333321	335137	336964	338800	340647	342503	344370	346246	348133	350031	7879127
Herefordshire	96039	97818	99630	101476	102341	103214	104094	104982	105877	106779	107690	108608	109534	110468	111410	112360	113318	114284	115258	116241	117232	118232	119240	120257	2616384
Shire & Unitary Total	***1568231***	***1594971***	***1622174***	***1649848***	***1661503***	***1673248***	***1685085***	***1697013***	***1709033***	***1721147***	***1733354***	***1745657***	***1758055***	***1770550***	***1783143***	***1795833***	***1808623***	***1821513***	***1834504***	***1847597***	***1860792***	***1874091***	***1887495***	***1901004***	**42004463**
West Midlands Total	***2984035***	***3034680***	***3086192***	***3138587***	***3160493***	***3182561***	***3204792***	***3227186***	***3249745***	***3272471***	***3295365***	***3318428***	***3341661***	***3365067***	***3388646***	***3412399***	***3436328***	***3460435***	***3484721***	***3509188***	***3533836***	***3558667***	***3583684***	***3608886***	**79838054**

C&D Waste	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	CUM.
Birmingham	1870147	1851445	1772759	1779850	1775349	1847627	1843126	1838720	1834407	1830184	1826050	1822002	1818040	1814160	1810363	1806645	1803005	1799441	1795953	1792537	1789194	1785920	1782716	1779578	43469217
Coventry	404897	400848	383812	385347	384373	511526	510280	509060	507866	506696	505552	504431	503334	502260	501209	500179	499172	498185	497219	496274	495348	494442	493555	492686	11488549
Dudley	436336	431972	413614	415268	414218	600840	599376	597943	596540	595167	593823	592507	591218	589956	588721	587512	586329	585170	584035	582925	581837	580773	579731	578710	13304522
Sandwell	561139	555528	531918	534046	532695	600840	599376	597943	596540	595167	593823	592507	591218	589956	588721	587512	586329	585170	584035	582925	581837	580773	579731	578710	13908440
Solihull	249607	247111	236609	237555	236954	289594	288888	288198	287522	286860	286212	285577	284956	284348	283753	283170	282600	282041	281495	280959	280435	279922	279420	278928	6602715
Walsall	311532	308417	295309	296491	295741	507917	506680	505468	504283	503122	501985	500873	499783	498717	497673	496651	495650	494671	493712	492773	491854	490954	490073	489210	10969537
Wolverhampton	311532	308417	295309	296491	295741	507917	506680	505468	504283	503122	501985	500873	499783	498717	497673	496651	495650	494671	493712	492773	491854	490954	490073	489210	10969537
Met Area Total	***4145191***	***4103739***	***3929330***	***3945047***	***3935071***	***4866259***	***4854406***	***4842801***	***4831440***	***4820318***	***4809429***	***4798769***	***4788333***	***4778116***	***4768114***	***4758321***	***4748734***	***4739349***	***4730161***	***4721165***	***4712359***	***4703737***	***4695297***	***4687034***	**110712519**
Shropshire	561139	555528	531918	534046	532695	553927	552578	551257	549964	548698	547458	546245	545057	543894	542755	541641	540549	539481	538435	537411	536409	535427	534466	533526	13034504
Telford and Wrekin	828848	820559	785685	788828	786833	431233	430183	429154	428148	427162	426197	425252	424328	423422	422536	421668	420819	419987	419173	418375	417595	416831	416083	415351	12044250
Staffordshire	1558615	1543028	1477450	1483359	1479608	985160	982761	980411	978111	975860	973655	971497	969384	967316	965291	963309	961368	959468	957608	955787	954004	952258	950550	948877	25894734
Stoke-On-Trent	374410	370666	354913	356333	355432	369886	368985	368103	367240	366394	365567	364756	363963	363186	362426	361682	360953	360240	359541	358858	358188	357533	356891	356263	8702410
Warwickshire	935550	926194	886831	890378	888127	831793	829767	827783	825841	823940	822079	820257	818473	816727	815017	813343	811704	810100	808530	806992	805487	804013	802570	801158	20022653
Worcestershire	747868	740390	708923	711759	709959	616176	614675	613206	611767	610359	608980	607631	606309	605015	603749	602509	601295	600107	598943	597804	596689	595597	594529	593482	15097723
Herefordshire	374410	370666	354913	356333	355432	369886	368985	368103	367240	366394	365567	364756	363963	363186	362426	361682	360953	360240	359541	358858	358188	357533	356891	356263	8702410
Shire & Unitary Total	***5380840***	***5327032***	***5100633***	***5121036***	***5108086***	***4158062***	***4147934***	***4138018***	***4128311***	***4118807***	***4109503***	***4100394***	***4091477***	***4082747***	***4074200***	***4065833***	***4057641***	***4049622***	***4041771***	***4034084***	***4026559***	***4019193***	***4011980***	***4004920***	**103498683**
West Midlands Total	***9526031***	***9430771***	***9029963***	***9066083***	***9043157***	***9024321***	***9002339***	***8980819***	***8959751***	***8939125***	***8918932***	***8899164***	***8879810***	***8860863***	***8842314***	***8824154***	***8806376***	***8788971***	***8771931***	***8755250***	***8738918***	***8722930***	***8707277***	***8691953***	**214211202**

C&I Waste Growth	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	CUM.
Birmingham	950773	941908	869566	877564	910861	946306	984041	1024217	1066995	1139683	1219995	1308739	1406809	1515193	1515193	1515193	1515193	1515193	1515193	1515193	1515193	1515193	1515193	1515193	30314586
Coventry	334614	331494	306034	308849	320567	333042	346322	360462	375517	401099	429364	460596	495111	533255	533255	533255	533255	533255	533255	533255	533255	533255	533255	533255	10668879
Dudley	340010	336840	310970	313830	325738	338413	351908	366276	381574	407568	436289	468026	503097	541857	541857	541857	541857	541857	541857	541857	541857	541857	541857	541857	10840970
Sandwell	501921	497241	459051	463273	480851	499563	519483	540692	563275	601648	644045	690894	742666	799883	799883	799883	799883	799883	799883	799883	799883	799883	799883	799883	16003319
Solihull	152916	151490	139855	141142	146497	152198	158267	164728	171608	183299	196216	210489	226262	243694	243694	243694	243694	243694	243694	243694	243694	243694	243694	243694	4875595
Walsall	341811	338624	312617	315492	327462	340205	353771	368215	383594	409726	438599	470503	505760	544725	544725	544725	544725	544725	544725	544725	544725	544725	544725	544725	10898354
Wolverhampton	279746	277138	255853	258206	268003	278432	289534	301355	313942	335329	358959	385071	413926	445815	445815	445815	445815	445815	445815	445815	445815	445815	445815	445815	8919464
Met Area Total	***2901792***	***2874735***	***2653945***	***2678356***	***2779979***	***2888158***	***3003327***	***3125945***	***3256506***	***3478352***	***3723468***	***3994318***	***4293631***	***4624423***	***4624423***	***4624423***	***4624423***	***4624423***	***4624423***	***4624423***	***4624423***	***4624423***	***4624423***	***4624423***	**92521167**
Shropshire	311877	307074	278603	280793	288243	296162	304581	313534	323056	339109	356828	376389	397986	421836	421836	421836	421836	421836	421836	421836	421836	421836	421836	421836	8814434
Telford and Wrekin	293005	288493	261745	263802	270801	278241	286151	294562	303507	318589	335236	353612	373903	396309	396309	396309	396309	396309	396309	396309	396309	396309	396309	396309	8281050
Staffordshire & Stoke-On-Trent	1396399	1378181	1258929	1269488	1308865	1350753	1395317	1442732	1493188	1578578	1672873	1777018	1892055	2019140	2019140	2019140	2019140	2019140	2019140	2019140	2019140	2019140	2019140	2019140	41424921
Warwickshire	590821	587052	546452	551821	575701	601133	628217	657064	687790	740114	797943	861861	932513	1010612	1010612	1010612	1010612	1010612	1010612	1010612	1010612	1010612	1010612	1010612	19875215
Worcestershire	575473	570752	528579	533567	554903	577618	601805	627560	654988	701634	753180	810144	873100	942684	942684	942684	942684	942684	942684	942684	942684	942684	942684	942684	18732824
Herefordshire	249739	246091	223786	225585	231912	238639	245794	253403	261497	275163	290250	306908	325303	345620	345620	345620	345620	345620	345620	345620	345620	345620	345620	345620	7175896
Shire & Unitary Total	***3417313***	***3377642***	***3098094***	***3125057***	***3230425***	***3342546***	***3461865***	***3588856***	***3724026***	***3953188***	***4206310***	***4485932***	***4794860***	***5136202***	***5136202***	***5136202***	***5136202***	***5136202***	***5136202***	***5136202***	***5136202***	***5136202***	***5136202***	***5136202***	**104304339**
West Midlands Total	***6319105***	***6252377***	***5752039***	***5803413***	***6010404***	***6230704***	***6465191***	***6714802***	***6980532***	***7431540***	***7929778***	***8480250***	***9088492***	***9760626***	***9760626***	***9760626***	***9760626***	***9760626***	***9760626***	***9760626***	***9760626***	***9760626***	***9760626***	***9760626***	**196825506**

Hazardous Waste Growth	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	CUM.
Birmingham	53430	53804	51921	52570	52570	52570	52570	52570	52570	52570	52570	52570	52570	52570	52570	52570	52570	52570	52570	52570	52570	52570	52570	52570	1263122
Coventry	25974	26156	25240	25556	25556	25556	25556	25556	25556	25556	25556	25556	25556	25556	25556	25556	25556	25556	25556	25556	25556	25556	25556	25556	614043
Dudley	35695	35945	34687	35120	35120	35120	35120	35120	35120	35120	35120	35120	35120	35120	35120	35120	35120	35120	35120	35120	35120	35120	35120	35120	843855
Sandwell	53775	54151	52256	52909	52909	52909	52909	52909	52909	52909	52909	52909	52909	52909	52909	52909	52909	52909	52909	52909	52909	52909	52909	52909	1271278
Solihull	11456	11536	11132	11272	11272	11272	11272	11272	11272	11272	11272	11272	11272	11272	11272	11272	11272	11272	11272	11272	11272	11272	11272	11272	270828
Walsall	43538	43843	42308	42837	42837	42837	42837	42837	42837	42837	42837	42837	42837	42837	42837	42837	42837	42837	42837	42837	42837	42837	42837	42837	1029269
Wolverhampton	46885	47213	45561	46130	46130	46130	46130	46130	46130	46130	46130	46130	46130	46130	46130	46130	46130	46130	46130	46130	46130	46130	46130	46130	1108394
Met Area Total	***270753***	***272648***	***263106***	***266394***	***266394***	***266394***	***266394***	***266394***	***266394***	***266394***	***266394***	***266394***	***266394***	***266394***	***266394***	***266394***	***266394***	***266394***	***266394***	***266394***	***266394***	***266394***	***266394***	***266394***	**6400789**
Shropshire	17100	17220	16617	16825	16825	16825	16825	16825	16825	16825	16825	16825	16825	16825	16825	16825	16825	16825	16825	16825	16825	16825	16825	16825	404256
Telford and Wrekin	9665	9733	9392	9509	9509	9509	9509	9509	9509	9509	9509	9509	9509	9509	9509	9509	9509	9509	9509	9509	9509	9509	9509	9509	228487
Staffordshire	76546	77082	74384	75314	75314	75314	75314	75314	75314	75314	75314	75314	75314	75314	75314	75314	75314	75314	75314	75314	75314	75314	75314	75314	1809601
Stoke-On-Trent	24258	24428	23573	23867	23867	23867	23867	23867	23867	23867	23867	23867	23867	23867	23867	23867	23867	23867	23867	23867	23867	23867	23867	23867	573476
Warwickshire	39434	39710	38320	38799	38799	38799	38799	38799	38799	38799	38799	38799	38799	38799	38799	38799	38799	38799	38799	38799	38799	38799	38799	38799	932247
Worcestershire	68402	68881	66470	67301	67301	67301	67301	67301	67301	67301	67301	67301	67301	67301	67301	67301	67301	67301	67301	67301	67301	67301	67301	67301	1617071
Herefordshire	13747	13843	13359	13526	13526	13526	13526	13526	13526	13526	13526	13526	13526	13526	13526	13526	13526	13526	13526	13526	13526	13526	13526	13526	324989
Shire & Unitary Total	***249152***	***250896***	***242115***	***245141***	***245141***	***245141***	***245141***	***245141***	***245141***	***245141***	***245141***	***245141***	***245141***	***245141***	***245141***	***245141***	***245141***	***245141***	***245141***	***245141***	***245141***	***245141***	***245141***	***245141***	**5890127**
West Midlands Total	***519905***	***523544***	***505220***	***511536***	***511536***	***511536***	***511536***	***511536***	***511536***	***511536***	***511536***	***511536***	***511536***	***511536***	***511536***	***511536***	***511536***	***511536***	***511536***	***511536***	***511536***	***511536***	***511536***	***511536***	**12290916**

SCENARIO 2 WS 2007 ADJUSTED FOR ECONOMIC IMPACT

Municipal Waste	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
Birmingham	573548	583365	593349	603505	607799	612124	616479	620866	625284	629733	634214	638727	643272	647849	652459	657101	661777	666486	671229	676005	680815	685659
Coventry	171749	174508	177311	180160	181252	182351	183457	184569	185689	186815	187948	189087	190234	191387	192548	193716	194890	196072	197261	198457	199661	200872
Dudley	146729	149176	151663	154192	155221	156257	157300	158350	159407	160471	161542	162620	163706	164798	165898	167006	168120	169243	170372	171509	172654	173806
Sandwell	142504	145090	147723	150403	151629	152864	154109	155365	156630	157906	159193	160490	161797	163115	164444	165784	167134	168496	169869	171252	172648	174054
Solihull	100475	102021	103591	105186	105753	106323	106896	107472	108051	108634	109219	109808	110400	110995	111593	112195	112800	113408	114019	114634	115251	115873
Walsall	138382	140709	143075	145480	146471	147469	148474	149486	150504	151530	152562	153602	154649	155702	156763	157831	158907	159990	161080	162177	163282	164395
Wolverhampton	142417	144841	147306	149813	150865	151924	152991	154065	155146	156235	157332	158437	159549	160669	161797	162933	164077	165229	166389	167557	168733	169917
Met Area Total	***1415804***	***1439709***	***1464019***	***1488739***	***1498990***	***1509313***	***1519707***	***1530173***	***1540712***	***1551325***	***1562011***	***1572771***	***1583606***	***1594517***	***1605503***	***1616566***	***1627705***	***1638922***	***1650217***	***1661591***	***1673044***	***1684576***
Shropshire	174694	177891	181146	184461	185992	187536	189093	190662	192245	193840	195449	197071	198707	200356	202019	203696	205387	207091	208810	210543	212291	214053
Telford and Wrekin	93553	95859	98221	100642	102116	103612	105129	106669	108231	109816	111425	113057	114713	116393	118097	119827	121582	123363	125170	127003	128863	130750
Staffordshire	469775	477365	485077	492913	495948	499001	502072	505163	508272	511401	514549	517717	520904	524110	527336	530582	533849	537135	540441	543768	547115	550483
Stoke-On-Trent	130534	132600	134698	136830	137627	138429	139235	140046	140862	141682	142508	143338	144173	145013	145857	146707	147562	148421	149286	150155	151030	151910
Warwickshire	303773	308943	314200	319548	321790	324049	326323	328613	330920	333242	335581	337936	340308	342696	345101	347523	349963	352419	354892	357383	359891	362417
Worcestershire	299863	304496	309200	313977	315688	317409	319139	320878	322627	324385	326153	327930	329717	331514	333321	335137	336964	338800	340647	342503	344370	346246
Herefordshire	96039	97818	99630	101476	102341	103214	104094	104982	105877	106779	107690	108608	109534	110468	111410	112360	113318	114284	115258	116241	117232	118232
Shire & Unitary Total	***1568231***	***1594971***	***1622174***	***1649848***	***1661503***	***1673248***	***1685085***	***1697013***	***1709033***	***1721147***	***1733354***	***1745657***	***1758055***	***1770550***	***1783143***	***1795833***	***1808623***	***1821513***	***1834504***	***1847597***	***1860792***	***1874091***
West Midlands Total	***2984035***	***3034680***	***3086192***	***3138587***	***3160493***	***3182561***	***3204792***	***3227186***	***3249745***	***3272471***	***3295365***	***3318428***	***3341661***	***3365067***	***3388646***	***3412399***	***3436328***	***3460435***	***3484721***	***3509188***	***3533836***	***3558667***

CD & E Waste	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
Birmingham	1870147	1851445	1772759	1779850	1775349	1847627	1843126	1838720	1834407	1830184	1826050	1822002	1818040	1814160	1810363	1806645	1803005	1799441	1795953	1792537	1789194	1785920
Coventry	404897	400848	383812	385347	384373	511526	510280	509060	507866	506696	505552	504431	503334	502260	501209	500179	499172	498185	497219	496274	495348	494442
Dudley	436336	431972	413614	415268	414218	600840	599376	597943	596540	595167	593823	592507	591218	589956	588721	587512	586329	585170	584035	582925	581837	580773
Sandwell	561139	555528	531918	534046	532695	600840	599376	597943	596540	595167	593823	592507	591218	589956	588721	587512	586329	585170	584035	582925	581837	580773
Solihull	249607	247111	236609	237555	236954	289594	288888	288198	287522	286860	286212	285577	284956	284348	283753	283170	282600	282041	281495	280959	280435	279922
Walsall	311532	308417	295309	296491	295741	507917	506680	505468	504283	503122	501985	500873	499783	498717	497673	496651	495650	494671	493712	492773	491854	490954
Wolverhampton	311532	308417	295309	296491	295741	507917	506680	505468	504283	503122	501985	500873	499783	498717	497673	496651	495650	494671	493712	492773	491854	490954
Met Area Total	***4145191***	***4103739***	***3929330***	***3945047***	***3935071***	***4866259***	***4854406***	***4842801***	***4831440***	***4820318***	***4809429***	***4798769***	***4788333***	***4778116***	***4768114***	***4758321***	***4748734***	***4739349***	***4730161***	***4721165***	***4712359***	***4703737***
Shropshire	561139	555528	531918	534046	532695	553927	552578	551257	549964	548698	547458	546245	545057	543894	542755	541641	540549	539481	538435	537411	536409	535427
Telford and Wrekin	828848	820559	785685	788828	786833	431233	430183	429154	428148	427162	426197	425252	424328	423422	422536	421668	420819	419987	419173	418375	417595	416831
Staffordshire	1558615	1543028	1477450	1483359	1479608	985160	982761	980411	978111	975860	973655	971497	969384	967316	965291	963309	961368	959468	957608	955787	954004	952258
Stoke-On-Trent	374410	370666	354913	356333	355432	369886	368985	368103	367240	366394	365567	364756	363963	363186	362426	361682	360953	360240	359541	358858	358188	357533
Warwickshire	935550	926194	886831	890378	888127	831793	829767	827783	825841	823940	822079	820257	818473	816727	815017	813343	811704	810100	808530	806992	805487	804013
Worcestershire	747868	740390	708923	711759	709959	616176	614675	613206	611767	610359	608980	607631	606309	605015	603749	602509	601295	600107	598943	597804	596689	595597
Herefordshire	374410	370666	354913	356333	355432	369886	368985	368103	367240	366394	365567	364756	363963	363186	362426	361682	360953	360240	359541	358858	358188	357533
Shire & Unitary Total	***5380840***	***5327032***	***5100633***	***5121036***	***5108086***	***4158062***	***4147934***	***4138018***	***4128311***	***4118807***	***4109503***	***4100394***	***4091477***	***4082747***	***4074200***	***4065833***	***4057641***	***4049622***	***4041771***	***4034084***	***4026559***	***4019193***
West Midlands Total	***9526031***	***9430771***	***9029963***	***9066083***	***9043157***	***9024321***	***9002339***	***8980819***	***8959751***	***8939125***	***8918932***	***8899164***	***8879810***	***8860863***	***8842314***	***8824154***	***8806376***	***8788971***	***8771931***	***8755250***	***8738918***	***8722930***

C & I Waste	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
Birmingham	958408	949499	876643	884712	902127	915517	929254	943349	957810	972647	987870	1003489	1019514	1035955	1035955	1035955	1035955	1035955	1035955	1035955	1035955	1035955
Coventry	337301	334166	308525	311365	317494	322206	327041	332001	337091	342312	347670	353167	358807	364593	364593	364593	364593	364593	364593	364593	364593	364593
Dudley	342741	339555	313501	316386	322614	327402	332315	337356	342527	347833	353277	358863	364594	370474	370474	370474	370474	370474	370474	370474	370474	370474
Sandwell	505951	501248	462787	467047	476240	483309	490561	498001	505636	513468	521505	529750	538210	546889	546889	546889	546889	546889	546889	546889	546889	546889
Solihull	154144	152711	140994	142291	145092	147246	149455	151722	154048	156434	158883	161395	163972	166616	166616	166616	166616	166616	166616	166616	166616	166616
Walsall	344556	341353	315161	318062	324323	329136	334075	339142	344341	349675	355148	360763	366524	372435	372435	372435	372435	372435	372435	372435	372435	372435
Wolverhampton	281993	279371	257935	260309	265433	269373	273415	277562	281817	286182	290661	295257	299972	304809	304809	304809	304809	304809	304809	304809	304809	304809
Met Area Total	***2925094***	***2897903***	***2675546***	***2700172***	***2753323***	***2794188***	***2836115***	***2879133***	***2923269***	***2968553***	***3015014***	***3062683***	***3111592***	***3161772***	***3161772***	***3161772***	***3161772***	***3161772***	***3161772***	***3161772***	***3161772***	***3161772***
Shropshire	314200	309369	280707	282915	286718	289642	292642	295720	298878	302118	305442	308853	312353	315943	315943	315943	315943	315943	315943	315943	315943	315943
Telford and Wrekin	295187	290649	263721	265796	269368	272115	274934	277826	280792	283836	286960	290164	293452	296825	296825	296825	296825	296825	296825	296825	296825	296825
Staffordshire & Stoke-On-Trent	1407114	1388796	1268726	1279374	1299714	1315352	1331397	1347858	1364748	1382078	1399857	1418099	1436815	1456018	1456018	1456018	1456018	1456018	1456018	1456018	1456018	1456018
Warwickshire	595732	591948	551051	556467	569043	578712	588632	598810	609253	619967	630960	642238	653810	665683	665683	665683	665683	665683	665683	665683	665683	665683
Worcestershire	580156	575412	532937	537970	549160	557764	566592	575649	584941	594475	604257	614294	624591	635156	635156	635156	635156	635156	635156	635156	635156	635156
Herefordshire	251618	247949	225493	227307	230551	233046	235605	238230	240924	243688	246524	249434	252419	255482	255482	255482	255482	255482	255482	255482	255482	255482
Shire & Unitary Total	***3444007***	***3404123***	***3122634***	***3149829***	***3204555***	***3246631***	***3289801***	***3334093***	***3379537***	***3426163***	***3474000***	***3523082***	***3573440***	***3625107***	***3625107***	***3625107***	***3625107***	***3625107***	***3625107***	***3625107***	***3625107***	***3625107***
West Midlands Total	***6369102***	***6302026***	***5798180***	***5850001***	***5957877***	***6040818***	***6125916***	***6213226***	***6302806***	***6394716***	***6489014***	***6585765***	***6685031***	***6786878***	***6786878***	***6786878***	***6786878***	***6786878***	***6786878***	***6786878***	***6786878***	***6786878***

Hazardous Waste	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
Birmingham	53430	53804	51921	52570	52570	52570	52570	52570	52570	52570	52570	52570	52570	52570	52570	52570	52570	52570	52570	52570	52570	52570
Coventry	25974	26156	25240	25556	25556	25556	25556	25556	25556	25556	25556	25556	25556	25556	25556	25556	25556	25556	25556	25556	25556	25556
Dudley	35695	35945	34687	35120	35120	35120	35120	35120	35120	35120	35120	35120	35120	35120	35120	35120	35120	35120	35120	35120	35120	35120
Sandwell	53775	54151	52256	52909	52909	52909	52909	52909	52909	52909	52909	52909	52909	52909	52909	52909	52909	52909	52909	52909	52909	52909
Solihull	11456	11536	11132	11272	11272	11272	11272	11272	11272	11272	11272	11272	11272	11272	11272	11272	11272	11272	11272	11272	11272	11272
Walsall	43538	43843	42308	42837	42837	42837	42837	42837	42837	42837	42837	42837	42837	42837	42837	42837	42837	42837	42837	42837	42837	42837
Wolverhampton	46885	47213	45561	46130	46130	46130	46130	46130	46130	46130	46130	46130	46130	46130	46130	46130	46130	46130	46130	46130	46130	46130
Met Area Total	***270753***	***272648***	***263106***	***266394***	***266394***	***266394***	***266394***	***266394***	***266394***	***266394***	***266394***	***266394***	***266394***	***266394***	***266394***	***266394***	***266394***	***266394***	***266394***	***266394***	***266394***	***266394***
Shropshire	17100	17220	16617	16825	16825	16825	16825	16825	16825	16825	16825	16825	16825	16825	16825	16825	16825	16825	16825	16825	16825	16825
Telford and Wrekin	9665	9733	9392	9509	9509	9509	9509	9509	9509	9509	9509	9509	9509	9509	9509	9509	9509	9509	9509	9509	9509	9509
Staffordshire	76546	77082	74384	75314	75314	75314	75314	75314	75314	75314	75314	75314	75314	75314	75314	75314	75314	75314	75314	75314	75314	75314
Stoke-On-Trent	24258	24428	23573	23867	23867	23867	23867	23867	23867	23867	23867	23867	23867	23867	23867	23867	23867	23867	23867	23867	23867	23867
Warwickshire	39434	39710	38320	38799	38799	38799	38799	38799	38799	38799	38799	38799	38799	38799	38799	38799	38799	38799	38799	38799	38799	38799
Worcestershire	68402	68881	66470	67301	67301	67301	67301	67301	67301	67301	67301	67301	67301	67301	67301	67301	67301	67301	67301	67301	67301	67301
Herefordshire	13747	13843	13359	13526	13526	13526	13526	13526	13526	13526	13526	13526	13526	13526	13526	13526	13526	13526	13526	13526	13526	13526
Shire & Unitary Total	***249152***	***250896***	***242115***	***245141***	***245141***	***245141***	***245141***	***245141***	***245141***	***245141***	***245141***	***245141***	***245141***	***245141***	***245141***	***245141***	***245141***	***245141***	***245141***	***245141***	***245141***	***245141***
West Midlands Total	***519905***	***523544***	***505220***	***511536***	***511536***	***511536***	***511536***	***511536***	***511536***	***511536***	***511536***	***511536***	***511536***	***511536***	***511536***	***511536***	***511536***	***511536***	***511536***	***511536***	***511536***	***511536***

SCENARIO 3 ADAS C&I STUDY ADJUSTED FOR ECONOMIC IMPACT

Municipal Waste	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
Birmingham	573548	583365	593349	603505	607799	612124	616479	620866	625284	629733	634214	638727	643272	647849	652459	657101	661777	666486	671229	676005	680815	685659
Coventry	171749	174508	177311	180160	181252	182351	183457	184569	185689	186815	187948	189087	190234	191387	192548	193716	194890	196072	197261	198457	199661	200872
Dudley	146729	149176	151663	154192	155221	156257	157300	158350	159407	160471	161542	162620	163706	164798	165898	167006	168120	169243	170372	171509	172654	173806
Sandwell	142504	145090	147723	150403	151629	152864	154109	155365	156630	157906	159193	160490	161797	163115	164444	165784	167134	168496	169869	171252	172648	174054
Solihull	100475	102021	103591	105186	105753	106323	106896	107472	108051	108634	109219	109808	110400	110995	111593	112195	112800	113408	114019	114634	115251	115873
Walsall	138382	140709	143075	145480	146471	147469	148474	149486	150504	151530	152562	153602	154649	155702	156763	157831	158907	159990	161080	162177	163282	164395
Wolverhampton	142417	144841	147306	149813	150865	151924	152991	154065	155146	156235	157332	158437	159549	160669	161797	162933	164077	165229	166389	167557	168733	169917
Met Area Total	***1415804***	***1439709***	***1464019***	***1488739***	***1498990***	***1509313***	***1519707***	***1530173***	***1540712***	***1551325***	***1562011***	***1572771***	***1583606***	***1594517***	***1605503***	***1616566***	***1627705***	***1638922***	***1650217***	***1661591***	***1673044***	***1684576***
Shropshire	174694	177891	181146	184461	185992	187536	189093	190662	192245	193840	195449	197071	198707	200356	202019	203696	205387	207091	208810	210543	212291	214053
Telford and Wrekin	93553	95859	98221	100642	102116	103612	105129	106669	108231	109816	111425	113057	114713	116393	118097	119827	121582	123363	125170	127003	128863	130750
Staffordshire	469775	477365	485077	492913	495948	499001	502072	505163	508272	511401	514549	517717	520904	524110	527336	530582	533849	537135	540441	543768	547115	550483
Stoke-On-Trent	130534	132600	134698	136830	137627	138429	139235	140046	140862	141682	142508	143338	144173	145013	145857	146707	147562	148421	149286	150155	151030	151910
Warwickshire	303773	308943	314200	319548	321790	324049	326323	328613	330920	333242	335581	337936	340308	342696	345101	347523	349963	352419	354892	357383	359891	362417
Worcestershire	299863	304496	309200	313977	315688	317409	319139	320878	322627	324385	326153	327930	329717	331514	333321	335137	336964	338800	340647	342503	344370	346246
Herefordshire	96039	97818	99630	101476	102341	103214	104094	104982	105877	106779	107690	108608	109534	110468	111410	112360	113318	114284	115258	116241	117232	118232
Shire & Unitary Total	***1568231***	***1594971***	***1622174***	***1649848***	***1661503***	***1673248***	***1685085***	***1697013***	***1709033***	***1721147***	***1733354***	***1745657***	***1758055***	***1770550***	***1783143***	***1795833***	***1808623***	***1821513***	***1834504***	***1847597***	***1860792***	***1874091***
West Midlands Total	***2984035***	***3034680***	***3086192***	***3138587***	***3160493***	***3182561***	***3204792***	***3227186***	***3249745***	***3272471***	***3295365***	***3318428***	***3341661***	***3365067***	***3388646***	***3412399***	***3436328***	***3460435***	***3484721***	***3509188***	***3533836***	***3558667***

CD & E Waste	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
Birmingham	1870147	1851445	1772759	1779850	1775349	1847627	1843126	1838720	1834407	1830184	1826050	1822002	1818040	1814160	1810363	1806645	1803005	1799441	1795953	1792537	1789194	1785920
Coventry	404897	400848	383812	385347	384373	511526	510280	509060	507866	506696	505552	504431	503334	502260	501209	500179	499172	498185	497219	496274	495348	494442
Dudley	436336	431972	413614	415268	414218	600840	599376	597943	596540	595167	593823	592507	591218	589956	588721	587512	586329	585170	584035	582925	581837	580773
Sandwell	561139	555528	531918	534046	532695	600840	599376	597943	596540	595167	593823	592507	591218	589956	588721	587512	586329	585170	584035	582925	581837	580773
Solihull	249607	247111	236609	237555	236954	289594	288888	288198	287522	286860	286212	285577	284956	284348	283753	283170	282600	282041	281495	280959	280435	279922
Walsall	311532	308417	295309	296491	295741	507917	506680	505468	504283	503122	501985	500873	499783	498717	497673	496651	495650	494671	493712	492773	491854	490954
Wolverhampton	311532	308417	295309	296491	295741	507917	506680	505468	504283	503122	501985	500873	499783	498717	497673	496651	495650	494671	493712	492773	491854	490954
Met Area Total	***4145191***	***4103739***	***3929330***	***3945047***	***3935071***	***4866259***	***4854406***	***4842801***	***4831440***	***4820318***	***4809429***	***4798769***	***4788333***	***4778116***	***4768114***	***4758321***	***4748734***	***4739349***	***4730161***	***4721165***	***4712359***	***4703737***
Shropshire	561139	555528	531918	534046	532695	553927	552578	551257	549964	548698	547458	546245	545057	543894	542755	541641	540549	539481	538435	537411	536409	535427
Telford and Wrekin	828848	820559	785685	788828	786833	431233	430183	429154	428148	427162	426197	425252	424328	423422	422536	421668	420819	419987	419173	418375	417595	416831
Staffordshire	1558615	1543028	1477450	1483359	1479608	985160	982761	980411	978111	975860	973655	971497	969384	967316	965291	963309	961368	959468	957608	955787	954004	952258
Stoke-On-Trent	374410	370666	354913	356333	355432	369886	368985	368103	367240	366394	365567	364756	363963	363186	362426	361682	360953	360240	359541	358858	358188	357533
Warwickshire	935550	926194	886831	890378	888127	831793	829767	827783	825841	823940	822079	820257	818473	816727	815017	813343	811704	810100	808530	806992	805487	804013
Worcestershire	747868	740390	708923	711759	709959	616176	614675	613206	611767	610359	608980	607631	606309	605015	603749	602509	601295	600107	598943	597804	596689	595597
Herefordshire	374410	370666	354913	356333	355432	369886	368985	368103	367240	366394	365567	364756	363963	363186	362426	361682	360953	360240	359541	358858	358188	357533
Shire & Unitary Total	***5380840***	***5327032***	***5100633***	***5121036***	***5108086***	***4158062***	***4147934***	***4138018***	***4128311***	***4118807***	***4109503***	***4100394***	***4091477***	***4082747***	***4074200***	***4065833***	***4057641***	***4049622***	***4041771***	***4034084***	***4026559***	***4019193***
West Midlands Total	***9526031***	***9430771***	***9029963***	***9066083***	***9043157***	***9024321***	***9002339***	***8980819***	***8959751***	***8939125***	***8918932***	***8899164***	***8879810***	***8860863***	***8842314***	***8824154***	***8806376***	***8788971***	***8771931***	***8755250***	***8738918***	***8722930***

C & I Waste	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
Birmingham	958408	949499	876643	884712	915677	916768	917965	919267	920675	922189	923808	925534	927366	929304	929304	929304	929304	929304	929304	929304	929304	929304
Coventry	337301	334166	308525	311365	322262	322646	323068	323526	324021	324554	325124	325731	326376	327058	327058	327058	327058	327058	327058	327058	327058	327058
Dudley	342741	339555	313501	316386	327460	327850	328278	328744	329247	329789	330368	330985	331640	332333	332333	332333	332333	332333	332333	332333	332333	332333
Sandwell	505951	501248	462787	467047	483393	483969	484601	485289	486032	486831	487686	488597	489564	490587	490587	490587	490587	490587	490587	490587	490587	490587
Solihull	154144	152711	140994	142291	147272	147447	147639	147849	148075	148319	148579	148857	149151	149463	149463	149463	149463	149463	149463	149463	149463	149463
Walsall	344556	341353	315161	318062	329194	329586	330016	330485	330991	331535	332117	332738	333396	334093	334093	334093	334093	334093	334093	334093	334093	334093
Wolverhampton	281993	279371	257935	260309	269420	269741	270093	270476	270890	271336	271812	272320	272859	273429	273429	273429	273429	273429	273429	273429	273429	273429
Met Area Total	***2925094***	***2897903***	***2675546***	***2700172***	***2794678***	***2798009***	***2801661***	***2805635***	***2809932***	***2814552***	***2819495***	***2824762***	***2830353***	***2836268***	***2836268***	***2836268***	***2836268***	***2836268***	***2836268***	***2836268***	***2836268***	***2836268***
Shropshire	314200	309369	280707	282915	292817	292043	291303	290598	289926	289288	288683	288112	287575	287071	287071	287071	287071	287071	287071	287071	287071	287071
Telford and Wrekin	295187	290649	263721	265796	275098	274371	273676	273013	272382	271782	271215	270678	270173	269700	269700	269700	269700	269700	269700	269700	269700	269700
Staffordshire & Stoke-On-Trent	1407114	1388796	1268726	1279374	1324152	1322650	1321302	1320107	1319065	1318176	1317440	1316856	1316424	1316145	1316145	1316145	1316145	1316145	1316145	1316145	1316145	1316145
Warwickshire	595732	591948	551051	556467	575944	577661	579445	581295	583211	585194	587243	589360	591544	593795	593795	593795	593795	593795	593795	593795	593795	593795
Worcestershire	580156	575412	532937	537970	556799	557844	558954	560128	561366	562668	564035	565466	566962	568523	568523	568523	568523	568523	568523	568523	568523	568523
Herefordshire	251618	247949	225493	227307	235263	234761	234287	233840	233420	233027	232661	232322	232011	231726	231726	231726	231726	231726	231726	231726	231726	231726
Shire & Unitary Total	***3444007***	***3404123***	***3122634***	***3149829***	***3260073***	***3259332***	***3258968***	***3258980***	***3259369***	***3260134***	***3261276***	***3262794***	***3264689***	***3266960***	***3266960***	***3266960***	***3266960***	***3266960***	***3266960***	***3266960***	***3266960***	***3266960***
West Midlands Total	***6369102***	***6302026***	***5798180***	***5850001***	***6054751***	***6057341***	***6060629***	***6064615***	***6069301***	***6074686***	***6080771***	***6087556***	***6095041***	***6103228***	***6103228***	***6103228***	***6103228***	***6103228***	***6103228***	***6103228***	***6103228***	***6103228***

Hazardous Waste	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
Birmingham	53430	53804	51921	52570	52570	52570	52570	52570	52570	52570	52570	52570	52570	52570	52570	52570	52570	52570	52570	52570	52570	52570
Coventry	25974	26156	25240	25556	25556	25556	25556	25556	25556	25556	25556	25556	25556	25556	25556	25556	25556	25556	25556	25556	25556	25556
Dudley	35695	35945	34687	35120	35120	35120	35120	35120	35120	35120	35120	35120	35120	35120	35120	35120	35120	35120	35120	35120	35120	35120
Sandwell	53775	54151	52256	52909	52909	52909	52909	52909	52909	52909	52909	52909	52909	52909	52909	52909	52909	52909	52909	52909	52909	52909
Solihull	11456	11536	11132	11272	11272	11272	11272	11272	11272	11272	11272	11272	11272	11272	11272	11272	11272	11272	11272	11272	11272	11272
Walsall	43538	43843	42308	42837	42837	42837	42837	42837	42837	42837	42837	42837	42837	42837	42837	42837	42837	42837	42837	42837	42837	42837
Wolverhampton	46885	47213	45561	46130	46130	46130	46130	46130	46130	46130	46130	46130	46130	46130	46130	46130	46130	46130	46130	46130	46130	46130
Met Area Total	***270753***	***272648***	***263106***	***266394***	***266394***	***266394***	***266394***	***266394***	***266394***	***266394***	***266394***	***266394***	***266394***	***266394***	***266394***	***266394***	***266394***	***266394***	***266394***	***266394***	***266394***	***266394***
Shropshire	17100	17220	16617	16825	16825	16825	16825	16825	16825	16825	16825	16825	16825	16825	16825	16825	16825	16825	16825	16825	16825	16825
Telford and Wrekin	9665	9733	9392	9509	9509	9509	9509	9509	9509	9509	9509	9509	9509	9509	9509	9509	9509	9509	9509	9509	9509	9509
Staffordshire & Stoke-On-Trent	76546	77082	74384	75314	75314	75314	75314	75314	75314	75314	75314	75314	75314	75314	75314	75314	75314	75314	75314	75314	75314	75314
Warwickshire	24258	24428	23573	23867	23867	23867	23867	23867	23867	23867	23867	23867	23867	23867	23867	23867	23867	23867	23867	23867	23867	23867
Worcestershire	39434	39710	38320	38799	38799	38799	38799	38799	38799	38799	38799	38799	38799	38799	38799	38799	38799	38799	38799	38799	38799	38799
Herefordshire	68402	68881	66470	67301	67301	67301	67301	67301	67301	67301	67301	67301	67301	67301	67301	67301	67301	67301	67301	67301	67301	67301
Shire & Unitary Total	13747	13843	13359	13526	13526	13526	13526	13526	13526	13526	13526	13526	13526	13526	13526	13526	13526	13526	13526	13526	13526	13526
West Midlands Total	***249152***	***250896***	***242115***	***245141***	***245141***	***245141***	***245141***	***245141***	***245141***	***245141***	***245141***	***245141***	***245141***	***245141***	***245141***	***245141***	***245141***	***245141***	***245141***	***245141***	***245141***	***245141***

Appendix D Detailed Capacity Predictions

BASE CASE

Municipal	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	CUM.
Birmingham	108768	291756	281325	270370	264976	259492	253916	249489	242485	205444	167864	129738	91062	51828	52197	52568	52942	53319	53698	54080	54465	54853	55243	55636	3407513
Coventry	18760	87837	84354	80712	79019	77302	75562	74167	72010	60946	49746	38407	26930	15311	15404	15497	15591	15686	15781	15877	15973	16070	16167	16265	999374
Dudley	23239	67730	68392	69078	67670	66241	64789	63631	61818	52352	42757	33031	23174	13184	13272	13360	13450	13539	13630	13721	13812	13905	13997	14091	853864
Sandwell	93424	72641	70079	67381	66104	64802	63475	62432	60741	51515	42135	32599	22904	13049	13156	13263	13371	13480	13589	13700	13812	13924	14038	14152	919766
Solihull	16253	44516	45201	45897	46144	45072	44028	43187	41902	35441	28908	22304	15628	8880	8927	8976	9024	9073	9122	9171	9220	9270	9320	9370	574834
Walsall	61841	63811	64481	65175	63856	62515	61154	60069	58366	49435	40380	31200	21892	12456	12541	12627	12713	12799	12886	12974	13063	13152	13241	13331	845957
Wolverhampton	31522	71507	69369	67116	65771	64404	63014	61909	60166	50970	41643	32182	22586	12854	12944	13035	13126	13218	13311	13405	13499	13593	13689	13785	848616
Met Area Total	***353807***	***699798***	***683201***	***665729***	***653540***	***639828***	***625937***	***614885***	***597488***	***506104***	***413433***	***319461***	***224175***	***127561***	***128440***	***129325***	***130216***	***131114***	***132017***	***132927***	***133843***	***134766***	***135695***	***136631***	**8449923**
Shropshire	97019	46037	46879	47737	47389	47033	46667	46673	45906	43186	40417	37600	28129	16028	16162	16296	16431	16567	16705	16843	16983	17124	17266	17410	804487
Telford and Wrekin	62630	39207	40173	41163	41358	41549	41737	42135	41972	35826	29492	22964	16239	9311	9448	9586	9727	9869	10014	10160	10309	10460	10613	10769	606710
Staffordshire	172792	126736	128784	130865	129686	128489	127271	127044	124777	117362	109852	102245	73739	41929	42187	42447	42708	42971	43235	43501	43769	44039	44310	44582	2075321
Stoke-On-Trent	26563	64771	63070	61300	60000	58683	57348	56276	54626	46222	37719	29115	20409	11601	11669	11737	11805	11874	11943	12012	12082	12153	12224	12295	767496
Warwickshire	181101	123296	125394	127528	127136	126732	126316	126546	125448	108717	88822	68642	48174	27416	27608	27802	27997	28193	28391	28591	28791	28993	29197	29402	1816234
Worcestershire	155859	97570	99078	100608	99894	99169	98433	98327	96927	92265	86326	66609	46675	26521	26666	26811	26957	27104	27252	27400	27550	27700	27851	28002	1537554
Herefordshire	64340	40008	40749	41504	41449	41389	41326	41468	41059	34836	28503	22060	15506	8837	8913	8989	9065	9143	9221	9299	9379	9459	9539	9621	595663
Shire & Unitary Total	***760304***	***537625***	***544128***	***550706***	***546912***	***543043***	***539098***	***538469***	***530716***	***478416***	***421131***	***349235***	***248870***	***141644***	***142651***	***143667***	***144690***	***145721***	***146760***	***147808***	***148863***	***149927***	***151000***	***152080***	**8203464**
West Midlands Total	***1114111***	***1237423***	***1227329***	***1216435***	***1200452***	***1182871***	***1165035***	***1153354***	***1128204***	***984520***	***834564***	***668696***	***473046***	***269205***	***271092***	***272992***	***274906***	***276835***	***278778***	***280735***	***282707***	***284693***	***286695***	***288711***	**16653388**

CD& E Waste	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	CUM.
Birmingham	219555	217360	215186	213034	213034	222259	222259	222259	222259	222259	222259	222259	222259	222259	222259	222259	222259	222259	222259	222259	222259	222259	222259	222259	5301088
Coventry	47535	47060	46589	46123	46123	61534	61534	61534	61534	61534	61534	61534	61534	61534	61534	61534	61534	61534	61534	61534	61534	61534	61534	61534	1402567
Dudley	51226	50714	50206	49704	49704	72278	72278	72278	72278	72278	72278	72278	72278	72278	72278	72278	72278	72278	72278	72278	72278	72278	72278	72278	1624828
Sandwell	65878	65219	64567	63921	63921	72278	72278	72278	72278	72278	72278	72278	72278	72278	72278	72278	72278	72278	72278	72278	72278	72278	72278	72278	1696779
Solihull	29304	29011	28721	28434	28434	34836	34836	34836	34836	34836	34836	34836	34836	34836	34836	34836	34836	34836	34836	34836	34836	34836	34836	34836	805795
Walsall	36574	36208	35846	35488	35488	61099	61099	61099	61099	61099	61099	61099	61099	61099	61099	61099	61099	61099	61099	61099	61099	61099	61099	61099	1340493
Wolverhampton	36574	36208	35846	35488	35488	61099	61099	61099	61099	61099	61099	61099	61099	61099	61099	61099	61099	61099	61099	61099	61099	61099	61099	61099	1340493
Met Area Total	***486645***	***481779***	***476961***	***472192***	***472192***	***585383***	***585383***	***585383***	***585383***	***585383***	***585383***	***585383***	***585383***	***585383***	***585383***	***585383***	***585383***	***585383***	***585383***	***585383***	***585383***	***585383***	***585383***	***585383***	**13512044**
Shropshire	65878	65219	64567	63921	63921	66634	66634	66634	66634	66634	66634	66634	66634	66634	66634	66634	66634	66634	66634	66634	66634	66634	66634	66634	1589556
Telford and Wrekin	97307	96334	95370	94417	94417	51875	51875	51875	51875	51875	51875	51875	51875	51875	51875	51875	51875	51875	51875	51875	51875	51875	51875	51875	1463466
Staffordshire	182981	181152	179340	177547	177547	118509	118509	118509	118509	118509	118509	118509	118509	118509	118509	118509	118509	118509	118509	118509	118509	118509	118509	118509	3150239
Stoke-On-Trent	43956	43516	43081	42650	42650	44495	44495	44495	44495	44495	44495	44495	44495	44495	44495	44495	44495	44495	44495	44495	44495	44495	44495	44495	1061262
Warwickshire	109834	108735	107648	106571	106571	100060	100060	100060	100060	100060	100060	100060	100060	100060	100060	100060	100060	100060	100060	100060	100060	100060	100060	100060	2440497
Worcestershire	87800	86922	86053	85192	85192	74122	74122	74122	74122	74122	74122	74122	74122	74122	74122	74122	74122	74122	74122	74122	74122	74122	74122	74122	1839485
Herefordshire	43956	43516	43081	42650	42650	44495	44495	44495	44495	44495	44495	44495	44495	44495	44495	44495	44495	44495	44495	44495	44495	44495	44495	44495	1061262
Shire & Unitary Total	***631711***	***625394***	***619140***	***612948***	***612948***	***500191***	***500191***	***500191***	***500191***	***500191***	***500191***	***500191***	***500191***	***500191***	***500191***	***500191***	***500191***	***500191***	***500191***	***500191***	***500191***	***500191***	***500191***	***500191***	**12605768**
West Midlands Total	***1118356***	***1107172***	***1096101***	***1085140***	***1085140***	***1085574***	***1085574***	***1085574***	***1085574***	***1085574***	***1085574***	***1085574***	***1085574***	***1085574***	***1085574***	***1085574***	***1085574***	***1085574***	***1085574***	***1085574***	***1085574***	***1085574***	***1085574***	***1085574***	**26117812**

C & I Waste	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	CUM.
Birmingham	399325	401562	403863	338523	350976	364231	378342	393363	350877	374157	399877	428296	459698	412002	412002	412002	412002	412002	412002	412002	412002	412002	412002	412002	9575109
Coventry	140538	141325	142135	119139	123522	128187	133153	138440	123487	131680	140732	150734	161786	144999	144999	144999	144999	144999	144999	144999	144999	144999	144999	144999	3369853
Dudley	142804	143605	144427	78690	125514	130255	135301	140673	125479	133804	143002	153165	164395	147338	147338	147338	147338	147338	147338	147338	147338	147338	147338	147338	3381836
Sandwell	210807	211988	213203	178709	185283	192281	199730	207660	185231	197521	211098	226101	242679	217499	217499	217499	217499	217499	217499	217499	217499	217499	217499	217499	5054778
Solihull	64225	64585	64955	54446	56449	58581	60850	63266	56433	60177	64314	68884	73935	66264	66264	66264	66264	66264	66264	66264	66264	66264	66264	66264	1539997
Walsall	143561	144365	145192	121702	126179	130944	136017	141418	126143	134513	143759	153976	165266	148118	148118	148118	148118	148118	148118	148118	148118	148118	148118	148118	3442334
Wolverhampton	117493	118152	118829	99604	103268	107168	111319	115739	103239	110088	117656	126017	135257	121223	121223	121223	121223	121223	121223	121223	121223	121223	121223	121223	2817285
Met Area Total	***1218753***	***1225582***	***1232604***	***990812***	***1071191***	***1111646***	***1154711***	***1200558***	***1070889***	***1141940***	***1220439***	***1307173***	***1403016***	***1257443***	***1257443***	***1257443***	***1257443***	***1257443***	***1257443***	***1257443***	***1257443***	***1257443***	***1257443***	***1257443***	**29181191**
Shropshire	130988	131203	131434	109733	112524	115491	118644	121996	107624	112770	118448	124717	131637	116065	116065	116065	116065	116065	116065	116065	116065	116065	116065	116065	2843920
Telford and Wrekin	123062	123264	123481	103093	105715	108502	111465	114614	101111	105946	111281	117170	123671	109041	109041	109041	109041	109041	109041	109041	109041	109041	109041	109041	2671828
Staffordshire & Stoke-On-Trent	586487	588350	590292	493593	508334	524012	540690	558432	494836	522196	552407	585769	622617	552767	552767	552767	552767	552767	552767	552767	552767	552767	552767	552767	13248448
Warwickshire	248145	250012	251923	211566	220492	229998	240122	250903	224902	241656	260172	280636	303255	273548	273548	273548	273548	273548	273548	273548	273548	273548	273548	273548	6222816
Worcestershire	241699	243230	244800	205343	213321	221814	230857	240485	214918	229856	246362	264602	284760	255865	255865	255865	255865	255865	255865	255865	255865	255865	255865	255865	5896562
Herefordshire	104890	105117	105356	88007	90376	92896	95574	98423	86959	91339	96174	101511	107405	94927	94927	94927	94927	94927	94927	94927	94927	94927	94927	94927	2308230
Shire & Unitary Total	***1435271***	***1441176***	***1447285***	***1211335***	***1250763***	***1292713***	***1337351***	***1384853***	***1230350***	***1303763***	***1384843***	***1474404***	***1573344***	***1402214***	***1402214***	***1402214***	***1402214***	***1402214***	***1402214***	***1402214***	***1402214***	***1402214***	***1402214***	***1402214***	**33191802**
West Midlands Total	***2654024***	***2666758***	***2679889***	***2202147***	***2321954***	***2404360***	***2492062***	***2585411***	***2301239***	***2445703***	***2605282***	***2781577***	***2976359***	***2659657***	***2659657***	***2659657***	***2659657***	***2659657***	***2659657***	***2659657***	***2659657***	***2659657***	***2659657***	***2659657***	**62372993**

Hazardous Waste	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	CUM.
Birmingham	7499	7349	7202	7058	7058	7058	7058	7058	7058	7058	7058	7058	7058	7058	7058	7058	7058	7058	7058	7058	7058	7058	7058	7058	170265
Coventry	2397	2349	2302	2256	2256	2256	2256	2256	2256	2256	2256	2256	2256	2256	2256	2256	2256	2256	2256	2256	2256	2256	2256	2256	54432
Dudley	15037	14736	14441	14153	14153	14153	14153	14153	14153	14153	14153	14153	14153	14153	14153	14153	14153	14153	14153	14153	14153	14153	14153	14153	341420
Sandwell	5509	5399	5291	5185	5185	5185	5185	5185	5185	5185	5185	5185	5185	5185	5185	5185	5185	5185	5185	5185	5185	5185	5185	5185	125088
Solihull	1875	1837	1801	1765	1765	1765	1765	1765	1765	1765	1765	1765	1765	1765	1765	1765	1765	1765	1765	1765	1765	1765	1765	1765	42567
Walsall	825	809	793	777	777	777	777	777	777	777	777	777	777	777	777	777	777	777	777	777	777	777	777	777	18741
Wolverhampton	11636	11404	11175	10952	10952	10952	10952	10952	10952	10952	10952	10952	10952	10952	10952	10952	10952	10952	10952	10952	10952	10952	10952	10952	264207
Met Area Total	***44779***	***43883***	***43005***	***42145***	***42145***	***42145***	***42145***	***42145***	***42145***	***42145***	***42145***	***42145***	***42145***	***42145***	***42145***	***42145***	***42145***	***42145***	***42145***	***42145***	***42145***	***42145***	***42145***	***42145***	**1016718**
Shropshire	2718	2664	2611	2558	2558	2558	2558	2558	2558	2558	2558	2558	2558	2558	2558	2558	2558	2558	2558	2558	2558	2558	2558	2558	61719
Telford and Wrekin	676	662	649	636	636	636	636	636	636	636	636	636	636	636	636	636	636	636	636	636	636	636	636	636	15345
Staffordshire	32989	32330	31683	31049	31049	31049	31049	31049	31049	31049	31049	31049	31049	31049	31049	31049	31049	31049	31049	31049	31049	31049	31049	31049	749038
Stoke-On-Trent	2826	2770	2715	2660	2660	2660	2660	2660	2660	2660	2660	2660	2660	2660	2660	2660	2660	2660	2660	2660	2660	2660	2660	2660	64176
Warwickshire	4789	4693	4599	4507	4507	4507	4507	4507	4507	4507	4507	4507	4507	4507	4507	4507	4507	4507	4507	4507	4507	4507	4507	4507	108735
Worcestershire	12768	12513	12263	12017	12017	12017	12017	12017	12017	12017	12017	12017	12017	12017	12017	12017	12017	12017	12017	12017	12017	12017	12017	12017	289911
Herefordshire	1504	1474	1444	1415	1415	1415	1415	1415	1415	1415	1415	1415	1415	1415	1415	1415	1415	1415	1415	1415	1415	1415	1415	1415	34142
Shire & Unitary Total	***58271***	***57105***	***55963***	***54844***	***54844***	***54844***	***54844***	***54844***	***54844***	***54844***	***54844***	***54844***	***54844***	***54844***	***54844***	***54844***	***54844***	***54844***	***54844***	***54844***	***54844***	***54844***	***54844***	***54844***	**1323066**
West Midlands Total	***103050***	***100989***	***98969***	***96989***	***96989***	***96989***	***96989***	***96989***	***96989***	***96989***	***96989***	***96989***	***96989***	***96989***	***96989***	***96989***	***96989***	***96989***	***96989***	***96989***	***96989***	***96989***	***96989***	***96989***	**2339784**

SCENARIO 1 WMRSS ADJUSTED FOR ECONOMIC IMPACT

Municipal Waste	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	CUM.
Birmingham	108768	291756	281325	270370	264976	259492	253916	249489	242485	205444	167864	129738	91062	51828	52197	52568	52942	53319	53698	54080	54465	54853	55243	55636	3407513
Coventry	18760	87837	84354	80712	79019	77302	75562	74167	72010	60946	49746	38407	26930	15311	15404	15497	15591	15686	15781	15877	15973	16070	16167	16265	999374
Dudley	23239	67730	68392	69078	67670	66241	64789	63631	61818	52352	42757	33031	23174	13184	13272	13360	13450	13539	13630	13721	13812	13905	13997	14091	853864
Sandwell	93424	72641	70079	67381	66104	64802	63475	62432	60741	51515	42135	32599	22904	13049	13156	13263	13371	13480	13589	13700	13812	13924	14038	14152	919766
Solihull	16253	44516	45201	45897	46144	45072	44028	43187	41902	35441	28908	22304	15628	8880	8927	8976	9024	9073	9122	9171	9220	9270	9320	9370	574834
Walsall	61841	63811	64481	65175	63856	62515	61154	60069	58366	49435	40380	31200	21892	12456	12541	12627	12713	12799	12886	12974	13063	13152	13241	13331	845957
Wolverhampton	31522	71507	69369	67116	65771	64404	63014	61909	60166	50970	41643	32182	22586	12854	12944	13035	13126	13218	13311	13405	13499	13593	13689	13785	848616
Met Area Total	***353807***	***699798***	***683201***	***665729***	***653540***	***639828***	***625937***	***614885***	***597488***	***506104***	***413433***	***319461***	***224175***	***127561***	***128440***	***129325***	***130216***	***131114***	***132017***	***132927***	***133843***	***134766***	***135695***	***136631***	**8449923**
Shropshire	97019	46037	46879	47737	47389	47033	46667	46673	45906	43186	40417	37600	28129	16028	16162	16296	16431	16567	16705	16843	16983	17124	17266	17410	804487
Telford and Wrekin	62630	39207	40173	41163	41358	41549	41737	42135	41972	35826	29492	22964	16239	9311	9448	9586	9727	9869	10014	10160	10309	10460	10613	10769	606710
Staffordshire	172792	126736	128784	130865	129686	128489	127271	127044	124777	117362	109852	102245	73739	41929	42187	42447	42708	42971	43235	43501	43769	44039	44310	44582	2075321
Stoke-On-Trent	26563	64771	63070	61300	60000	58683	57348	56276	54626	46222	37719	29115	20409	11601	11669	11737	11805	11874	11943	12012	12082	12153	12224	12295	767496
Warwickshire	181101	123296	125394	127528	127136	126732	126316	126546	125448	108717	88822	68642	48174	27416	27608	27802	27997	28193	28391	28591	28791	28993	29197	29402	1816234
Worcestershire	155859	97570	99078	100608	99894	99169	98433	98327	96927	92265	86326	66609	46675	26521	26666	26811	26957	27104	27252	27400	27550	27700	27851	28002	1537554
Herefordshire	64340	40008	40749	41504	41449	41389	41326	41468	41059	34836	28503	22060	15506	8837	8913	8989	9065	9143	9221	9299	9379	9459	9539	9621	595663
Shire & Unitary Total	***760304***	***537625***	***544128***	***550706***	***546912***	***543043***	***539098***	***538469***	***530716***	***478416***	***421131***	***349235***	***248870***	***141644***	***142651***	***143667***	***144690***	***145721***	***146760***	***147808***	***148863***	***149927***	***151000***	***152080***	**8203464**
West Midlands Total	***1114111***	***1237423***	***1227329***	***1216435***	***1200452***	***1182871***	***1165035***	***1153354***	***1128204***	***984520***	***834564***	***668696***	***473046***	***269205***	***271092***	***272992***	***274906***	***276835***	***278778***	***280735***	***282707***	***284693***	***286695***	***288711***	**16653388**

C&D Waste	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	CUM.
Birmingham	219555	217360	166639	167306	203988	207858	203113	198214	193713	189241	184796	180560	176350	172345	168364	164405	160467	156911	153374	149856	146714	142874	139765	136672	4200440
Coventry	47535	47060	36078	36223	44164	57547	56233	54877	53631	52392	51162	49989	48823	47715	46612	45516	44426	43442	42463	41488	40619	39555	38695	37838	1104083
Dudley	51226	50714	38880	39035	47594	67594	66051	64458	62995	61540	60095	58717	57348	56046	54751	53464	52183	51027	49877	48733	47711	46462	45451	44445	1276395
Sandwell	65878	65219	50000	50200	61207	67594	66051	64458	62995	61540	60095	58717	57348	56046	54751	53464	52183	51027	49877	48733	47711	46462	45451	44445	1341451
Solihull	29304	29011	22241	22330	27226	32579	31836	31068	30362	29661	28965	28301	27641	27013	26389	25769	25151	24594	24040	23488	22996	22394	21907	21422	635686
Walsall	36574	36208	27759	27870	33981	57141	55836	54490	53252	52023	50801	49636	48479	47378	46284	45195	44113	43135	42163	41196	40332	39276	38422	37571	1049115
Wolverhampton	36574	36208	27759	27870	33981	57141	55836	54490	53252	52023	50801	49636	48479	47378	46284	45195	44113	43135	42163	41196	40332	39276	38422	37571	1049115
Met Area Total	***486645***	***481779***	***369357***	***370834***	***452140***	***547454***	***534955***	***522054***	***510200***	***498421***	***486714***	***475558***	***464468***	***453921***	***443435***	***433007***	***422637***	***413271***	***403956***	***394689***	***386413***	***376299***	***368111***	***359964***	**10656285**
Shropshire	65878	65219	50000	50200	61207	62317	60894	59425	58076	56735	55403	54133	52871	51670	50476	49289	48109	47043	45982	44928	43986	42834	41902	40975	1259552
Telford and Wrekin	97307	96334	73854	74150	90407	48514	47406	46263	45212	44169	43131	42143	41160	40225	39296	38372	37453	36623	35797	34976	34243	33346	32621	31899	1184900
Staffordshire	182981	181152	138880	139436	170007	110831	108300	105688	103289	100904	98534	96275	94030	91895	89772	87661	85562	83666	81780	79904	78228	76181	74523	72874	2532352
Stoke-On-Trent	43956	43516	33362	33495	40839	41612	40662	39682	38781	37885	36995	36147	35304	34503	33706	32913	32125	31413	30705	30000	29371	28603	27980	27361	840917
Warwickshire	109834	108735	83362	83696	102046	93577	91440	89235	87209	85195	83194	81287	79392	77589	75797	74014	72242	70641	69048	67465	66050	64321	62922	61529	1939819
Worcestershire	87800	86922	66639	66905	81574	69320	67737	66104	64603	63111	61629	60216	58812	57476	56149	54828	53515	52329	51150	49976	48929	47648	46611	45579	1465562
Herefordshire	43956	43516	33362	33495	40839	41612	40662	39682	38781	37885	36995	36147	35304	34503	33706	32913	32125	31413	30705	30000	29371	28603	27980	27361	840917
Shire & Unitary Total	***631711***	***625394***	***479460***	***481377***	***586919***	***467782***	***457102***	***446078***	***435950***	***425885***	***415882***	***406349***	***396873***	***387861***	***378901***	***369991***	***361130***	***353127***	***345167***	***337249***	***330178***	***321535***	***314539***	***307578***	**10064018**
West Midlands Total	***1118356***	***1107172***	***848817***	***852212***	***1039059***	***1015236***	***992058***	***968132***	***946150***	***924306***	***902596***	***881907***	***861342***	***841782***	***822335***	***802998***	***783767***	***766398***	***749123***	***731939***	***716591***	***697834***	***682651***	***667542***	**20720303**

C&I Waste Growth	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	CUM.
Birmingham	399325	395601	264348	266780	329732	311335	323749	336967	297692	317972	340379	365138	392500	346979	346979	346979	346979	346979	346979	346979	346979	346979	346979	346979	8158289
Coventry	140538	139227	93034	93890	116045	109571	113940	118592	104769	111907	119792	128506	138136	122115	122115	122115	122115	122115	122115	122115	122115	122115	122115	122115	2871219
Dudley	142804	141473	94535	66401	117917	111338	115778	120505	106459	113712	121725	130579	140364	124085	124085	124085	124085	124085	124085	124085	124085	124085	124085	124085	2888528
Sandwell	210807	208841	139551	140835	174068	164356	170910	177888	157154	167860	179689	192760	207204	183173	183173	183173	183173	183173	183173	183173	183173	183173	183173	183173	4306828
Solihull	64225	63626	42516	42907	53032	50073	52070	54196	47879	51140	54744	58726	63127	55806	55806	55806	55806	55806	55806	55806	55806	55806	55806	55806	1312125
Walsall	143561	142222	95035	95910	118541	111928	116391	121143	107023	114314	122369	131270	141107	124742	124742	124742	124742	124742	124742	124742	124742	124742	124742	124742	2932975
Wolverhampton	117493	116398	77779	78495	97017	91604	95257	99146	87590	93557	100150	107435	115485	102092	102092	102092	102092	102092	102092	102092	102092	102092	102092	102092	2400414
Met Area Total	***1218753***	***1207389***	***806799***	***785217***	***1006352***	***950204***	***988094***	***1028436***	***908565***	***970460***	***1038847***	***1114415***	***1197923***	***1058993***	***1058993***	***1058993***	***1058993***	***1058993***	***1058993***	***1058993***	***1058993***	***1058993***	***1058993***	***1058993***	**24870377**
Shropshire	130988	128971	84695	85361	104344	97437	100207	103153	90133	94611	99555	105012	111038	96600	96600	96600	96600	96600	96600	96600	96600	96600	96600	96600	2398112
Telford and Wrekin	123062	121167	79570	80196	98030	91541	94144	96911	84678	88886	93531	98658	104319	90755	90755	90755	90755	90755	90755	90755	90755	90755	90755	90755	2252997
Staffordshire & Stoke-On-Trent	586487	578836	382714	385924	473809	444398	459059	474659	416599	440423	466732	495788	527883	462383	462383	462383	462383	462383	462383	462383	462383	462383	462383	462383	11219528
Warwickshire	248145	246562	166122	167754	208404	197773	206683	216174	191893	206492	222626	240459	260171	231430	231430	231430	231430	231430	231430	231430	231430	231430	231430	231430	5324989
Worcestershire	241699	239716	160688	162205	200875	190036	197994	206467	182742	195756	210137	226030	243595	215875	215875	215875	215875	215875	215875	215875	215875	215875	215875	215875	5032559
Herefordshire	104890	103358	68031	68578	83952	78512	80866	83370	72958	76771	80980	85627	90760	79147	79147	79147	79147	79147	79147	79147	79147	79147	79147	79147	1949271
Shire & Unitary Total	***1435271***	***1418610***	***941821***	***950017***	***1169414***	***1099698***	***1138954***	***1180734***	***1039003***	***1102939***	***1173561***	***1251575***	***1337766***	***1176190***	***1176190***	***1176190***	***1176190***	***1176190***	***1176190***	***1176190***	***1176190***	***1176190***	***1176190***	***1176190***	**28177455**
West Midlands Total	***2654024***	***2625998***	***1748620***	***1735235***	***2175766***	***2049902***	***2127048***	***2209170***	***1947568***	***2073400***	***2212408***	***2365990***	***2535689***	***2235183***	***2235183***	***2235183***	***2235183***	***2235183***	***2235183***	***2235183***	***2235183***	***2235183***	***2235183***	***2235183***	**53047833**

Hazardous Waste Growth	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	CUM.
Birmingham	7499	7551	7287	7378	7378	7378	7378	7378	7378	7378	7378	7378	7378	7378	7378	7378	7378	7378	7378	7378	7378	7378	7378	7378	177278
Coventry	2397	2414	2330	2359	2359	2359	2359	2359	2359	2359	2359	2359	2359	2359	2359	2359	2359	2359	2359	2359	2359	2359	2359	2359	56674
Dudley	15037	15142	14612	14795	14795	14795	14795	14795	14795	14795	14795	14795	14795	14795	14795	14795	14795	14795	14795	14795	14795	14795	14795	14795	355484
Sandwell	5509	5548	5354	5420	5420	5420	5420	5420	5420	5420	5420	5420	5420	5420	5420	5420	5420	5420	5420	5420	5420	5420	5420	5420	130240
Solihull	1875	1888	1822	1845	1845	1845	1845	1845	1845	1845	1845	1845	1845	1845	1845	1845	1845	1845	1845	1845	1845	1845	1845	1845	44321
Walsall	825	831	802	812	812	812	812	812	812	812	812	812	812	812	812	812	812	812	812	812	812	812	812	812	19513
Wolverhampton	11636	11718	11308	11449	11449	11449	11449	11449	11449	11449	11449	11449	11449	11449	11449	11449	11449	11449	11449	11449	11449	11449	11449	11449	275089
Met Area Total	***44779***	***45092***	***43514***	***44058***	***44058***	***44058***	***44058***	***44058***	***44058***	***44058***	***44058***	***44058***	***44058***	***44058***	***44058***	***44058***	***44058***	***44058***	***44058***	***44058***	***44058***	***44058***	***44058***	***44058***	**1058598**
Shropshire	2718	2737	2641	2674	2674	2674	2674	2674	2674	2674	2674	2674	2674	2674	2674	2674	2674	2674	2674	2674	2674	2674	2674	2674	64261
Telford and Wrekin	676	681	657	665	665	665	665	665	665	665	665	665	665	665	665	665	665	665	665	665	665	665	665	665	15977
Staffordshire	32989	33220	32058	32458	32458	32458	32458	32458	32458	32458	32458	32458	32458	32458	32458	32458	32458	32458	32458	32458	32458	32458	32458	32458	779892
Stoke-On-Trent	2826	2846	2747	2781	2781	2781	2781	2781	2781	2781	2781	2781	2781	2781	2781	2781	2781	2781	2781	2781	2781	2781	2781	2781	66819
Warwickshire	4789	4822	4654	4712	4712	4712	4712	4712	4712	4712	4712	4712	4712	4712	4712	4712	4712	4712	4712	4712	4712	4712	4712	4712	113214
Worcestershire	12768	12858	12408	12563	12563	12563	12563	12563	12563	12563	12563	12563	12563	12563	12563	12563	12563	12563	12563	12563	12563	12563	12563	12563	301853
Herefordshire	1504	1514	1461	1479	1479	1479	1479	1479	1479	1479	1479	1479	1479	1479	1479	1479	1479	1479	1479	1479	1479	1479	1479	1479	35548
Shire & Unitary Total	***58271***	***58679***	***56625***	***57333***	***57333***	***57333***	***57333***	***57333***	***57333***	***57333***	***57333***	***57333***	***57333***	***57333***	***57333***	***57333***	***57333***	***57333***	***57333***	***57333***	***57333***	***57333***	***57333***	***57333***	**1377565**
West Midlands Total	***103050***	***103771***	***100139***	***101391***	***101391***	***101391***	***101391***	***101391***	***101391***	***101391***	***101391***	***101391***	***101391***	***101391***	***101391***	***101391***	***101391***	***101391***	***101391***	***101391***	***101391***	***101391***	***101391***	***101391***	**2436163**

SCENARIO 2 WS 2007 ADJUSTED FOR ECONOMIC IMPACT

Municipal Waste	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
Birmingham	108768	291756	296749	286140	272294	266862	261338	255722	251264	244211	206906	169058	130661	91710	52197	52568	52942	53319	53698	54080	54465	54853
Coventry	18760	87837	89248	85709	81201	79498	77771	76020	74617	72447	61316	50048	38640	27093	15404	15497	15591	15686	15781	15877	15973	16070
Dudley	23239	67730	68860	69533	69539	68122	66683	65221	64056	62231	52701	43042	33252	23329	13272	13360	13450	13539	13630	13721	13812	13905
Sandwell	93424	72641	73959	71351	67930	66643	65330	63992	62940	61236	51935	42478	32864	23091	13156	13263	13371	13480	13589	13700	13812	13924
Solihull	16253	44516	45201	45897	46144	46393	45315	44266	43419	42128	35632	29064	22424	15712	8927	8976	9024	9073	9122	9171	9220	9270
Walsall	61841	63811	64883	65565	65619	64291	62941	61570	60479	58763	49772	40655	31412	22041	12541	12627	12713	12799	12886	12974	13063	13152
Wolverhampton	31522	71507	72724	70549	67588	66233	64856	63456	62344	60588	51328	41935	32408	22744	12944	13035	13126	13218	13311	13405	13499	13593
Met Area Total	***353807***	***699798***	***711625***	***694743***	***670315***	***658041***	***644234***	***630248***	***619120***	***601604***	***509590***	***416281***	***321662***	***225720***	***128440***	***129325***	***130216***	***131114***	***132017***	***132927***	***133843***	***134766***
Shropshire	97019	46037	46879	47737	48133	47783	47423	47054	47060	46287	43544	40753	37912	28362	16162	16296	16431	16567	16705	16843	16983	17124
Telford and Wrekin	62630	39207	40173	41163	41766	41963	42157	42348	42752	42587	36351	29924	23300	16477	9448	9586	9727	9869	10014	10160	10309	10460
Staffordshire	172792	126736	128784	130865	131670	130485	129280	128055	127826	125545	118085	110528	102874	74193	42187	42447	42708	42971	43235	43501	43769	44039
Stoke-On-Trent	26563	64771	65796	64068	61657	60349	59024	57682	56604	54944	46492	37939	29284	20528	11669	11737	11805	11874	11943	12012	12082	12153
Warwickshire	181101	123296	125394	127528	128423	128028	127622	127203	127434	126329	109480	89445	69123	48512	27608	27802	27997	28193	28391	28591	28791	28993
Worcestershire	155859	97570	99078	100608	101157	100438	99709	98969	98863	97456	92768	86797	66972	46929	26666	26811	26957	27104	27252	27400	27550	27700
Herefordshire	64340	40008	40749	41504	41858	41802	41742	41678	41822	41409	35133	28746	22249	15638	8913	8989	9065	9143	9221	9299	9379	9459
Shire & Unitary Total	***760304***	***537625***	***546853***	***553474***	***554665***	***550849***	***546958***	***542989***	***542361***	***534557***	***481853***	***424132***	***351715***	***250639***	***142651***	***143667***	***144690***	***145721***	***146760***	***147808***	***148863***	***149927***
West Midlands Total	***1114111***	***1237423***	***1258479***	***1248218***	***1224979***	***1208890***	***1191192***	***1173237***	***1161481***	***1136161***	***991444***	***840413***	***673377***	***476359***	***271092***	***272992***	***274906***	***276835***	***278778***	***280735***	***282707***	***284693***

CD & E Waste	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
Birmingham	182900	162964	124802	125301	114599	108456	108192	107933	107680	107432	107189	106952	106719	106491	106268	106050	105836	105627	105422	105222	105026	104834
Coventry	39599	35283	27020	27128	24811	30027	29953	29882	29812	29743	29676	29610	29546	29483	29421	29361	29301	29243	29187	29131	29077	29024
Dudley	42674	38022	29118	29235	26738	35269	35183	35099	35017	34936	34857	34780	34704	34630	34558	34487	34417	34349	34283	34218	34154	34091
Sandwell	54879	48898	37447	37597	34385	35269	35183	35099	35017	34936	34857	34780	34704	34630	34558	34487	34417	34349	34283	34218	34154	34091
Solihull	24412	21751	16657	16724	15295	16999	16958	16917	16878	16839	16801	16763	16727	16691	16656	16622	16589	16556	16524	16492	16462	16431
Walsall	30468	27147	20790	20873	19090	29815	29742	29671	29601	29533	29467	29401	29337	29275	29213	29153	29095	29037	28981	28926	28872	28819
Wolverhampton	30468	27147	20790	20873	19090	29815	29742	29671	29601	29533	29467	29401	29337	29275	29213	29153	29095	29037	28981	28926	28872	28819
Met Area Total	***405400***	***361211***	***276625***	***277731***	***254009***	***285649***	***284954***	***284272***	***283606***	***282953***	***282313***	***281688***	***281075***	***280475***	***279888***	***279313***	***278751***	***278200***	***277660***	***277132***	***276615***	***276109***
Shropshire	54879	48898	37447	37597	34385	32516	32436	32359	32283	32209	32136	32065	31995	31927	31860	31794	31730	31668	31606	31546	31487	31430
Telford and Wrekin	81061	72226	55312	55533	50790	25313	25252	25191	25132	25074	25018	24962	24908	24855	24803	24752	24702	24653	24605	24559	24513	24468
Staffordshire	152433	135817	104012	104429	95509	57829	57688	57550	57415	57283	57154	57027	56903	56781	56663	56546	56432	56321	56212	56105	56000	55898
Stoke-On-Trent	36617	32626	24986	25086	22943	21712	21659	21608	21557	21507	21459	21411	21365	21319	21274	21231	21188	21146	21105	21065	21026	20987
Warwickshire	91497	81524	62433	62683	57329	48826	48707	48591	48477	48365	48256	48149	48044	47942	47841	47743	47647	47553	47461	47370	47282	47196
Worcestershire	73142	65169	49908	50108	45828	36170	36081	35995	35911	35828	35747	35668	35590	35514	35440	35367	35296	35226	35158	35091	35026	34962
Herefordshire	36617	32626	24986	25086	22943	21712	21659	21608	21557	21507	21459	21411	21365	21319	21274	21231	21188	21146	21105	21065	21026	20987
Shire & Unitary Total	***526246***	***468885***	***359085***	***360521***	***329727***	***244078***	***243484***	***242902***	***242332***	***241774***	***241228***	***240693***	***240170***	***239657***	***239156***	***238664***	***238184***	***237713***	***237252***	***236801***	***236359***	***235927***
West Midlands Total	***931646***	***830096***	***635709***	***638252***	***583736***	***529728***	***528437***	***527174***	***525937***	***524727***	***523541***	***522381***	***521245***	***520133***	***519044***	***517978***	***516934***	***515913***	***514912***	***513933***	***512975***	***512036***

C & I Waste	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
Birmingham	377325	348941	299111	260105	241499	211942	199975	198103	201140	204256	207453	210733	214098	217551	217551	217551	217551	217551	217551	217551	217551	217551
Coventry	132795	122806	105269	91541	84993	74591	70379	69720	70789	71886	73011	74165	75349	76565	76565	76565	76565	76565	76565	76565	76565	76565
Dudley	134937	124786	106966	65670	86364	75794	71514	70845	71931	73045	74188	75361	76565	77799	77799	77799	77799	77799	77799	77799	77799	77799
Sandwell	199193	184209	157903	137312	127489	111886	105569	104580	106183	107828	109516	111247	113024	114847	114847	114847	114847	114847	114847	114847	114847	114847
Solihull	60687	56121	48107	41834	38841	34087	32163	31862	32350	32851	33365	33893	34434	34989	34989	34989	34989	34989	34989	34989	34989	34989
Walsall	135652	125447	107533	93510	86821	76195	71893	71220	72312	73432	74581	75760	76970	78211	78211	78211	78211	78211	78211	78211	78211	78211
Wolverhampton	111020	102669	88007	76531	71056	62360	58839	58288	59181	60098	61039	62004	62994	64010	64010	64010	64010	64010	64010	64010	64010	64010
Met Area Total	***1151610***	***1064979***	***912896***	***766503***	***737064***	***646854***	***610332***	***604618***	***613887***	***623396***	***633153***	***643163***	***653434***	***663972***	***663972***	***663972***	***663972***	***663972***	***663972***	***663972***	***663972***	***663972***
Shropshire	123700	113693	95777	83177	76754	67052	62977	62101	62764	63445	64143	64859	65594	66348	66348	66348	66348	66348	66348	66348	66348	66348
Telford and Wrekin	116215	106813	89982	78144	72110	62995	59166	58343	58966	59606	60262	60934	61625	62333	62333	62333	62333	62333	62333	62333	62333	62333
Staffordshire & Stoke-On-Trent	553981	510382	432889	376136	347933	304504	286517	283050	286597	290236	293970	297801	301731	305764	305764	305764	305764	305764	305764	305764	305764	305764
Warwickshire	234540	217541	188019	163601	152333	133972	126674	125750	127943	130193	132502	134870	137300	139793	139793	139793	139793	139793	139793	139793	139793	139793
Worcestershire	228407	211464	181838	158163	147010	129122	121930	120886	122838	124840	126894	129002	131164	133383	133383	133383	133383	133383	133383	133383	133383	133383
Herefordshire	99062	91121	76938	66828	61719	53950	50702	50028	50594	51175	51770	52381	53008	53651	53651	53651	53651	53651	53651	53651	53651	53651
Shire & Unitary Total	***1355906***	***1251015***	***1065443***	***926050***	***857859***	***751595***	***707965***	***700160***	***709703***	***719494***	***729540***	***739847***	***750422***	***761272***	***761272***	***761272***	***761272***	***761272***	***761272***	***761272***	***761272***	***761272***
West Midlands Total	***2507515***	***2315994***	***1978339***	***1692553***	***1594924***	***1398449***	***1318297***	***1304777***	***1323589***	***1342890***	***1362693***	***1383011***	***1403857***	***1425244***	***1425244***	***1425244***	***1425244***	***1425244***	***1425244***	***1425244***	***1425244***	***1425244***

Hazardous Waste	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
Birmingham	7499	7551	7287	7378	7378	7378	7378	7378	7378	7378	7378	7378	7378	7378	7378	7378	7378	7378	7378	7378	7378	7378
Coventry	2397	2414	2330	2359	2359	2359	2359	2359	2359	2359	2359	2359	2359	2359	2359	2359	2359	2359	2359	2359	2359	2359
Dudley	15037	15142	14612	14795	14795	14795	14795	14795	14795	14795	14795	14795	14795	14795	14795	14795	14795	14795	14795	14795	14795	14795
Sandwell	5509	5548	5354	5420	5420	5420	5420	5420	5420	5420	5420	5420	5420	5420	5420	5420	5420	5420	5420	5420	5420	5420
Solihull	1875	1888	1822	1845	1845	1845	1845	1845	1845	1845	1845	1845	1845	1845	1845	1845	1845	1845	1845	1845	1845	1845
Walsall	825	831	802	812	812	812	812	812	812	812	812	812	812	812	812	812	812	812	812	812	812	812
Wolverhampton	11636	11718	11308	11449	11449	11449	11449	11449	11449	11449	11449	11449	11449	11449	11449	11449	11449	11449	11449	11449	11449	11449
Met Area Total	***44779***	***45092***	***43514***	***44058***	***44058***	***44058***	***44058***	***44058***	***44058***	***44058***	***44058***	***44058***	***44058***	***44058***	***44058***	***44058***	***44058***	***44058***	***44058***	***44058***	***44058***	***44058***
Shropshire	2718	2737	2641	2674	2674	2674	2674	2674	2674	2674	2674	2674	2674	2674	2674	2674	2674	2674	2674	2674	2674	2674
Telford and Wrekin	676	681	657	665	665	665	665	665	665	665	665	665	665	665	665	665	665	665	665	665	665	665
Staffordshire	32989	33220	32058	32458	32458	32458	32458	32458	32458	32458	32458	32458	32458	32458	32458	32458	32458	32458	32458	32458	32458	32458
Stoke-On-Trent	2826	2846	2747	2781	2781	2781	2781	2781	2781	2781	2781	2781	2781	2781	2781	2781	2781	2781	2781	2781	2781	2781
Warwickshire	4789	4822	4654	4712	4712	4712	4712	4712	4712	4712	4712	4712	4712	4712	4712	4712	4712	4712	4712	4712	4712	4712
Worcestershire	12768	12858	12408	12563	12563	12563	12563	12563	12563	12563	12563	12563	12563	12563	12563	12563	12563	12563	12563	12563	12563	12563
Herefordshire	1504	1514	1461	1479	1479	1479	1479	1479	1479	1479	1479	1479	1479	1479	1479	1479	1479	1479	1479	1479	1479	1479
Shire & Unitary Total	***58271***	***58679***	***56625***	***57333***	***57333***	***57333***	***57333***	***57333***	***57333***	***57333***	***57333***	***57333***	***57333***	***57333***	***57333***	***57333***	***57333***	***57333***	***57333***	***57333***	***57333***	***57333***
West Midlands Total	***103050***	***103771***	***100139***	***101391***	***101391***	***101391***	***101391***	***101391***	***101391***	***101391***	***101391***	***101391***	***101391***	***101391***	***101391***	***101391***	***101391***	***101391***	***101391***	***101391***	***101391***	***101391***

SCENARIO 3 ADAS C&I STUDY ADJUSTED FOR ECONOMIC IMPACT

Municipal Waste	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
Birmingham	108768	265647	228213	189500	182704	166008	147832	129388	110675	99246	87648	75881	63941	51828	52197	52568	52942	53319	53698	54080	54465	54853
Coventry	18760	80050	68506	56570	54484	49454	43993	38464	32867	29442	25974	22464	18909	15311	15404	15497	15591	15686	15781	15877	15973	16070
Dudley	23239	61074	54857	48416	46659	42377	37721	33000	28215	25290	22325	19319	16272	13184	13272	13360	13450	13539	13630	13721	13812	13905
Sandwell	93424	66147	56856	47227	45580	41457	36955	32378	27724	24886	22000	19066	16083	13049	13156	13263	13371	13480	13589	13700	13812	13924
Solihull	16253	40360	36762	33028	31789	28835	25634	22397	19125	17121	15094	13045	10974	8880	8927	8976	9024	9073	9122	9171	9220	9270
Walsall	61841	57532	51712	45681	44029	39994	35604	31153	26639	23881	21084	18248	15372	12456	12541	12627	12713	12799	12886	12974	13063	13152
Wolverhampton	31522	65025	56183	47041	45350	41202	36687	32107	27461	24623	21743	18822	15859	12854	12944	13035	13126	13218	13311	13405	13499	13593
Met Area Total	***353807***	***635835***	***553089***	***467464***	***450596***	***409326***	***364426***	***318888***	***272706***	***244489***	***215870***	***186845***	***157410***	***127561***	***128440***	***129325***	***130216***	***131114***	***132017***	***132927***	***133843***	***134766***
Shropshire	97019	46037	46879	47737	48133	45532	42507	39427	34027	30549	27011	23412	19751	16028	16162	16296	16431	16567	16705	16843	16983	17124
Telford and Wrekin	62630	36175	33961	31602	30696	28099	25210	22230	19157	17307	15399	13431	11402	9311	9448	9586	9727	9869	10014	10160	10309	10460
Staffordshire	172792	126736	128784	130865	131670	124497	116226	105276	89964	80597	71111	61505	51778	41929	42187	42447	42708	42971	43235	43501	43769	44039
Stoke-On-Trent	26563	58854	51049	42965	41371	37542	33389	29186	24933	22329	19695	17029	14331	11601	11669	11737	11805	11874	11943	12012	12082	12153
Warwickshire	181101	114520	107543	100338	96730	87882	78252	68483	58573	52519	46377	40147	33827	27416	27608	27802	27997	28193	28391	28591	28791	28993
Worcestershire	155859	97570	99078	98589	94896	86081	76529	66871	57105	51123	45074	38958	32774	26521	26666	26811	26957	27104	27252	27400	27550	27700
Herefordshire	64340	36915	34448	31864	30764	27992	24962	21878	18740	16828	14883	12903	10888	8837	8913	8989	9065	9143	9221	9299	9379	9459
Shire & Unitary Total	***760304***	***516807***	***501742***	***483958***	***474260***	***437625***	***397074***	***353351***	***302499***	***271253***	***239550***	***207384***	***174751***	***141644***	***142651***	***143667***	***144690***	***145721***	***146760***	***147808***	***148863***	***149927***
West Midlands Total	***1114111***	***1152642***	***1054831***	***951422***	***924857***	***846951***	***761500***	***672239***	***575205***	***515741***	***455419***	***394229***	***332161***	***269205***	***271092***	***272992***	***274906***	***276835***	***278778***	***280735***	***282707***	***284693***

CD & E Waste	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
Birmingham	182900	162964	124802	125301	114599	108456	108192	107933	107680	107432	107189	106952	106719	106491	106268	106050	105836	105627	105422	105222	105026	104834
Coventry	39599	35283	27020	27128	24811	30027	29953	29882	29812	29743	29676	29610	29546	29483	29421	29361	29301	29243	29187	29131	29077	29024
Dudley	42674	38022	29118	29235	26738	35269	35183	35099	35017	34936	34857	34780	34704	34630	34558	34487	34417	34349	34283	34218	34154	34091
Sandwell	54879	48898	37447	37597	34385	35269	35183	35099	35017	34936	34857	34780	34704	34630	34558	34487	34417	34349	34283	34218	34154	34091
Solihull	24412	21751	16657	16724	15295	16999	16958	16917	16878	16839	16801	16763	16727	16691	16656	16622	16589	16556	16524	16492	16462	16431
Walsall	30468	27147	20790	20873	19090	29815	29742	29671	29601	29533	29467	29401	29337	29275	29213	29153	29095	29037	28981	28926	28872	28819
Wolverhampton	30468	27147	20790	20873	19090	29815	29742	29671	29601	29533	29467	29401	29337	29275	29213	29153	29095	29037	28981	28926	28872	28819
Met Area Total	***405400***	***361211***	***276625***	***277731***	***254009***	***285649***	***284954***	***284272***	***283606***	***282953***	***282313***	***281688***	***281075***	***280475***	***279888***	***279313***	***278751***	***278200***	***277660***	***277132***	***276615***	***276109***
Shropshire	54879	48898	37447	37597	34385	32516	32436	32359	32283	32209	32136	32065	31995	31927	31860	31794	31730	31668	31606	31546	31487	31430
Telford and Wrekin	81061	72226	55312	55533	50790	25313	25252	25191	25132	25074	25018	24962	24908	24855	24803	24752	24702	24653	24605	24559	24513	24468
Staffordshire	152433	135817	104012	104429	95509	57829	57688	57550	57415	57283	57154	57027	56903	56781	56663	56546	56432	56321	56212	56105	56000	55898
Stoke-On-Trent	36617	32626	24986	25086	22943	21712	21659	21608	21557	21507	21459	21411	21365	21319	21274	21231	21188	21146	21105	21065	21026	20987
Warwickshire	91497	81524	62433	62683	57329	48826	48707	48591	48477	48365	48256	48149	48044	47942	47841	47743	47647	47553	47461	47370	47282	47196
Worcestershire	73142	65169	49908	50108	45828	36170	36081	35995	35911	35828	35747	35668	35590	35514	35440	35367	35296	35226	35158	35091	35026	34962
Herefordshire	36617	32626	24986	25086	22943	21712	21659	21608	21557	21507	21459	21411	21365	21319	21274	21231	21188	21146	21105	21065	21026	20987
Shire & Unitary Total	***526246***	***468885***	***359085***	***360521***	***329727***	***244078***	***243484***	***242902***	***242332***	***241774***	***241228***	***240693***	***240170***	***239657***	***239156***	***238664***	***238184***	***237713***	***237252***	***236801***	***236359***	***235927***
West Midlands Total	***931646***	***830096***	***635709***	***638252***	***583736***	***529728***	***528437***	***527174***	***525937***	***524727***	***523541***	***522381***	***521245***	***520133***	***519044***	***517978***	***516934***	***515913***	***514912***	***513933***	***512975***	***512036***

C & I Waste	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
Birmingham	377325	348941	299111	260105	245127	212232	197546	193046	193342	193660	194000	194362	194747	195154	195154	195154	195154	195154	195154	195154	195154	195154
Coventry	132795	122806	105269	91541	86270	74693	69524	67940	68044	68156	68276	68404	68539	68682	68682	68682	68682	68682	68682	68682	68682	68682
Dudley	134937	124786	106966	65670	87661	75897	70645	69036	69142	69256	69377	69507	69644	69790	69790	69790	69790	69790	69790	69790	69790	69790
Sandwell	199193	184209	157903	137312	129404	112039	104286	101911	102067	102234	102414	102605	102808	103023	103023	103023	103023	103023	103023	103023	103023	103023
Solihull	60687	56121	48107	41834	39425	34134	31772	31048	31096	31147	31202	31260	31322	31387	31387	31387	31387	31387	31387	31387	31387	31387
Walsall	135652	125447	107533	93510	88125	76299	71020	69402	69508	69622	69745	69875	70013	70160	70160	70160	70160	70160	70160	70160	70160	70160
Wolverhampton	111020	102669	88007	76531	72124	62445	58124	56800	56887	56981	57081	57187	57300	57420	57420	57420	57420	57420	57420	57420	57420	57420
Met Area Total	***1151610***	***1064979***	***912896***	***766503***	***748135***	***647739***	***602917***	***589183***	***590086***	***591056***	***592094***	***593200***	***594374***	***595616***	***595616***	***595616***	***595616***	***595616***	***595616***	***595616***	***595616***	***595616***
Shropshire	123700	113693	95777	83177	78387	67608	62688	61026	60884	60750	60623	60504	60391	60285	60285	60285	60285	60285	60285	60285	60285	60285
Telford and Wrekin	116215	106813	89982	78144	73644	63517	58895	57333	57200	57074	56955	56842	56736	56637	56637	56637	56637	56637	56637	56637	56637	56637
Staffordshire & Stoke-On-Trent	553981	510382	432889	376136	354476	306194	284344	277223	277004	276817	276662	276540	276449	276390	276390	276390	276390	276390	276390	276390	276390	276390
Warwickshire	234540	217541	188019	163601	154180	133729	124697	122072	122474	122891	123321	123766	124224	124697	124697	124697	124697	124697	124697	124697	124697	124697
Worcestershire	228407	211464	181838	158163	149055	129141	120287	117627	117887	118160	118447	118748	119062	119390	119390	119390	119390	119390	119390	119390	119390	119390
Herefordshire	99062	91121	76938	66828	62980	54347	50419	49106	49018	48936	48859	48788	48722	48662	48662	48662	48662	48662	48662	48662	48662	48662
Shire & Unitary Total	***1355906***	***1251015***	***1065443***	***926050***	***872722***	***754535***	***701330***	***684386***	***684468***	***684628***	***684868***	***685187***	***685585***	***686061***	***686061***	***686061***	***686061***	***686061***	***686061***	***686061***	***686061***	***686061***
West Midlands Total	***2507515***	***2315994***	***1978339***	***1692553***	***1620857***	***1402274***	***1304247***	***1273569***	***1274553***	***1275684***	***1276962***	***1278387***	***1279959***	***1281678***	***1281678***	***1281678***	***1281678***	***1281678***	***1281678***	***1281678***	***1281678***	***1281678***

Hazardous Waste	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
Birmingham	7499	7551	7287	7378	7378	7378	7378	7378	7378	7378	7378	7378	7378	7378	7378	7378	7378	7378	7378	7378	7378	7378
Coventry	2397	2414	2330	2359	2359	2359	2359	2359	2359	2359	2359	2359	2359	2359	2359	2359	2359	2359	2359	2359	2359	2359
Dudley	15037	15142	14612	14795	14795	14795	14795	14795	14795	14795	14795	14795	14795	14795	14795	14795	14795	14795	14795	14795	14795	14795
Sandwell	5509	5548	5354	5420	5420	5420	5420	5420	5420	5420	5420	5420	5420	5420	5420	5420	5420	5420	5420	5420	5420	5420
Solihull	1875	1888	1822	1845	1845	1845	1845	1845	1845	1845	1845	1845	1845	1845	1845	1845	1845	1845	1845	1845	1845	1845
Walsall	825	831	802	812	812	812	812	812	812	812	812	812	812	812	812	812	812	812	812	812	812	812
Wolverhampton	11636	11718	11308	11449	11449	11449	11449	11449	11449	11449	11449	11449	11449	11449	11449	11449	11449	11449	11449	11449	11449	11449
Met Area Total	***44779***	***45092***	***43514***	***44058***	***44058***	***44058***	***44058***	***44058***	***44058***	***44058***	***44058***	***44058***	***44058***	***44058***	***44058***	***44058***	***44058***	***44058***	***44058***	***44058***	***44058***	***44058***
Shropshire	2718	2737	2641	2674	2674	2674	2674	2674	2674	2674	2674	2674	2674	2674	2674	2674	2674	2674	2674	2674	2674	2674
Telford and Wrekin	676	681	657	665	665	665	665	665	665	665	665	665	665	665	665	665	665	665	665	665	665	665
Staffordshire & Stoke-On-Trent	32989	33220	32058	32458	32458	32458	32458	32458	32458	32458	32458	32458	32458	32458	32458	32458	32458	32458	32458	32458	32458	32458
Warwickshire	2826	2846	2747	2781	2781	2781	2781	2781	2781	2781	2781	2781	2781	2781	2781	2781	2781	2781	2781	2781	2781	2781
Worcestershire	4789	4822	4654	4712	4712	4712	4712	4712	4712	4712	4712	4712	4712	4712	4712	4712	4712	4712	4712	4712	4712	4712
Herefordshire	12768	12858	12408	12563	12563	12563	12563	12563	12563	12563	12563	12563	12563	12563	12563	12563	12563	12563	12563	12563	12563	12563
Shire & Unitary Total	1504	1514	1461	1479	1479	1479	1479	1479	1479	1479	1479	1479	1479	1479	1479	1479	1479	1479	1479	1479	1479	1479
West Midlands Total	***58271***	***58679***	***56625***	***57333***	***57333***	***57333***	***57333***	***57333***	***57333***	***57333***	***57333***	***57333***	***57333***	***57333***	***57333***	***57333***	***57333***	***57333***	***57333***	***57333***	***57333***	***57333***