

**WEST OF ENGLAND WASTE  
MANAGEMENT AND PLANNING  
PARTNERSHIP**

**CAPTURE RATE AND WASTE  
ARISINGS ASSUMPTIONS 2006/07**

**MODELLING ASSUMPTIONS FOR  
PROJECTING FUTURE MUNICIPAL  
SOLID WASTE ARISINGS AND  
ACHIEVING 50% RECYCLING AND  
COMPOSTING OF HOUSEHOLD  
WASTE IN NORTH SOMERSET**

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## 1.0 INTRODUCTION OF UPDATED CAPTURE RATE AND WASTE ARISING ASSUMPTIONS

A Technology Options Appraisal (TOA) was conducted in 2006. This TOA involved waste flow and mass balance technical modelling, which analysed historic waste arisings in each authority. Using these historic waste arisings and working with North Somerset Council (NS) waste officers, Jacobs modelled future trends in waste arisings. These trends included a prediction of the overall waste quantity looking at various potential arisings projections. We looked jointly at what the future performance of source segregation initiatives would be i.e. what the capture rate of materials would be under a Programmed Service Improvements (PSI) scenario, compared to the current Status Quo (SQ) baseline.

These future waste arisings and capture rate assumptions are presented in the Options Appraisal report prepared by Jacobs in January 2007. This report is available to download at [www.rubbishorresource.co.uk](http://www.rubbishorresource.co.uk)

The SQ option represents the 2006/07 baseline performance in source segregation modelled into the future i.e. with no increases in source segregation performance. It represents the reliance on landfill for disposal of residual waste.

The Partnership undertook detailed assessments of their short to medium-term Programmed Service Improvements (PSI) i.e. assessing how their source segregation initiatives and services would change into the future, for example, additional roll out of a scheme, improving participation of a scheme, targeting the recovery of extra materials. This PSI was not scored during the Options Appraisal, as it provided the baseline source segregation performance upon which the technology options (1 to 7) were founded.

A Waste Arisings Model is used to project how the quantity of Municipal Solid Waste (MSW) arisings may change in the future across the Authority, taking into account factors such as changes in arisings per household and changes in the number of households. When considering future waste generation for each Authority, MSW was split into three waste streams for analysis:

1. Collected Household waste (including all residual household waste, kerbside collected source segregated materials and bring banks);
2. HWRC waste; and,
3. 'Other MSW' not described above.

A Capture Rate Model is used to estimate the future performance of the source segregation of materials from the MSW stream. It models the impact on the composition of MSW from the removal of recyclable materials by both current and future source-segregation collection schemes/ initiatives and analysing how effective these schemes will be in the capture of these materials for recycling.

The Capture Rate Model requires a number of operating parameters to be determined. These are the percentage:

- Of a waste stream "Targeted" for source segregation
- that "Roll Out" of the source segregation scheme to residents
- "Participation" in each source segregation scheme

- “Recognition” of a particular scheme by a resident. .

The product of these parameters is the Capture Rate and this term refers to the fraction or percentage of a particular waste stream that is removed by a particular source segregation initiative i.e. “captured” from the waste stream.

New waste arisings for 2006/07 changed the SQ position. In light of this the North Somerset waste officers and Jacobs reviewed the TOA waste arisings projections and the TOA PSI scenario at a workshop on 25 September 2007.

The revised assumptions were agreed and verified with North Somerset before being re-applied to Jacobs’ technical waste flow and mass balance models along with an updated household waste composition analysis supplied by North Somerset. This process resulted in a better understanding of current 2006/07 capture rates for all waste streams.

Jacobs’ Waste Arisings and Capture Rate models containing this updated data were used to assess each authority’s performance against recycling and composting targets and performance against LATS allowances. The outputs of this model showed that under the PSI scenario, NS would perform below the recycling and composting target of 50% by 2020 set in the National Waste Strategy for England 2007.

In order to meet the recycling and composting target, additional assumptions based on the performance of the other authorities in the West of England Waste Management and Planning Partnership (“the Partnership”) were applied to the NS capture rate model that resulted in an improved recycling and composting performance for NS.

This report details the assumptions agreed at the workshop and any subsequently revised assumptions that have been applied to enable NS reach the 50% recycling and composting target. Also contained are the future waste arising projections agreed by NS at the workshop on 25 September 2007.

The following a review of the Regional Spatial Strategy the Government office for the South West has published a Panel report recommending a change to the predicted housing growth within the area. The predicted waste growths within this report take into consideration the updated predicted housing numbers from the Panel report.

These assumptions have been applied to the technical waste flow modelling that underpins the Joint Waste Strategy for the Partnership.

The assumptions presented do not necessarily reflect what the Authority will adopt or implement or devote resources to. This is especially pertinent where assumptions are being projected ten or more years in to the future.

The assumptions will be kept constantly under review as new waste arisings data emerges.

## 2.0 CHOSEN WASTE ARISING PROJECTIONS

Following the new waste arisings data, the new composition analysis supplied by NS and the outcomes of the Capture Rate and Waste Arisings workshop, waste arisings projections that were previously determined for the TOA have been revised.

### 2.1 Collected Waste

At the capture rate workshop three Jacobs projections for the social arisings of collected waste per household were presented to the authority and are detailed in the table below.

**Table 1: Collected waste arising scenarios**

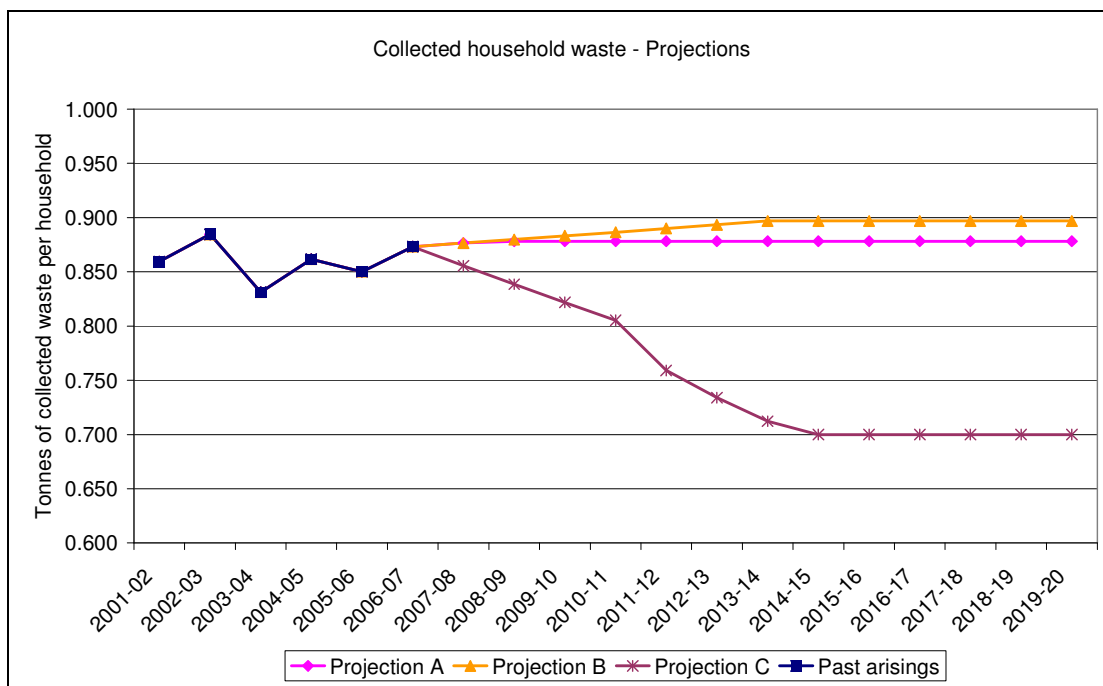
Scenario	Description
Jacobs Collected Household Waste arisings projection A	Social arisings increases until 2007/08 then stabilises at a constant level
Jacobs Collected Household Waste arisings projection B	Social arisings average growth projected until 2013/14 then stabilises to a constant level
Jacobs Collected Household Waste arisings projection C	Social arisings significantly decrease until 2014/15 then stabilise at a constant level r

These projections are based on the historic arisings and consideration of a number of influencing factors, including the impact of future legislation, Government targets, education initiatives and awareness raising.

Figure 1 illustrates the three projections for social arisings of collected waste per household from Table 1.

It was agreed that waste arisings per household were anticipated to stabilise at the current tonnage; therefore Projection A was taken forward into the Jacobs models.

Figure 1: Household Waste Projections



## 2.2 HWRC Waste

At the capture rate workshop three Jacobs projections for the social arisings of HWRC waste per household were presented to the authority and are detailed in the table below. These projections are based on the historic arisings and consideration of a number of influencing factors, including the impact of future legislation, targets, education initiatives, awareness raising and improvements in site operations.

Table 2: HWRC waste arising scenarios

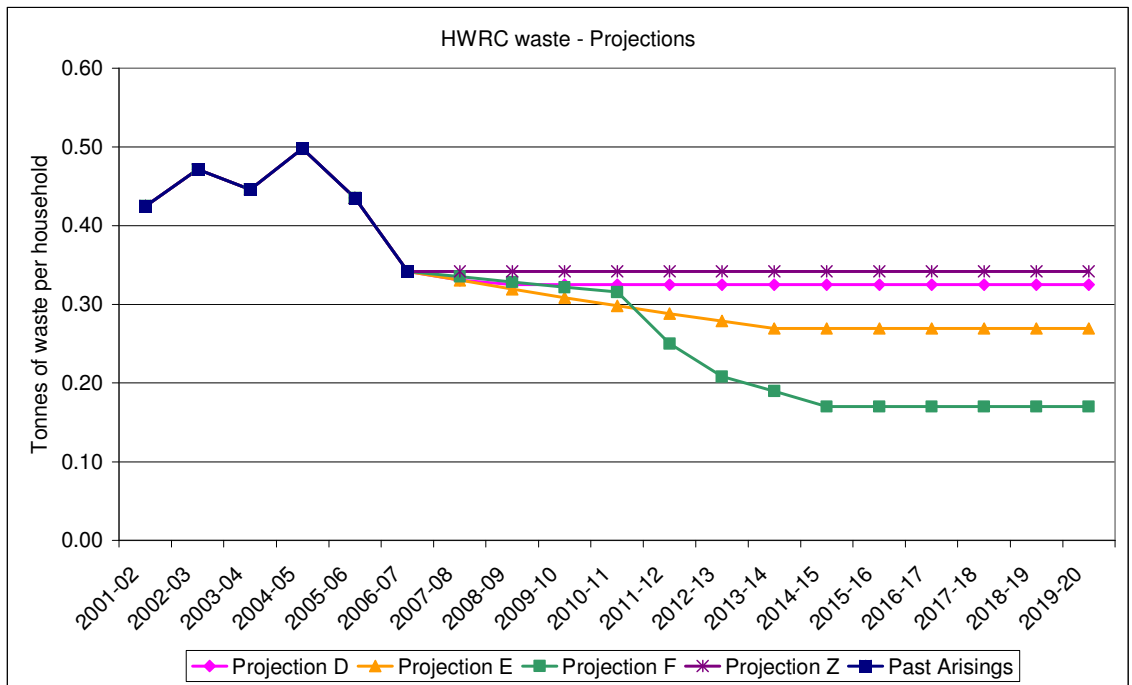
Scenario	Description
Jacobs HWRC Waste arisings projection D	Social arisings decreases until 2008/09, then stabilise to a constant level
Jacobs HWRC Waste arisings projection E	Social arisings projected to decrease until 2013/14 then stabilise to a constant level
Jacobs HWRC Waste arisings projection F	Social arisings decrease until 2010/11 before decreasing rapidly, remaining constant after 2014/15

A further Projection Z was developed at the workshop in conjunction with the authority. It involves social arisings remaining at a constant level. This was not, however, taken forward.

NS agreed on Projection D to be used in the modelling for future HWRC waste arisings. This projection was chosen because 2007/08 year end projections showed a slight decrease in HWRC waste, possibly due to the diversion of green garden waste to the kerbside. Tonnages are expected to plateau after this because the

transfer of green garden waste from HWRC to kerbside is expected to stabilise. Figure 2 illustrates the various projections devised for HWRC waste.

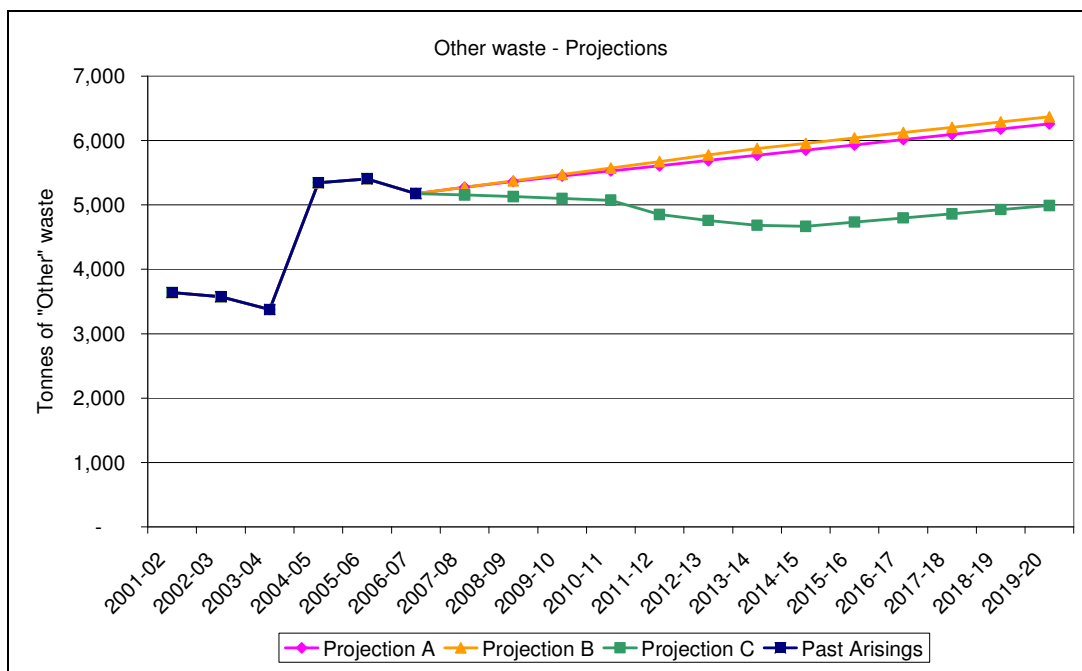
**Figure 2: HWRC waste projections**



### 2.3 Other Waste

“Other” waste is modelled as being proportional to the growth of social arisings for collected household waste. This is because “Other” waste consists largely of sweepings, which should vary with population as collected household waste arisings do. Projection A was chosen for collected waste therefore the growth rate of Projection A will also be used for “Other” waste arisings. Figure 3 shows the tonnages that would be generated under each of the social arisings projections used also for household waste in Figure 1.

Figure 3: “Other” waste projections



## 2.4 Total MSW

The panel report published by Government office for the South West (following a review of the Regional Spatial Strategy) shows 26,750 new homes are to be built in NS up to 2026. After 2026 and in the absence of further guidance from the RSS or Government Office we have assumed that the rate of house-building in North Somerset will continue at the same rate. The assumed housing projections are shown below in Table 3.

Table 3: NS housing projections. Note that Panel Report allocation is to 2026

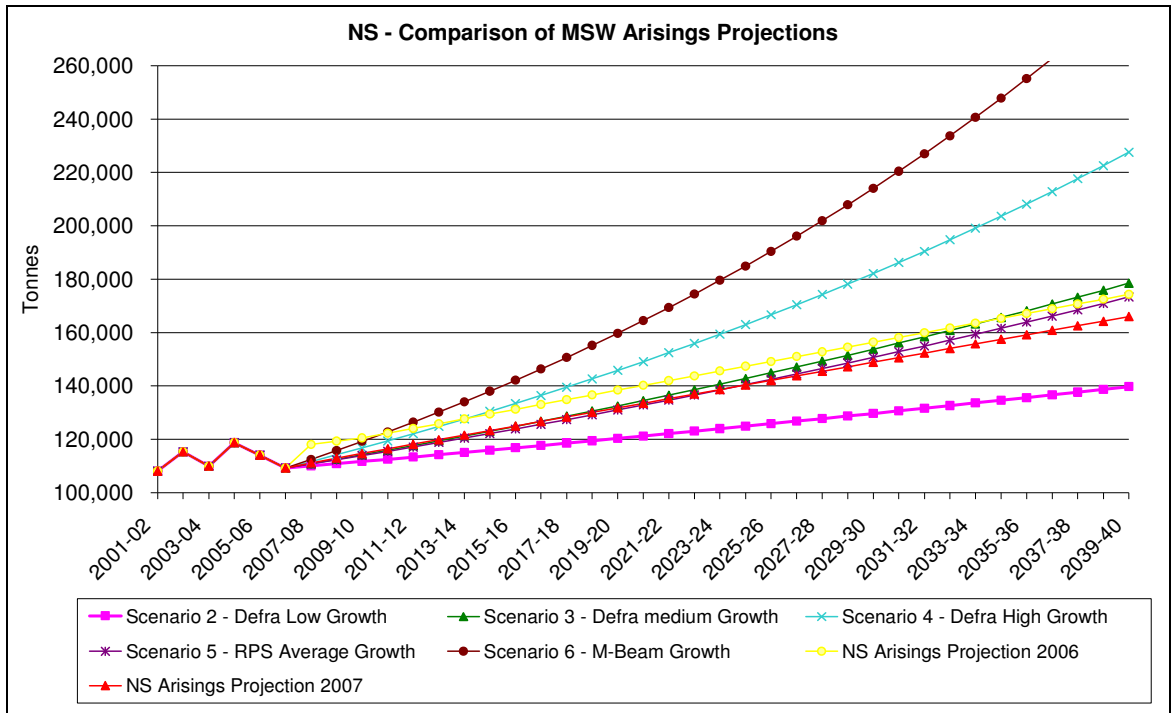
Year	Total houses	Net additional per annum
2000/01	80,501	
2001/02	81,328	
2002/03	82,411	
2003/04	83,420	
2004/05	83,420	
2005-06	84,485	
2006-07	85,823	1,338
2007-08	87,161	1,338
2008-09	88,499	1,338
2009-10	89,837	1,338
2010-11	91,175	1,338
2011-12	92,513	1,338
2012-13	93,851	1,338
2013-14	95,189	1,338
2014-15	96,527	1,338
2015-16	97,865	1,338
2016-17	99,203	1,338

Year	Total houses	Net additional per annum
2017-18	100,541	1,338
2018-19	101,879	1,338
2019-20	103,217	1,338
2020-21	104,555	1,338
2021-22	105,893	1,338
2022-23	107,231	1,338
2023-24	108,569	1,338
2024-25	109,907	1,338
2025-26	111,245	1,338
2026-27	112,583	1,338
2027-28	113,921	1,338
2028-29	115,259	1,338
2029-30	116,597	1,338
2030-31	117,935	1,338
2031-32	119,273	1,338
2032-33	120,611	1,338
2033-34	121,949	1,338
2034-35	123,287	1,338
2035-36	124,625	1,338
2036-37	125,963	1,338
2037-38	127,301	1,338
2038-39	128,639	1,338
2039-40	129,977	1,338
2040-41	131,315	1,338
2041-42	132,653	1,338
2042-43	133,991	1,338
2043-44	135,329	1,338

Aggregating the ‘per household’ social arisings assumptions agreed above with the number of new houses determines the projection of total MSW. Figure 4 compares the total quantity of MSW generated between 2001/02 and 2039/40 in NS applying the three agreed projection scenarios

- Household Waste – Projection A
- HWRC waste – Projection D
- Other Waste – Projection A

Figure 4: Total MSW comparing DEFRA, RPS, M-BEAM and Jacobs projections

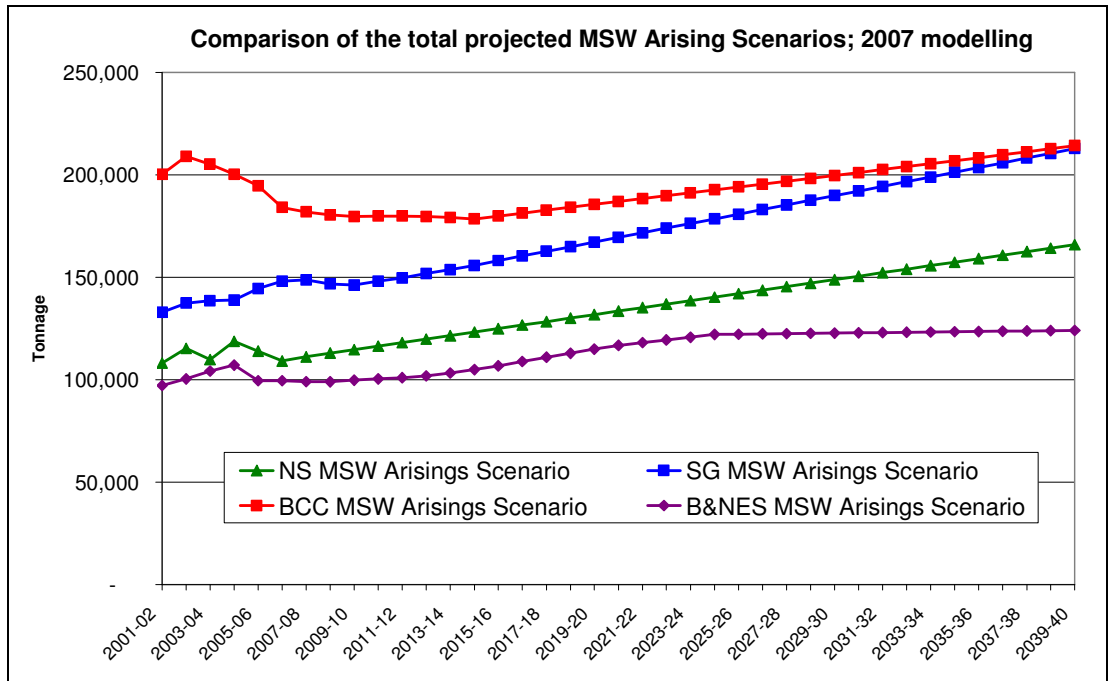


By comparing the TOA 2005/06 waste arisings scenario for NS with the 2006/7 waste arising scenario, it can be seen that the 2007 scenario assumes 8,300 tonnes less MSW arising in 2039/40 than previously predicted in the 2006 scenario. The 2007 NS arisings scenario lies between the DEFRA low and medium growth projections. Across the period 2006/07 to 2019/20 this equates to an average waste arisings growth rate of approximately 1.5%, the growth throughout the period until 2039/40 is 1.6%.

This waste arising scenario was compared to the other Partnership authorities.

This waste arisings scenario for North Somerset is compared to the other Partnership authorities in Figure 5.

Figure 5: Comparison of waste arisings scenarios across the Partnership



## 3.0 CAPTURE RATE ASSUMPTIONS

### 3.1 Targeted

The assumed proportion of each waste category targeted in the SQ and PSI scenarios are identified and summarised in Table 4. The composition provided by NS did not contain sufficient detail on categorisation to determine an accurate targeted %, therefore the percentage targeted is based on the national statistics.

In order to meet the recycling and composting targets, it is assumed that NS will implement a kitchen waste collection scheme. This scheme will target 98% of the waste stream. This update and the remaining agreed targeted percentages for SQ and PSI are represented below in Table 4.

Table 4 includes the SQ position at the time of the Technical Options Appraisal (TOA) in 2006 (column 2). This is to illustrate the comparison with the most recent modelling for 2006/07 (column 3).

**Table 4: Material Targeted in Capture Rate Model**

Material		SQ 2005/06	SQ 2006/07	PSI	Notes
Paper <sup>1</sup>		79%	79%	79%	Current scheme targets Newspapers and Magazines.
Textiles		54%	54%	54%	Textiles already targeted, therefore no increase anticipated.
Mixed Cans		96%	96%	96%	The Authority already target both Ferrous and Non Ferrous cans, therefore no increase anticipated.
Glass		98%	98%	98%	The Authority already target all glass types, therefore no increase anticipated.
Garden Waste & Cardboard	Garden Waste	93%	93%	93%	The Authority already target principal components of garden waste, therefore no increase anticipated.
	Cardboard <sup>2</sup>	10%	10%	13% <sup>3</sup>	Printed cardboard will be collected from 2008/09 onwards, therefore increasing the targeted figure under the PSI scenario.
Kitchen		0%	0%	98%	It is assumed that kitchen waste will be targeted at 98% from 2014/15 onwards

<sup>1</sup> The percentage of paper targeted is the percentage of paper in the paper and card stream

<sup>2</sup> The percentage of cardboard targeted is the percentage of cardboard in the paper and card stream

<sup>3</sup> It was discussed in the workshop that targeted quantity would be increased to 25%, but calculations have revealed that this is closer to 13%, therefore 13% has been used.

### 3.2 Roll Out

The SQ and PSI roll out figures have been updated based on the outcomes of the Capture Rate and Waste Arisings workshop. The additional kitchen waste collection service mentioned above has been included as a roll out figure in the PSI scenario. The updated roll out assumptions are summarised in Table 5.

**Table 5: Level of Roll Out in Capture Rate Model**

Material	SQ 2005/06	SQ 2006/07	PSI	Notes
Paper	98%	100%	100%	The Authority currently rolls these services out to all households in the district
Textiles	98%	100%	100%	
Mixed Cans	98%	100%	100%	
Glass	98%	100%	100%	
Garden Waste & Cardboard	77%	77% <sup>4</sup>	100%	The Authority proposes to roll this service out to 100% of properties in October 2007/08
Kitchen	0%	0%	100%	A kitchen waste scheme will be rolled out over three years. Rollout will therefore be 25% at 2014/15, 75% at 2015/16 and 100% from 2016/17 onwards

### 3.3 Participation

The SQ and PSI participation figures have been updated based on information provided by NS at the Capture Rate and Waste Arisings workshop. Assumed participation rates for the kitchen waste PSI participation rate have been included, based on those provided by North Somerset. Table 6 shows a summary of the updated participation assumptions.

**Table 6: Level of Participation in Capture Rate Model**

Material	SQ 2005/06	SQ 2006/07	PSI	Notes
Paper	60%	60%	80%	SQ participation for mixed cans was agreed to be higher than the previously decided 2005/06 SQ figure. PSI participation rates reflect long term maximum rates anticipated to be achieved. These increased rates are assumed to all be achieved by 2010/11 and continued at this level thereafter, once all schemes are implemented and concerted education initiatives have positively affected householder behaviour. It is assumed that textile participation, however, will stay the same.
Textiles	10%	10%	10%	
Mixed Cans	45%	60%	80%	
Glass	60%	60%	80%	

<sup>4</sup> Using the assumption of 66,000 properties to have the service as agreed at the Capture Rate Workshop

Material	SQ 2005/06	SQ 2006/07	PSI	Notes
Garden Waste & Cardboard	65%	65%	80%	A promotion campaign for garden waste and cardboard is expected to increase participation to 80% by 2010/11. There are no longer plans to introduce a charge for this service.
Kitchen	0%	0%	70%	This participation rate is based on the current BCC participation rate for kitchen waste

### 3.4 Recognition

The back calculation of recognition rates for SQ has been updated as a result of new waste arisings data supplied by NS. A PSI recognition rate for the new kitchen waste scheme has been manually added and adjusted to replicate the recognition rate used by B&NES.

The updated recognition rates are described below in Table 7.

**Table 7: Level of Recognition in Capture Rate Model**

Material	SQ 2005/06	SQ 2006/07	PSI	Notes
Paper	62%	64%	75% by 2014/15	Current recognition has been back calculated using recent tonnage's captured. PSI recognition rates reflect long term maximum levels that could be achieved subject to consistent education and awareness initiatives.
Textiles	64%	84%	84%	
Mixed Cans	69%	48%	85% by 2014/15	
Glass	64%	67%	90% by 2014/15	
Garden Waste & Cardboard	Garden Waste	3%	77%	
	Cardboard	4%	99%	
Kitchen	0%	0%	80%	

### 3.5 Capture Rate

Capture rates for collected materials have been updated to take into account the updated assumptions on targeted, roll out, participation and recognition assumptions. The updated capture rates are shown in

Table 8.

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**Table 8: Maximum projected Capture Rate in Capture Rate Model**

Material		SQ 2005/06	SQ 2006/07	PSI
Paper		29%	31%	48% by 2014/15
Textiles		3%	5%	5%
Mixed Cans		29%	28%	65% by 2014/15
Glass		37%	39%	71% by 2014/15
Garden Waste & Cardboard	Garden Waste	2%	36%	58% by 2010/11,
	Cardboard	0%	5%	10% by 2009/10
Kitchen		0%	0%	55% by 2016/17

### 3.6 Bring Banks

Increases in plastic arisings at bring banks were discussed at the assumptions workshop. PSI capture rates for bring banks have been updated as a result. These updates are represented in Table 9. One change to bring bank capture rates was required in order to meet the recycling and composting targets, this is with plastics.

**Table 9: Bring Bank Capture Rates**

Material	SQ 2005/06	SQ 2006/07	PSI
Paper	9%	11%	11%
Plastics	0%	0%	4% in 2007/08
Textiles	6	6%	6%
Mixed Cans	4%	6%	6%
Glass	23%	25%	25%

### 3.7 HWRC's

Capture rates at the HWRCs have been updated as a result of new waste arisings data supplied by NS. In addition, the PSI capture rate for green waste was steadily increased from 36% in 2006/07 to 50% by 2014/15, putting NS in line with BCC and below B&NES as is required to meet the recycling and composting target. Table 10 shows the updated capture rates for HWRCs.

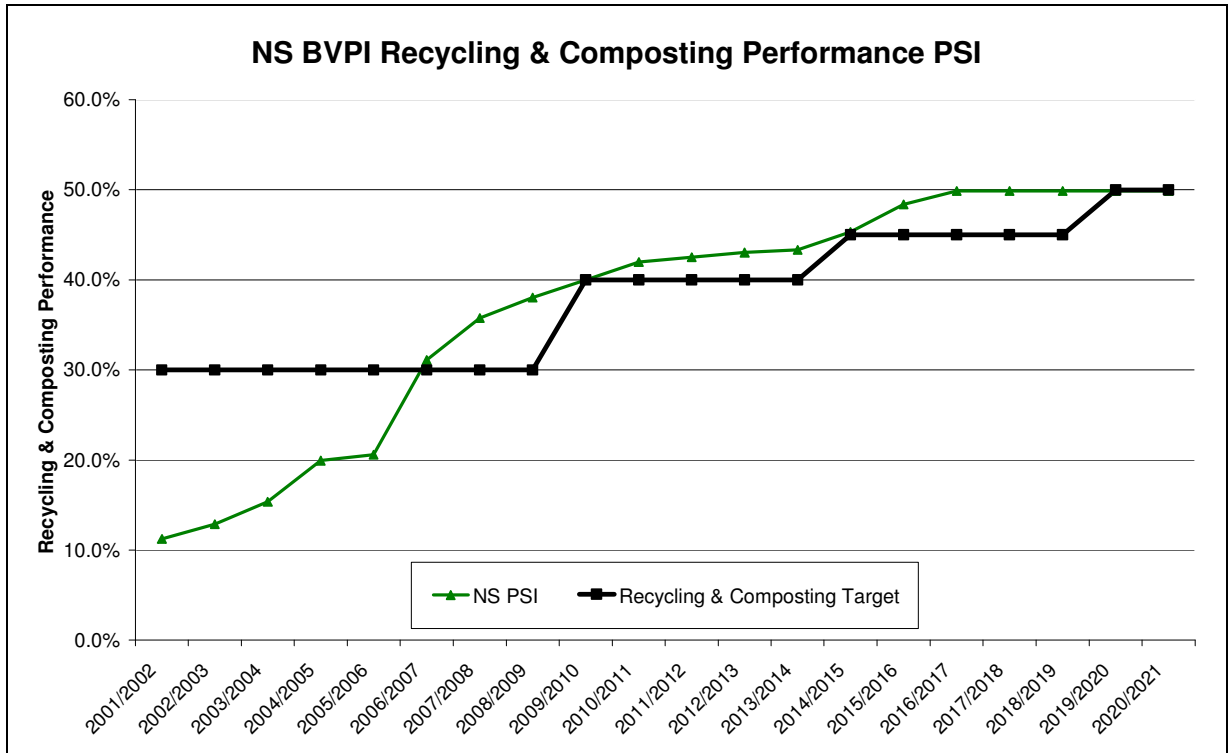
**Table 10: HWRC Capture Rates**

Material	SQ 2005/06	SQ 2006/07	PSI
Recyclables	43%	68%	70% by 2010/11
Green Waste	41%	36%	50% by 2014/15

### 3.8 Projected Capture Rate Performance

Applying the capture rate assumptions detailed above enables NS to reach the 50% recycling and composting target by 2020. This is illustrated in Figure 6.

**Figure 6: NS Projected PSI Recycling and Composting Performance**



The waste arisings scenario has been applied to the Jacobs Capture Rate model, which uses the capture rate assumptions shown above to determine the quantities of materials captured.

From this quantity Jacobs has determined the performance against BVPI recycling and composting targets, and also the effect that source segregation has on NS performance against LATS allowances.

The quantity of materials captured has been deducted from the total waste arisings to determine the quantity of residual MSW that is available for processing. This quantity has been taken forward to the Jacobs technology model, the outputs of which are being applied to the Joint Waste Strategy.

The tonnage projections by waste stream, under the PSI scenario, that are output from the capture rate model are shown in Figure 7.

Figure 7: North Somerset's Projected Tonnages to 2020

	Contract Year	Year														
		2006/2007	2007/2008	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013	2013/2014	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019	2019/2020	
<b>MSW Input</b>		109,195	111,164	113,007	114,715	116,424	118,132	119,841	121,549	123,258	124,966	126,675	128,383	130,092	131,800	
Household		74,740	76,154	77,450	78,621	79,792	80,963	82,134	83,305	84,476	85,647	86,818	87,989	89,160	90,331	
HWRC		29,279	29,735	30,192	30,648	31,105	31,561	32,018	32,474	32,930	33,387	33,843	34,300	34,756	35,213	
Bring Banks		2,787	2,770	2,630	2,471	2,298	2,261	2,222	2,181	2,137	2,167	2,197	2,226	2,256	2,286	
Other MSW		5,177	5,275	5,364	5,446	5,527	5,608	5,689	5,770	5,851	5,932	6,013	6,094	6,175	6,257	
<b>MSW Output</b>		109,195	111,164	113,007	114,715	116,424	118,132	119,841	121,549	123,258	124,966	126,675	128,383	130,092	131,800	
<i>Jacobs check - DOES THIS EQUAL TOTAL MSW?</i>		TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	
<b>Kerbside Recycling Collection</b>																
HH - Paper & Cardboard	100%	5,858	6,602	7,360	8,168	9,039	9,349	9,665	9,985	10,311	10,454	10,597	10,740	10,883	11,026	
HH - Plastics	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
HH - Glass	0%	3,146	3,624	4,134	4,675	5,256	5,530	5,810	6,095	6,387	6,476	6,564	6,652	6,741	6,829	
HH - Ferrous Cans (or Fe & Al where mixed)	0%	340	412	490	576	670	727	786	845	906	919	931	944	957	969	
HH - Non-ferrous Cans (where Al is separate)	0%	102	123	146	172	200	217	234	0	0	0	0	0	0	0	
HH - Kitchen	100%	0	0	0	0	0	0	0	1,764	5,364	7,250	7,347	7,445	7,543		
HH - Garden Waste only	100%	9,447	13,222	14,620	15,608	16,620	16,864	17,108	17,352	17,596	17,839	18,083	18,327	18,571	18,815	
HH - Textiles	50%	68	69	70	71	72	74	75	76	77	78	79	80	81	82	
HH - includes Al foil, batteries, mineral oil, and Fridges and freezers	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<b>Kerbside Recycling Sub Total</b>		18,961	24,052	26,840	29,291	31,857	32,761	33,677	34,353	37,040	41,129	43,504	44,091	44,677	45,264	
<b>Kerbside Total</b>		71,953	73,384	74,820	76,150	77,495	78,703	79,913	81,125	82,339	83,480	84,621	85,763	86,904	88,045	
<i>Jacobs check on kerbside sub-total</i>		0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<b>Bring Banks</b>																
BB - Paper & Cardboard	100%	1,459	1,418	1,369	1,314	1,254	1,252	1,251	1,249	1,246	1,263	1,281	1,298	1,315	1,332	
BB - Plastics	0%	0	106	108	110	111	113	115	116	118	119	121	123	124	126	
BB - Glass	0%	1,193	1,113	1,022	920	808	772	734	694	654	663	672	681	690	699	
BB - Ferrous Cans (or Fe & Al where mixed)	0%	54	51	48	44	39	37	34	32	29	30	30	31	31	31	
BB - Non-ferrous Cans (where Al is separate)	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
BB - Textiles	50%	80	82	83	84	86	87	88	89	91	92	93	94	96	97	
BB - Other x-mas trees, shoes, cards	88%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<b>Bring Banks Sub-Total</b>		2,787	2,770	2,630	2,471	2,298	2,261	2,222	2,181	2,137	2,167	2,197	2,226	2,256	2,286	
<i>Jacobs check on bring banks sub-total</i>		TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	
<b>Other Recycling composting</b>																
Other - Sweepings - Leaf Fall	100%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Other - Collected Trade Waste	76%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<b>Residual Waste Collections</b>																
HH - Black Bag/ Bin Collection	68%	52,992	49,333	47,980	46,859	45,637	45,942	46,236	46,771	45,299	42,351	41,117	41,672	42,227	42,781	
Other - Collected Trade Waste	68%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Other - Clinical	68%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Other - Street sweepings/ cleansing + dog bin waste	59%	3,407	3,472	3,531	3,584	3,638	3,691	3,744	3,798	3,851	3,905	3,958	4,011	4,065	4,118	
Other - Gully Waste	68%	78	79	81	82	83	84	86	87	88	89	91	92	93	94	
Other - Sweepings - Leaf Fall	100%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Other - Parks litter	68%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Other - Fly-tipped, ELVs, Grass & leaves in parks	68%	1,296	1,321	1,343	1,364	1,384	1,404	1,425	1,445	1,465	1,486	1,506	1,526	1,547	1,567	
Other - Specials	68%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Other - Bulklies, housing refurb, community waste	68%	395	402	409	416	422	428	434	440	446	453	459	465	471	477	
Other - Charity + Relets (Sch 2 waste)	68%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<b>HWRC</b>																
HWRC - Paper & Cardboard	100%	1,203	1,334	1,366	1,398	1,431	1,452	1,473	1,494	1,515	1,536	1,557	1,578	1,599	1,620	
HWRC - Paper & Cardboard (Books)	100%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
HWRC - Plastics	0%	15	15	16	16	16	17	17	17	17	18	18	18	18	19	
HWRC - Textiles	50%	68	70	72	73	75	76	77	78	79	80	82	83	84	85	
HWRC - Textiles - Shoes	50%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
HWRC - Glass	0%	248	254	260	267	273	277	281	285	289	293	297	301	305	309	
HWRC - Ferrous metal	0%	2,316	2,372	2,429	2,486	2,544	2,581	2,618	2,656	2,693	2,730	2,768	2,805	2,842	2,880	
HWRC - Non-ferrous metal	0%	185	189	194	199	203	206	209	212	215	218	221	224	227	230	
HWRC - Garden Waste	100%	3,969	4,231	4,500	4,775	5,055	5,342	5,636	5,935	6,240	6,327	6,413	6,500	6,586	6,673	
HWRC - Wood & Chipboard	100%	1,596	1,634	1,673	1,713	1,753	1,779	1,804	1,830	1,856	1,881	1,907	1,933	1,959	1,984	
HWRC - Fluorescent Tubes	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
HWRC - Car Batteries	0%	75	76	78	80	82	83	84	86	87	88	89	90	92	93	
HWRC - Domestic Batteries	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
HWRC - Fridges	0%	343	351	359	368	376	382	388	393	399	404	410	415	421	426	
HWRC - Tyres	0%	51	52	53	55	56	57	58	59	60	61	62	63	63		
HWRC - Tyres - Incinerated (BVPI 82c)	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
HWRC - Control	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
HWRC - CRT's, Mineral Oil, TVs, computer monitors, gas bottles	0%	184	188	193	197	202	205	208	211	214	217	220	223	226	229	
HWRC - Vegetable Oil	100%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
HWRC - Residual Waste	68%	14,243	14,210	14,169	14,120	14,063	14,057	14,044	14,025	14,000	14,195	14,389	14,583	14,777	14,971	
HWRC - Soils	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
HWRC - Rubble (Hardcore)	0%	4,683	4,756	4,829	4,902	4,975	5,048	5,121	5,194	5,267	5,340	5,413	5,486	5,559	5,632	
<b>HWRC Total</b>		29,279	29,735	30,192	30,648	31,105	31,561	32,018	32,474	32,930	33,387	33,843	34,300	34,756	35,213	
<i>Transferred to Kerbside</i>		0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Jacobs check on HWRC sub-total</i>		0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<b>MSW Input</b>		109,195	111,164	113,007	114,715	116,424	118,132	119,841	121,549	123,258	124,966	126,675	128,383	130,092	131,800	
<b>Sub-total from breakdown</b>		109,195	111,164	113,007	114,715	116,424	118,132	119,841	121,549	123,258	124,966	126,675	128,383	130,092	131,800	
<i>Jacobs check - DOES THIS = MSW INPUT?</i>		0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<b>HWRC total</b>		29,279	29,735	30,192	30,648	31,105	31,561	32,018	32,474	32,930	33,387	33,843	34,300	34,756	35,213	
<b>HWRC Recycling</b>		6,363	6,538	6,694	6,852	7,011	7,114	7,217	7,320	7,423	7,525	7,628	7,731	7,834	7,937	
<b>HWRC Inerts</b>		4,683	4,756	4,829	4,902	4,975	5,048	5,121	5,194	5,267	5,340	5,413	5,486	5,559	5,632	
<b>HWRC Green</b>		3,969	4,231	4,500	4,775	5,055	5,342	5,636	5,935	6,240	6,327	6,413	6,500	6,586	6,673	
<b>HWRC Residual</b>		14,243	14,210	14,169	14,120	14,063	14,057	14,044	14,							