



**Staffordshire County Council and Stoke-on-Trent City Council
Joint Municipal Waste Management Strategy**

**Implementation Plan
(Post Consultation)**

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1 INTRODUCTION

One of the key deliverables for the Joint Municipal Waste Management Strategy (JMWMS) is an implementation plan for the future collection service requirements to divert recyclable and compostable materials, and residual treatment capacity requirements within Staffordshire and Stoke-on-Trent.

The implementation plan has been developed based upon the strategic recycling and recovery targets defined by the options development process (produced as a separate document) for the year 2020;

- **Increased household recycling:** Delivering on a combined household recycling and composting target of 55% (equivalent to 50% of all MSW)
- **Recovering benefit from all remaining MSW:** Sending approximately 50%¹ of all MSW for recovery
- **Zero waste to Landfill:** Minimising all forms of waste to landfill through increased recycling followed by maximum recovery of all remaining residual waste, thus placing landfill as the last and final option

In order to present what these targets will mean for each WCA at the local level the headline targets and objectives have been broken down into key target years, which are also in line with the LATS² and Statutory Recycling³ target years. The key target years include;

- Baseline – 2006;
- 2009/10;
- 2012/13;
- 2014/15; and
- 2019/20

This report details the required delivery requirements for each waste management service area (i.e. collection, HWRC's, Bring Banks, downstream treatment and disposal infrastructure). The strategy assumes an average performance standard is met by Staffordshire, the Districts and Stoke-on-Trent however actual performance among the Districts may vary depending on the final agreements made between each of the key stakeholders. A summary of the key implementation milestones is illustrated for each key target year in Figure 1-1⁴.

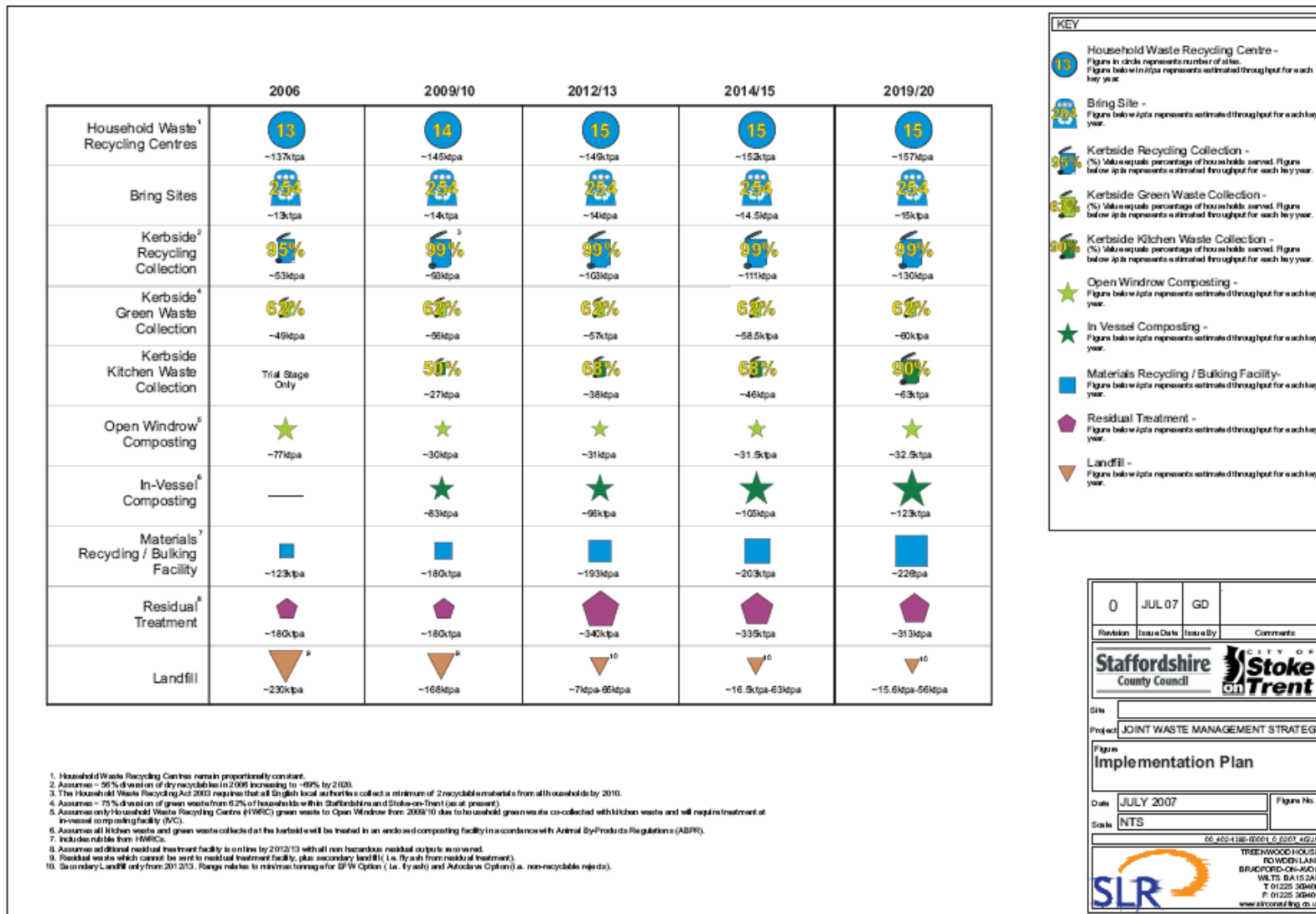
¹ 5% of the MSW total is rubble which is recycled at HWRCs, and therefore does not require further residual treatment. Government definitions exclude rubble from household waste recycling figures.

² Detailed LATS calculations can be found in Technical Appendix 2

³ Detailed BVPI data can be found in Technical Appendix 4

⁴ Detailed descriptions for Waste Treatment and Disposal Technologies can be found in Technical Appendix 5

Figure 1-1: Implementation Plan for Staffordshire and Stoke-on-Trent Joint Municipal Waste Management Strategy



2 WASTE MINIMISATION AND RE-USE

An essential component for an implementation plan is to continue, improve and expand upon current waste minimisation initiatives. Across Staffordshire there are a number of initiatives currently being implemented including:

- Home composting;
- Real nappy campaign;
- Re-use schemes for furniture and electrical goods;
- Schools waste action clubs; and
- Wider educational awareness and public awareness campaigns

This implementation element of the strategy is likely to be required between now and the year 2020, running continuously. Adequate resourcing of this element is therefore required.

All of the Districts and Councils provide information on waste issues via leaflets and normal publicity channels and a number have appointed staff dedicated to waste management awareness issues. A range of initiatives have been implemented at the local and regional level and these are briefly summarised in the table below

Table 2-1: Staffordshire and Districts Waste Minimisation Initiatives

Council	Waste Minimisation Initiatives
Staffordshire CC	Waste Watch national campaign aimed at minimising waste through education and public awareness campaigns. Staffordshire Green Awards
Cannock Chase	Go for Green
East Staffordshire	Real Nappy campaign Subsidised home composters
Lichfield	Beacon Council for waste and recycling Home composting Community repaint 'Freecycle' waste swap scheme
Newcastle-under-Lyme	Reusable Nappy campaign Staffordshire wide home composting campaign
South Staffordshire	'Watch your Waste' campaign Home Composting sales Nappy bins supplied to householders
Stafford	Subsidised home composters Furniture exchange Clear out days

Key to the implementation of the waste strategy targets and objectives as outlined in the Headline Strategy Document is the projected waste arisings forecast. The forecast assumes that by 2020 there will be zero growth in waste produced per household and any increases in waste are linked to the increase in the total number of households. The assumed reduction in waste growth per household is linked to a declining number of people per household⁵ coupled with an increased awareness and participation of waste minimisation initiatives as outlined above.

⁵Projections for households and populations from Communities and Local Government suggests (<http://www.communities.gov.uk/>) there is an expected downward trend in the number of people per household

3 WASTE COLLECTION

3.1 Household Waste Recycling Centres (HWRCs)

The number of HWRCs required to deliver the strategy remains constant at 13 between the baseline year (2005/06) to the assessment year 2020. It is assumed that waste brought to HWRCs will only increase in proportion to the projected waste growth rate (~1%) due to the planned increased kerbside recyclables collection service. Waste from HWRCs is comprised of dry recyclables, green waste, residual waste and rubble. The dry recyclables are sent to a Materials Recycling/Bulking Facility (MRF) prior to onward reprocessing, the green waste is composted in open windrow facility⁶ and most rubble is recovered.

A significant proportion of the HWRC residual waste is comprised of 'difficult wastes' such as carpets and mattresses which currently cannot be recovered and are sent to landfill, however by 2012/13 it is assumed that this waste will go through some form of pre-treatment (i.e. shredding) to enable recovery of the waste rather than landfill. The Staffordshire and Stoke-on-Trent HWRC diversion is currently calculated at 65% which is considered the maximum diversion rate for HWRCs⁷.

Table 3-1: HWRC Waste Tonnages 2006 to 2020

HWRC waste	MSW (tonnes)
Dry Recyclables	~27,000 – 48,000
Green Waste	~28,000 – 33,000
Residual Waste	~55,000 – 44,000
Rubble	~28,000 – 32,000

It is assumed that there will be no increase in the number of materials collected in each target year.

3.2 Bring Sites

Similar to the HWRCs, Bring Sites are also assumed to remain constant in number and are only expected to increase at the projected waste growth rate due to increased kerbside recyclables collection service. The majority of materials collected at the bring sites are paper, textiles, glass and metal cans. It is assumed that there will be no increase in the number of materials collected in future years.

There are currently 254 bring sites across Staffordshire collecting approximately 13,000 tonnes of recyclable material. Due to overall increases in MSW this tonnage is forecasted to increase to around 15,000 tonnes by the year 2020.

3.3 Kerbside Dry Recyclables

At the baseline year (2005/6) there are on average 95% of households across the districts served by some form of kerbside door to door dry recyclables collection. In order to meet the targets outlined within the headline strategy the districts and Stoke-on-Trent will need to

⁶ Following roll out of kitchen and green waste co-collection schemes, only HWRC source separated green waste can be composted in an open windrow. This is due to the ABPR requirements for treating kitchen waste.

⁷ Excluding rubble

increase the coverage to 100% of households by 2009/10 and reach participation and capture rates of 75%, therefore achieving an overall average kerbside recycling divergence of 56%. By the year 2020 participation and capture rates will need to increase to 83% and average overall diversion rates increase to 69%. The participation and capture rates required at key target years are shown in Table 2-2. The need for promotion and awareness campaigns is likely to be an ongoing requirement to maximise and maintain the high householder participation and diversion rates.

Table 3-2: Kerbside dry recyclables collection at key target years

Target Years	2009/10	2012/13	2014/15	2019/20
Kerbside recycling assumptions:				
Percentage of householders participating in the scheme	75%	78%	80%	83%
Available materials captured	75%	78%	80%	83%
Number of households covered by the service	100%	100%	100%	100%
Total diversion from kerbside recycling	56%	61%	64%	69%

Materials collected at the kerbside by 2009/10 include;

- paper and card;
- newspapers and magazines;
- plastic bottles and film;
- textiles;
- glass bottles and jars; and
- metals cans and foil

The materials collected at the kerbside remains constant until the target year 2020 when it will be necessary to also collect other dense plastic packaging to meet the required diversion rates.

3.4 Kerbside Green Waste Collection

At the baseline year (2005/06) there is a green waste collection services to an average 62% of all households across Staffordshire and Stoke-on-Trent and equates to approximately 75% of all green waste in the household waste stream is diverted away from landfill. This performance is assumed to remain constant throughout the year 2020 as compositional analyses suggest that this is the maximum total green waste divergence rate achievable and so the kerbside green waste collection service will remain at the current 62% of households.

Currently all green waste collected is composted in open windrows. However, in later target years (2009/10 and beyond) as kitchen waste collections are introduced, Staffordshire and Stoke-on-Trent have indicated a preference for green and kitchen waste to be co-collected where possible therefore there will be a requirement under the Animal By-Products Regulations⁸ (ABPR) to treat all co-collected organic wastes in a State Veterinary Service (SVS) approved in-vessel composting facility.

In vessel composting capacity requirements are forecasted to increase from none in 2006 to approximately 123,000 tonnes by the year 2020.

⁸ Detailed information regarding waste legislation can be found in Technical Appendix 3

3.5 Kerbside Kitchen Waste Collection

The biodegradable fraction of household waste is estimated to be 68%⁹, which includes food waste. At the baseline year (2005/06), kitchen waste collections were only at the trial stage with a small number of Districts, however, in order for Staffordshire and Stoke-on-Trent to meet its recycling and composting targets and contribute to LATS targets it will be necessary for kitchen waste collections to be rolled out 50% of households by 2009/10, 68% of households by 2013/14 and 90% of households by 2020. Associated participation and capture rates are assumed to be 74% until 2013 and 80% from 2014/15 going forward as shown in Table 2-3.

Table 3-3: Kerbside kitchen waste collections at key target years

Kerbside composting assumptions:				
Percentage of householders participating in the scheme	74%	74%	80%	80%
Available materials captured	74%	74%	80%	80%
Number of households covered by the service	50%	68%	68%	90%
Total diversion from kerbside composting	27%	37%	43%	58%
The diversion rate for garden waste is set at the 2005/6 level:	75%	75%	75%	75%

⁹ Landfill Allowances and Trading Scheme (England) Regulations 2004

4 WASTE TREATMENT AND DISPOSAL

As part of the key objectives and targets in the Headline Strategy, Staffordshire and Stoke-on-Trent have set a target of zero waste to primary landfill by the target year 2020. This means that no waste will be sent as primary landfill and only pre-treated¹⁰ wastes which cannot be recycled or recovered (e.g. hazardous waste) will be permitted to be landfilled as secondary landfill.

4.1 Open Windrow Composting

As discussed in previously in Section 2, currently all green waste collected at HWRCs and from green waste kerbside collection services is composted in one of the seven¹¹ existing open windrow facilities within Staffordshire and Stoke-on-Trent or is managed out of the City and County boundaries.

In contrast to the other recycling and recovery facilities shown in Figure 1-1 the capacity requirements for open windrow composting facilities is reduced to ~30,000 tonnes per annum for the key target years. The reason for this reduction is due to Staffordshire and Stoke-on-Trent's preference to co-collect green and kitchen waste resulting in the requirement to treat all co-collected organic wastes in a State Veterinary Service (SVS) approved in-vessel composting facility as directed by the Animal By-Products Regulations¹² (ABPR). In future years it has been assumed that only source segregated green waste collected at HWRCs will be treated an open windrow composting facility.

Open windrow facilities may however also be used for further maturation of in-vessel composted organic waste once it has successfully complied with the Animal By-Products Regulations.

4.2 In-Vessel Composting

The implementation plan shown in Figure 1-1, as informed by the options assessment process¹³ requires that by the target year 2009/10 kitchen waste collections serve 50% of households within Staffordshire and Stoke-on-Trent. This figure increases to 68% by 2013/14 and to 90% by 2020. As mentioned previously, all kitchen waste (and other organic materials co-collected with kitchen waste) will need to be treated within an enclosed in-vessel composting facility in accordance with the ABPR. Therefore, the capacity requirements for in-vessel composting facilities to treat Staffordshire and Stoke-on-Trent's organic waste will be;

- ~83ktpa in 2009/10;
- ~96ktpa in 2012/13;
- ~105ktpa in 2014/15; and
- ~123ktpa in 2020

Currently, within Staffordshire and Stoke-on-Trent there is only one operational in-vessel composting facility licensed to take municipal waste¹⁴.

¹⁰ Pre-treatment of wastes has been defined as a physical, thermal, chemical or biological process including sorting that changes the characteristics of the waste in order to reduce its volume or hazardous nature, facilitates its handling or enhances its recovery (Landfill Directive 99/31/EC)

¹¹ For details of existing composting facilities in Staffordshire and Stoke-on-Trent see Technical Appendix 1

¹² Detailed information regarding waste legislation can be found in Technical Appendix 3

¹³ See Options Development Document

¹⁴ As of January 2007. See Technical Appendix 1 for details.

4.3 Materials Recycling/Bulking Facilities

In line with the increase in kerbside dry recyclables collections detailed in Section 2.3 an increase in the capacity to process the materials collected will be required. This can be either through an automated Material Recycling Facility (MRF) or a bulking station depending on whether the recyclables are co-collected or sorted at the kerbside (this may differ depending on each respective WCA collection contract). The capacity requirements for a MRF or bulking facility to manage Staffordshire and Stoke-on-Trent's dry recyclables for the key target years are;

- ~180ktpa in 2009/10;
- ~193ktpa in 2012/13;
- ~203ktpa in 2014/15; and
- ~226ktpa in 2019/20

Depending on the type of waste contract procured by Staffordshire and Stoke-on-Trent there may be potential revenue from sale of kerbside collected dry recyclables.

4.4 Residual Treatment Facility

The options assessment process¹⁵ identifies two residual treatment technologies as the preferred waste management option, Autoclave and Energy from Waste (EfW) to manage the remaining residual waste not recycled or recovered through the Stoke Incinerator¹⁶ and ensuring zero waste to primary landfill by 2020.

Due to the extended timescales involved in the procurement process of such a large facility it has been assumed that the non-landfill residual treatment plant will not be operational until 2012/13. Until this time it is assumed that remaining residual waste will go to landfill. Once operational the capacity requirements for a residual treatment facility in the key target years are as follows;

- ~180ktpa until 2009/10 (Stoke Incinerator);
- ~340ktpa in 2012/13 (including 180,000ktpa to Stoke Incinerator);
- ~335ktpa in 2014/15 (including 180,000ktpa to Stoke Incinerator); and
- ~313ktpa in 2019/20 (including 180,000ktpa to Stoke Incinerator)

The strategy also assumes that all non-hazardous residual outputs from these facilities are recovered. Regardless of which technology is finally selected (be it Autoclave or EfW) there is likely to be a certain amount of hazardous or non-recoverable outputs which will require secondary landfill¹⁷. Using the two technologies identified through the options assessment process Figure 1-1 provides a range of tonnage for this material type.

4.5 Landfill

Municipal waste that is not recycled or recovered is currently sent to landfill. However, it is assumed that once a residual waste treatment facility becomes operational in or around 2009/10 it will significantly reduce all wastes to landfill, and in line with Staffordshire's key headline targets there will be zero waste to primary landfill by 2020. From 2012/13 it is assumed that only non-recyclable or hazardous (i.e. fly ash or rejects) will be sent to

¹⁵ See Options Assessment Document

¹⁶ Staffordshire County Council has an existing contract with Stoke Incinerator to deliver ~180,000 tonnes of residual waste per annum until 2020

¹⁷ This residual waste is not classed as primary landfill as it has been pre-treated

secondary landfill. The tonnage range of residual waste sent to secondary landfill relates to the minimum and maximum tonnage outputs from EfW (i.e. fly ash) and Autoclave (i.e. non-recyclable rejects) respectively;

- ~168ktpa in 2009/10;
- ~17-65ktpa in 2012/13;
- ~17-63ktpa in 2014/15;
- ~16-56ktpa in 2019/20

4.6 Monitoring Implementation

Best Value Performance Indicators (BVPIs) provide opportunity for measuring performance and improvement against key services while enabling comparisons to be made with other authorities. Although BVPI targets have not been set post 2007/08 Table 4-1 below provides a summary BVPI performance of Staffordshire and Stoke-on-Trent according to the targets detailed in the headline strategy document. In the table household waste is presented as a percentage of total MSW as the BVPI recycling and composting targets relate to household waste alone, however Staffordshire are required to manage all MSW wastes.

Table 4-1 Summary BVPI performance for Headline Strategy Key Target Years

	2009/10	2012/13	2014/15	2019/20
Total household waste	586,500	604,036	615,857	635,027
Total recycling	151,028	163,232	171,982	193,699
Total composting	113,058	126,748	135,947	155,602
Recycling (%)	26%	27%	28%	31%
Composting (%)	19%	21%	22%	25%
Recycling + composting (%)	45.0%	48.0%	50.0%	55.0%
Total MSW	640,107	659,246	672,148	693,070
Household recycling as a percentage of MSW	41.3%	44.0%	45.8%	50.4%

The above specific, measurable, allocated, realistic, and timed (SMART) targets allow a mechanism for monitoring of performance against this strategy.

4.7 Summary

Defra's MWMS Guidance¹⁸ highlights the need for an action plan which can be regularly updated and describes the process of implementing the actions required to satisfy the targets and objectives outlined in the main strategy document.

The Implementation Plan provides the necessary blueprint for delivery of the strategy and also in line with the other supporting documents, including the prepared LATS strategy analysis (see Technical Appendix 2) and is subject to regular review.

This document has been developed as a high level implementation plan for Staffordshire and Stoke-on-Trent. The plan provides details of specific waste minimisation, recycling and residual treatment actions necessary to achieve the preferred 55% household (50% MSW) target, whilst also taking into consideration the requirement of zero waste to primary landfill by 2020. The Staffordshire Districts and Stoke-on-Trent City may wish to develop a more

¹⁸ A Practice Guide for the Development of Municipal Waste Management Strategies (November 2005)

detailed action plans at the individual district level which coincide with the overarching Headline Strategy targets.