Kent's Municipal and Solid Waste Baseline Report

Annex 1

Prepared by Kent County Council

December 2005

Contents

1. Introduction

Dealing with Kent's household waste is a key challenge for Kent's collection and disposal authorities over the next 20 years and beyond. The long-term historic trend for household waste growth has been 2% per annum. At this rate, Kent's authorities will have to collect, and find options for the treatment and disposal of, a further 400,000 tonnes of waste (a 45% increase) by 2020.

The previous Kent Household Waste Strategy was adopted by the Kent Waste Forum and published in May 2003. It looked ahead to 2020 but did not set targets beyond those established by Best Value Performance Indicators (BVPIs) for 2005/6. There have since been significant developments affecting waste management which mean that it is already necessary to revise and bring forward the Strategy.

The Kent Municipal Solid Waste (MSW) Baseline Report is the first stage of the process of developing a Joint Municipal Waste Management Strategy for Kent. The purpose of this Baseline Report is to provide a picture of the recent situation with regards to waste arisings in Kent, both in terms of their origin and disposal, and to give an estimate of future waste arisings that will have to be dealt with. Information from the Baseline Report was used to inform the development of the Strategy. The Baseline Report contains information on:

- Current levels of MSW, recycling and composting
- Trends in MSW growth
- Trends in recycling and composting
- Current collection, recycling, composting, recovery and disposal infrastructure
- Forecast of future waste arisings

Kent County Council (KCC) took a lead in seeking the development of the Strategy by working closely with the 12 district councils and a range of other stakeholders. ERM, the consultant engaged by the Department for Environment, Food and Rural Affairs (DEFRA,) led on the development of the Strategy for Kent which includes both KCC and the Kent Districts in partnership, together known as the Kent Waste Partnership.

2. Kent in Context

2.1. Background

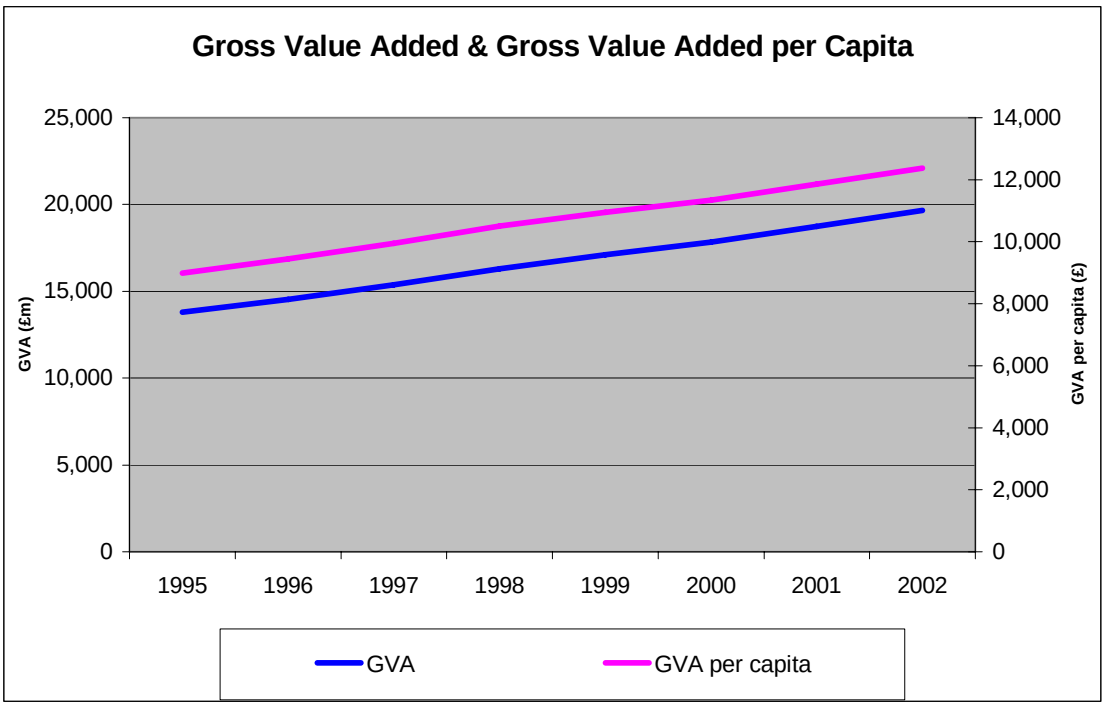
Kent is a large and distinctive county with a long peninsular coastline. 1.3 million people live in Kent. As the “Gateway to Europe”, it has huge opportunities for business and tourism. Kent does not have one large urban centre - it has 18 towns, one city and over 300 Parish and Town Councils. The majority of people (70%) live in a town.

Kent is not the wealthy county that it is widely thought to be. Average household income in Kent is slightly lower than the UK national average, but wealth distribution in the county is very uneven. There is a threat of over-development in some areas, whilst poverty and deprivation persist in others. Large areas in East and North Kent, and pockets of West and South Kent, have high unemployment and low wages. The west of the county, and key growth areas in the north and east, provide valuable economic input to Kent as a whole, with successful businesses offering opportunities for further growth. Key areas where there will be future significant growth are the Office of the Deputy Prime Minister (ODPM) Growth areas of Ashford, Kent Thameside (Dartford) and Swale.

2.2. The Kent Economy

Figure 1 illustrates the growth of the Kent Economy over the last seven years. This is defined using a measure of Gross Value Added (GVA), published by the Office for National Statistics. GVA has been increasing at an average rate of just over 5% per annum in the last seven years. GVA per Capita (per head of population) has been increasing at a slightly lower rate (4.7% per annum). The health of the economy will have an indirect effect on MSW arisings. A faster-growing economy will result in increased levels of consumption of goods which may result in an increase in household waste.

Figure 1 - Kent GVA and GVA Per Capita



2.3. Population

Figure 2 illustrates the predicted population growth in Kent from 2001-2021. These projections are the Strategy-Based Forecasts (March 2005) and will change slightly when the amendments to the Structure Plan, following the Planning Inspector's Report, are passed by the KCC Cabinet.

Figures 3 and 4 show the predicted population growth by District between 2001-2021. The largest predicted percentage increases are in the ODPM growth areas of Ashford and Kent Thameside (Dartford), Canterbury and Maidstone. Canterbury has the largest total population by District respectively which directly corrosponds to having the largest MSW arisings.

Total population size and population growth rates will have a direct impact on growth in MSW arisings. In particular, higher growth rates expected in the Growth Areas of Ashford and Kent Thameside (Dartford) will inevitably result in higher levels of MSW.

Figure 2 - Total Population 2001-2021 Kent

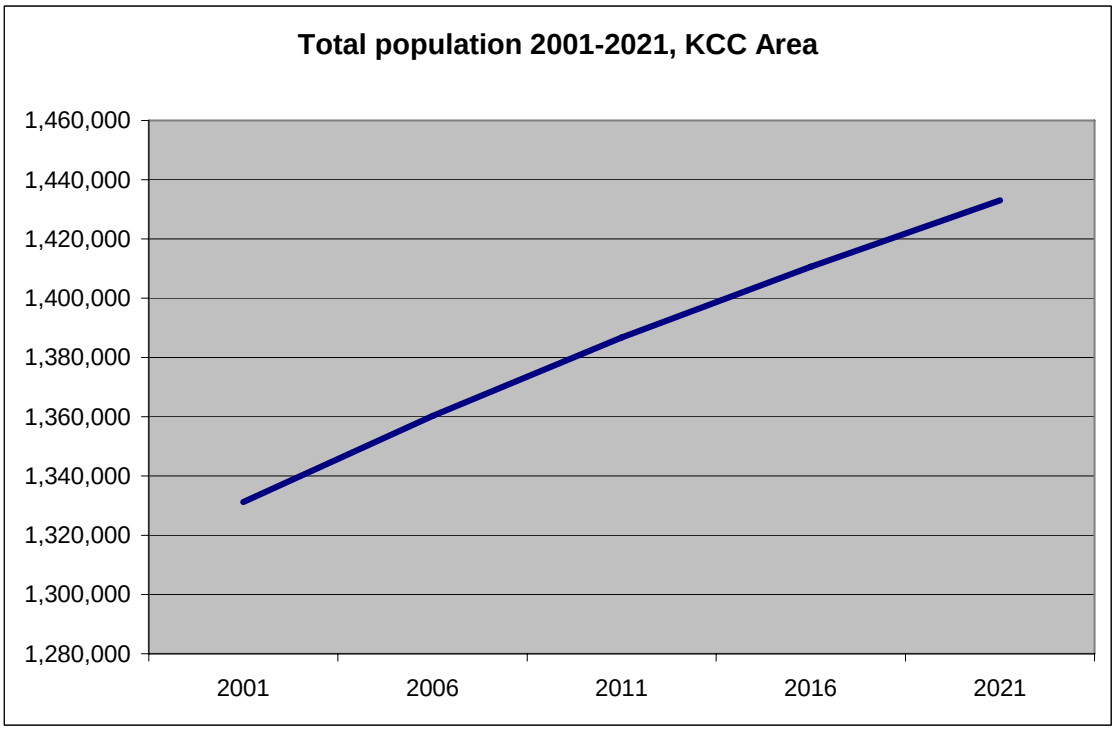


Figure 3 - Population Growth Forecasts by Kent District 2001-2021

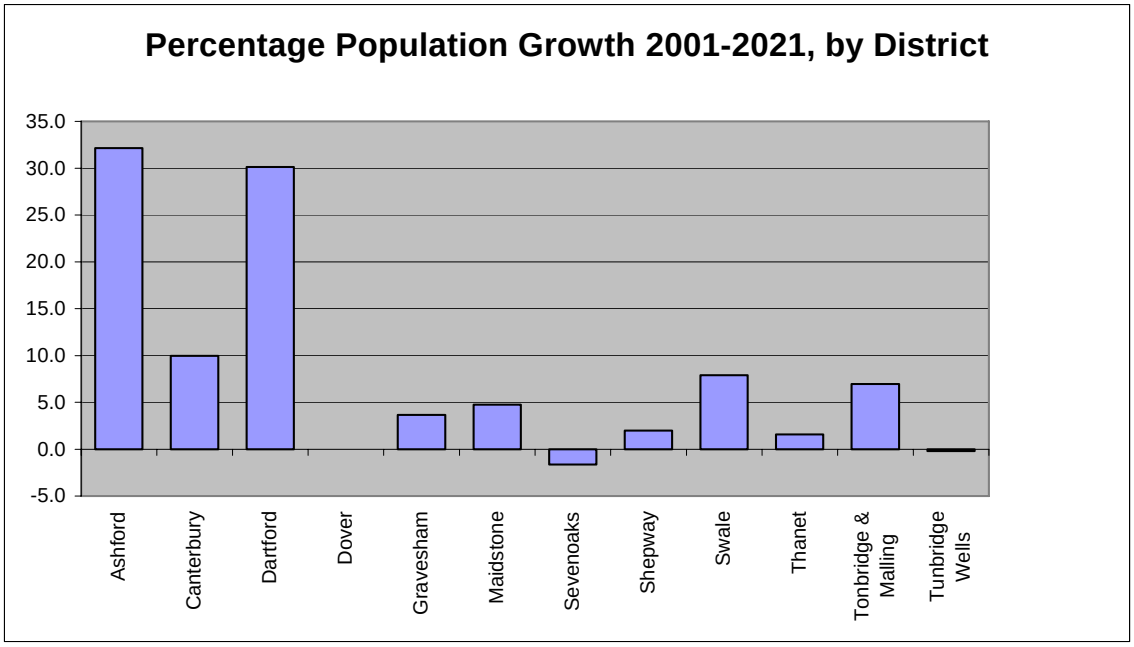
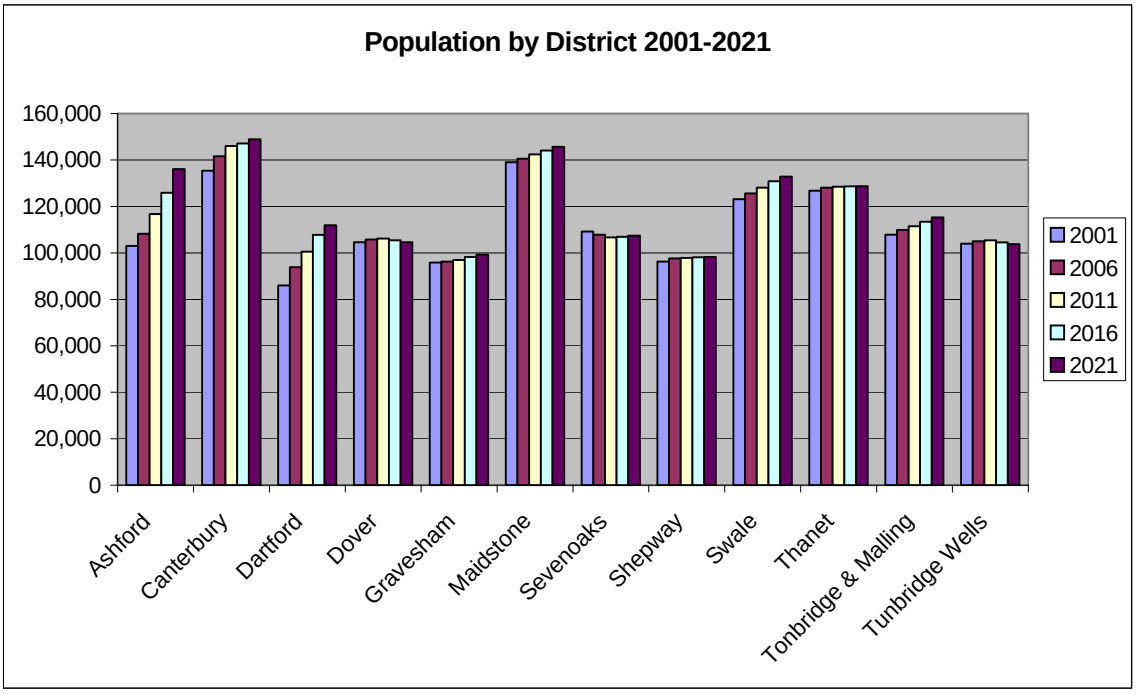


Figure 4 - Kent Population Growth Forecasts By District 2001-2021



2.4. Housing

Figures 5-7 show the predicted housing growth for Kent between 2001 and 2021. These are the Strategy-Based household forecasts produced for the Kent & Medway Structure Plan. They reflect the housing strategy and show the significant growth in the two key growth areas in Kent; Ashford and Kent Thameside (Dartford & Gravesham).

Housing, like population will have a direct impact on MSW arisings resulting in more collections and more MSW. The type of housing built will also have an impact, most significantly an increase in houses with gardens which will have an impact on green waste collections and will accelerate the growth in green waste. In addition, the inclusion of integrated recycling and composting factilities in new housing developments will be increasingly encourgaged or required, and may result in an increased rate of recycling.

Figure 5 - Kent Household Growth Predictions 2001-2021

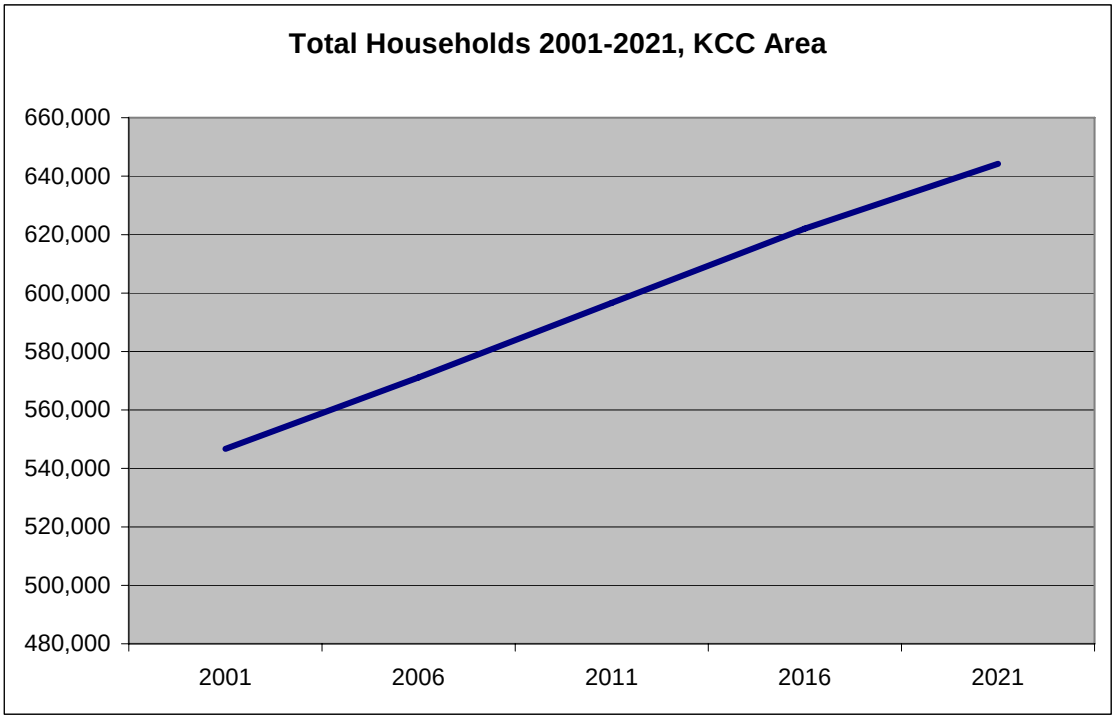


Figure 6 - Predicted Percentage Growth in Households in Kent

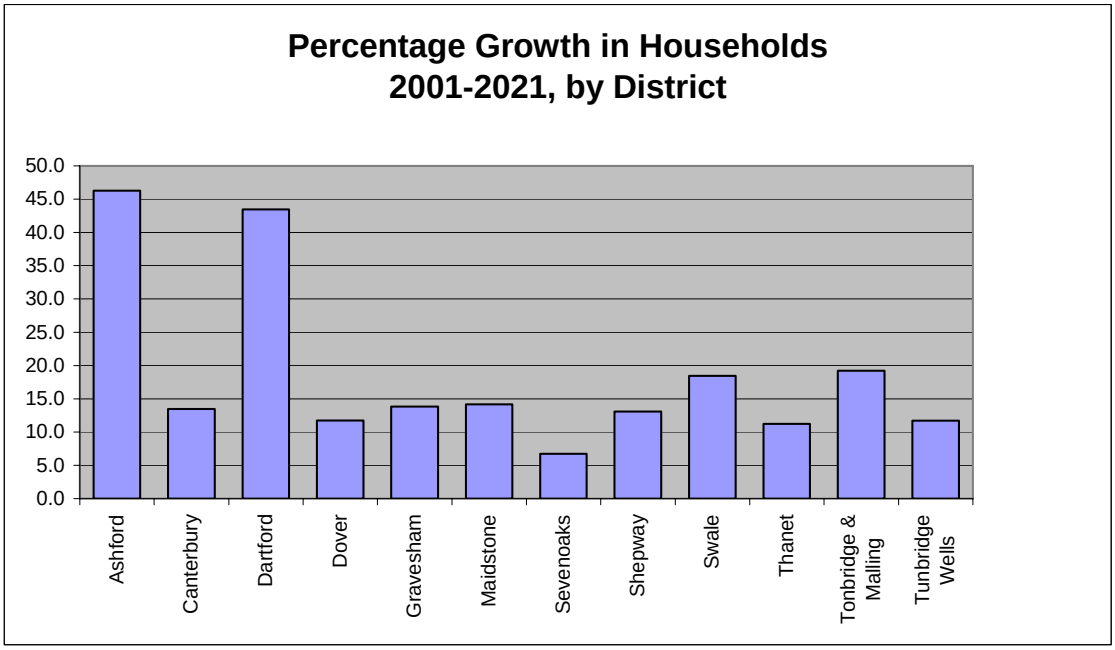
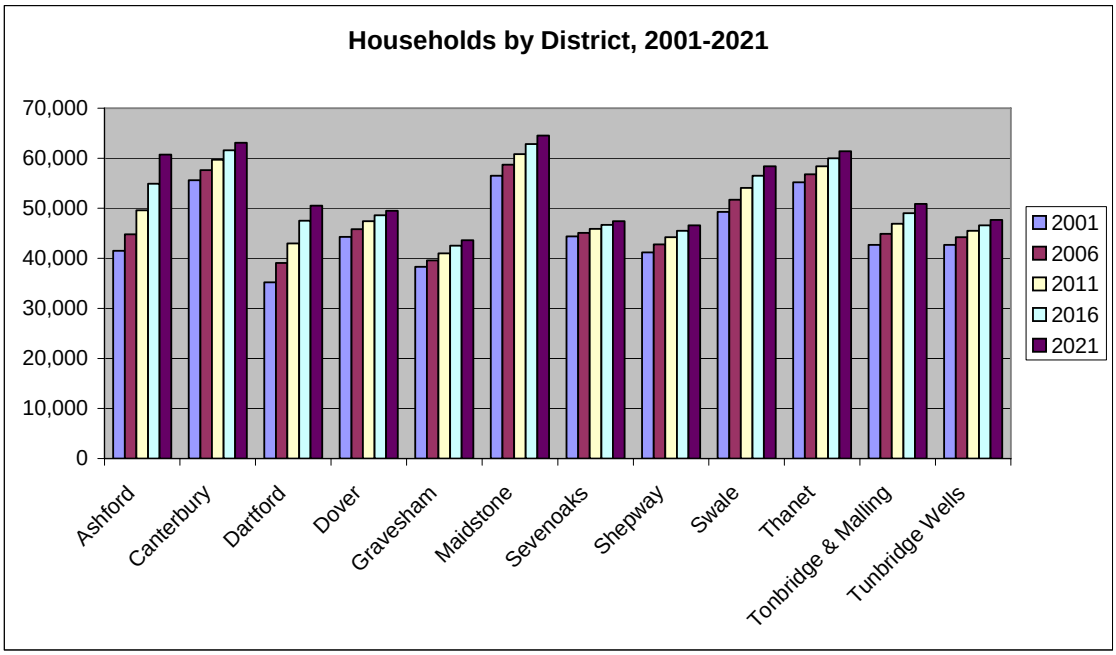


Figure 7 - Predicted Growth In Kent Households by District



2.5. Household Income and Car Ownership

Figure 8 illustrates the estimated household income by District. This is taken from estimates provided by CACI. Levels of Household income may have an indirect effect on MSW arisings. More disposable income may result in an increase in consumer spending resulting in possible increases in MSW. There may also be a link between income and recycling rates, as more affluent households may be more inclined to recycle. Similarly, Figure 9 shows car and van ownership by District. This data is taken from the 2001 Census. Car ownership can have a direct impact on the levels of recycling at Household Civic Amenity Sites as access is primarily by car and transportation of material is easier. Canterbury has the highest recycling rates and the third highest level of car ownership.

Figure 8 - Estimated Household Income in Kent in 2000

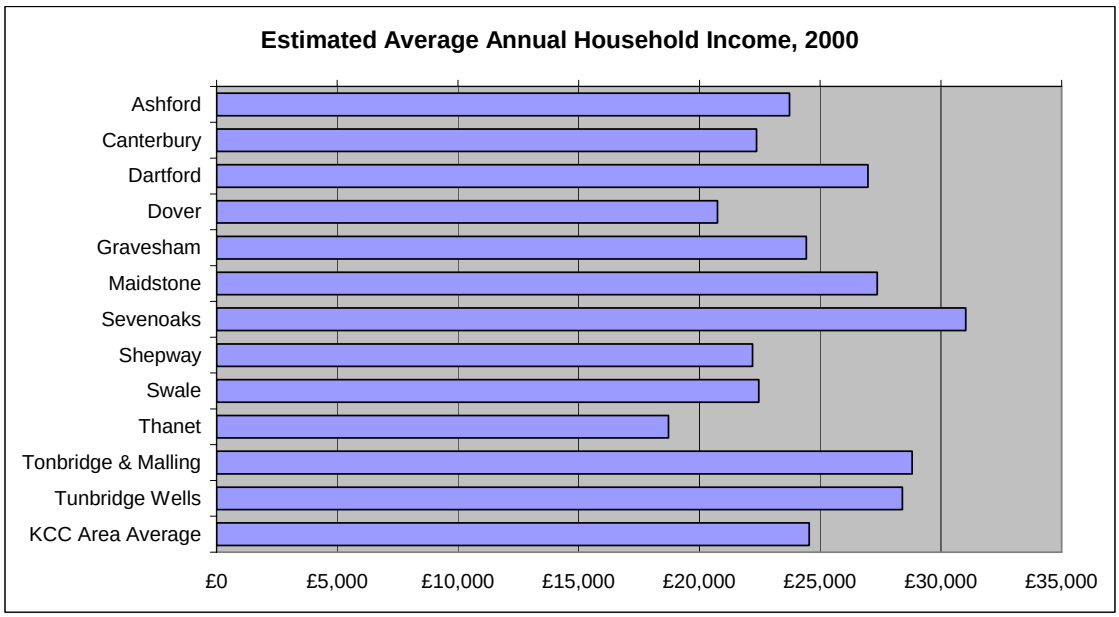
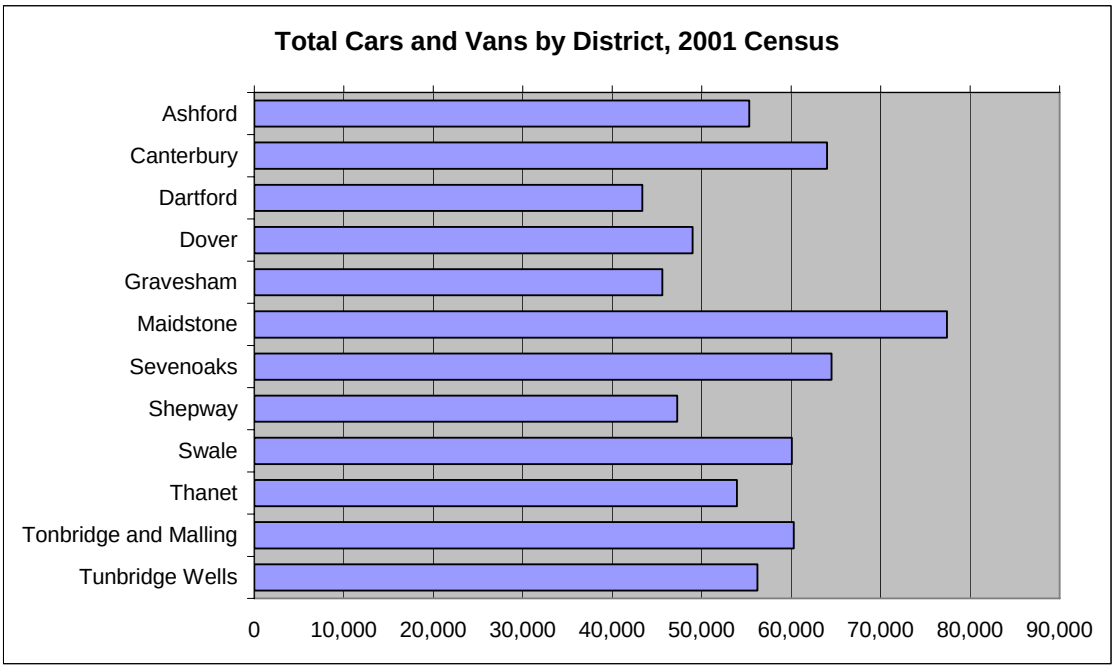


Figure 9 - Car and Van Ownership in Kent



3. Review of Current Waste Management in Kent

3.1. Municipal and Solid Waste Current Waste Arisings

3.1.1. Current Kent Annual Waste Arisings 2004/5

Figures 10 and 11 and Table 1 show the current MSW arisings in Kent for 2004-5 and predictions for 2007-8. Currently, Kent is responsible for collecting and managing 826,000 tonnes of MSW. Canterbury, Maidstone and Swale have the largest total MSW arisings and Gravesham, Dartford and Dover the lowest. Section 3.1.3 and Appendix 1 give more detailed District information.

Just over 70% of Kent's MSW is sent to landfill. Of this waste sent to landfill the majority (over 80%) is collected via the Districts and is primarily domestic household waste, with the rest arising through the 18 Civic Amenity Sites run by KCC.

95% of waste collected by the Districts is via domestic doorstep collections, which alone account for 52% of all waste sent to landfill. Figure 15 gives a basic waste composition analysis of the domestic waste currently being sent to landfill via district doorstep collections.

Other types of household waste arisings from the Districts are in relatively small amounts, with bulky waste and street arisings making up the largest proportions at around 2% each. Hazardous and clinical waste, WEEE and end of life vehicles are not included in Kent's MSW.

Figures 10 and 11 also show non household waste collected by Districts e.g. road sweepings, beach litter, trade waste and fly tipping which together account for only 7.5% of the total waste collected by the Districts. Highways mechanical sweepings make up the majority at around 60%, with trade waste at 27%.

Almost 30% of Kents MSW is recycled or composted. 14% is through District Collection schemes and 16% is via Civic Amenity Sites. Of this the largest proportion is dry recyclables making up 40% of the total. Green waste accounts for 27%, with soil and rubble at 21%. Materials sent to a Materials Recycling Facility (MRF) (under contract to KCC) through white/clear bag schemes currently account for almost 11% of recycled material. Canterbury, Tunbridge Wells and Shepway have the highest recycling rates at 35.15%, 32.8% and 25.99% respectively. Dover, Ashford and Dartford have the lowest.

Table 1 - Kent Municipal Solid Waste Arisings 2004/5

	MSW Sent to Landfill			MSW Recycled/Composted					
	Household Waste	Non-Household Waste	Total	Recycled Materials	MRF Recyclables *(under contract to KCC)*	Composted	Soil/Rubble Recycled	Total	Total MSW
2004/05									
Ashford	37,679	1,072	**38,751**	6,295	0	55	0	**6,350**	**45,101**
Canterbury	40,486	10,004	**50,490**	3,085	10,394	8,470	0	**21,949**	**72,439**
Dartford	33,727	1,918	**35,645**	1,419	4,354	0	0	**5,773**	**41,418**
Dover	34,772	4,007	**38,779**	4,281	0	0	0	**4,281**	**43,060**
Gravesham	30,065	620	**30,685**	1,657	5,448	0	0	**7,105**	**37,790**
Maidstone	50,416	2,189	**52,605**	7,138	0	4,102	0	**11,240**	**63,845**
Sevenoaks	33,010	4,066	**37,076**	3,437	4,898	1,515	0	**9,850**	**46,926**
Shepway	31,591	2,027	**33,618**	6,866	0	4,225	0	**11,091**	**44,709**
Swale	49,171	2,682	**51,853**	7,580	368	454	0	**8,402**	**60,255**
Thanet	40,152	4,145	**44,297**	6,061	0	2,924	0	**8,985**	**53,282**
Tonbridge & Malling	40,903	1,659	**42,562**	8,118	0	976	0	**9,094**	**51,656**
Tunbridge Wells	30,720	2,491	**33,211**	9,089	0	5,417	0	**14,506**	**47,717**
KCC Household Recycling Centres	95,777	0	**95,777**	32,616	0	38,304	50,896	**121,816**	**217,593**
Total	**548,469**	**36,880**	**585,349**	**97,642**	**25,462**	**66,442**	**50,896**	**240,442**	**825,791**

Figure 10 - Kent Waste Arisings 2004-5 (in tonnes)

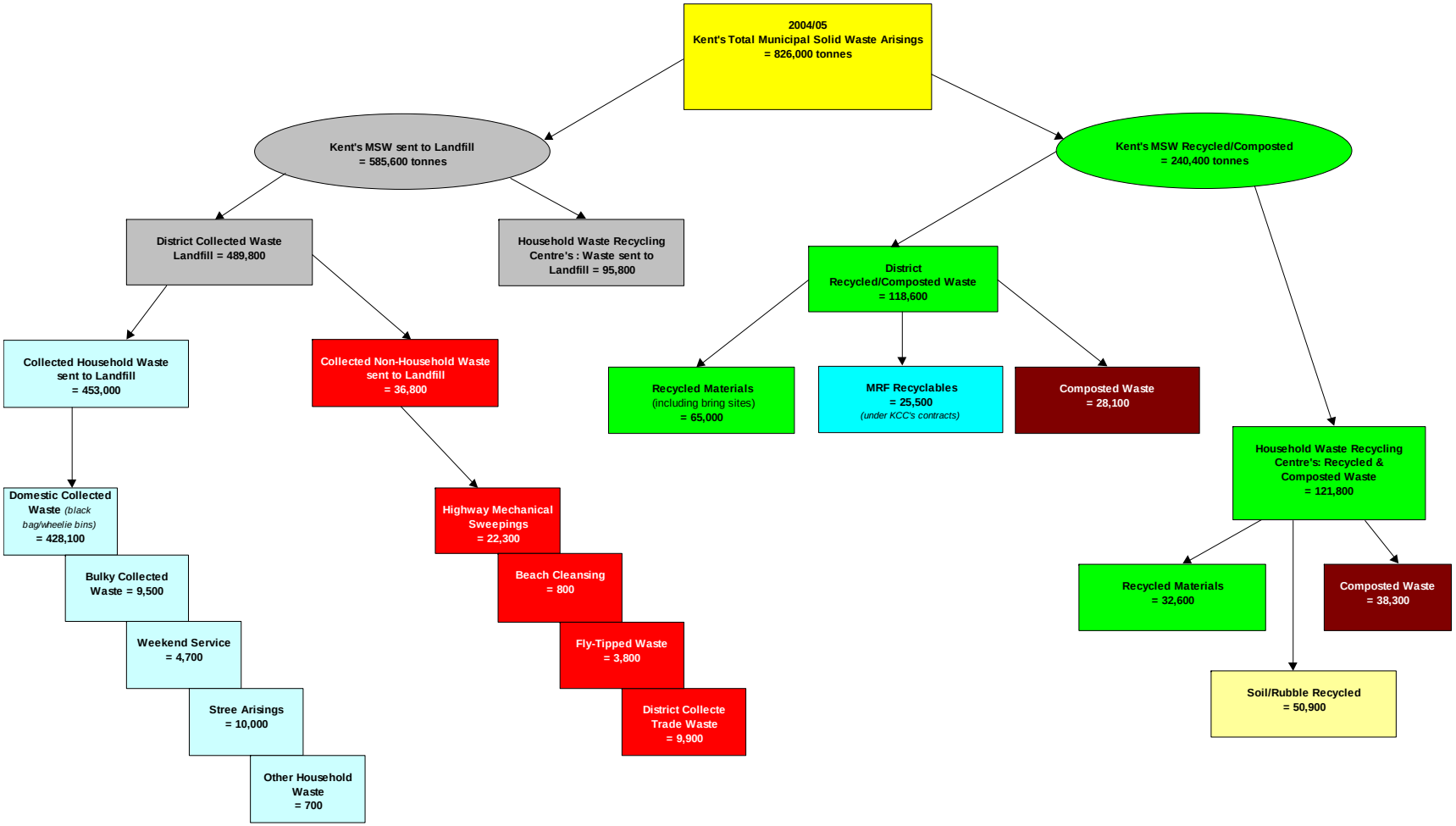
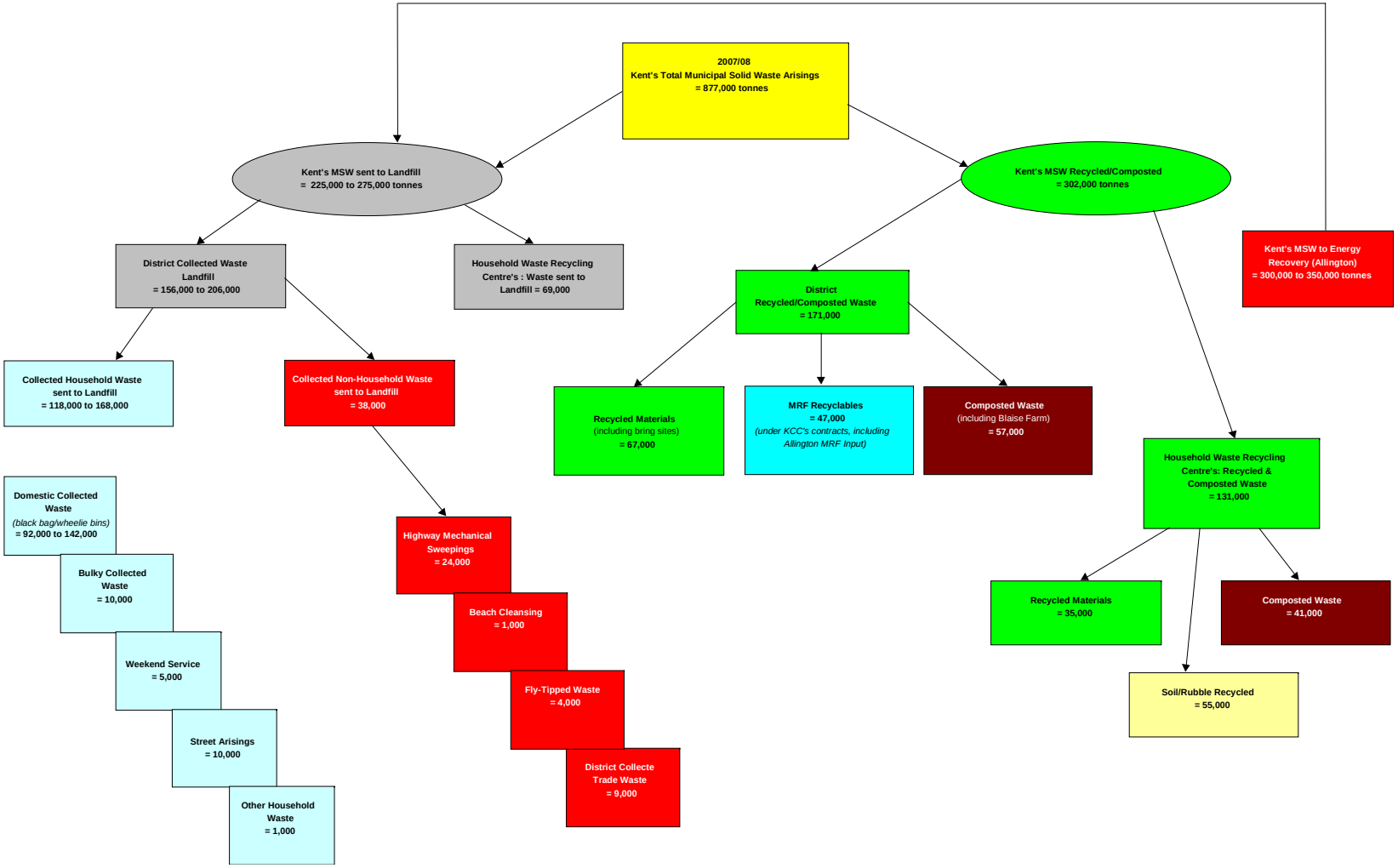


Figure 11 - Kent Waste Arisings 2007-8 (in tonnes)



3.1.2. Trends in Annual Waste Arisings and Recycling in Kent 2001-2008

Figures 12 and 13 and Table 2 give the trends in waste growth, recycling and recovery for 2001/2-2007/8. Kent MSW has grown from 754,188 tonnes in 2001/2 to 826,061 in 2004/5. This is an increase of 8.7%.

The rate of growth was high in 2001/02 and 2002/03 at about 4.5% and has since dropped to around 2.5% in 2004/5. Changes in the rate of growth could be as a result of a number of factors such as population and housing growth. However, an increase in green waste collections will also have had an impact resulting in more composted waste pushing up the total MSW.

In comparison, recycling rates have increased at Household Waste Recycling Centres and in the Districts (Waste Collection Authorities) by over 13% and 9% respectively since 2001. This is more than likely to be due to an increase in collections and awareness raising campaigns as well as targets such as BVPI 82 a, b and c and DEFRA's Recycling and Composting Targets. The introduction of Allington Waste to Energy Plant will have a significant positive impact on reducing the amount of MSW going to landfill.

Domestic collected waste (black bags/wheelie bins) has decreased by 4.5% and compostable waste has increased by 41% almost certainaly as a result of increased recycling and green waste collections. Bulky waste has increased by 32%, which could be due to an increase in fortnightly collections.

Highways mechanical sweepings, beach cleansing and fly-tipped waste have all increased as part of non household waste since 2003/4, as a result of a reclassification from household waste (e.g. street arisings), to non-household waste. The increase in trade waste in 2003/4 at KCC Household Recycling Centres also resulted from problems of classification; bringing trade waste into MSW, which has been amended in 2004/5. (Appendix 1 gives Amounts and Types of MSW for 2001/2-2004/5 in greater detail)

Table 2 - Kent's Household Waste Statistics

Kent's Household Waste Statistics

	00/01	01/02	02/03	03/04	04/05	05/06	07/08 (Predicted Results)
Kent's Waste Growth	**2.14%**	**4.40%**	**4.68%**	**2.06%**	**2.38%**	**1.50%**	**2.50%**
HWRC Recycling Rates	**42.89%**	**53.34%**	**53.91%**	**56.35%**	**55.98%**	**55.00%**	**56.00%**
WCA Recycling Rates	**9.44%**	**10.59%**	**13.1%**	**17.59%**	**20.77%**	**24.00%**	**28.00%**
Progress towards statutory targets	**13.95%**	**17.11%**	**19.61%**	**23.44%**	**25.69%**	**29.00%**	**32.00%**
Statutory DEFRA Target				**20.00%**		**30.00%**	

Figure 12 - Levels of Waste in Kent 1997/98 – 2007/08

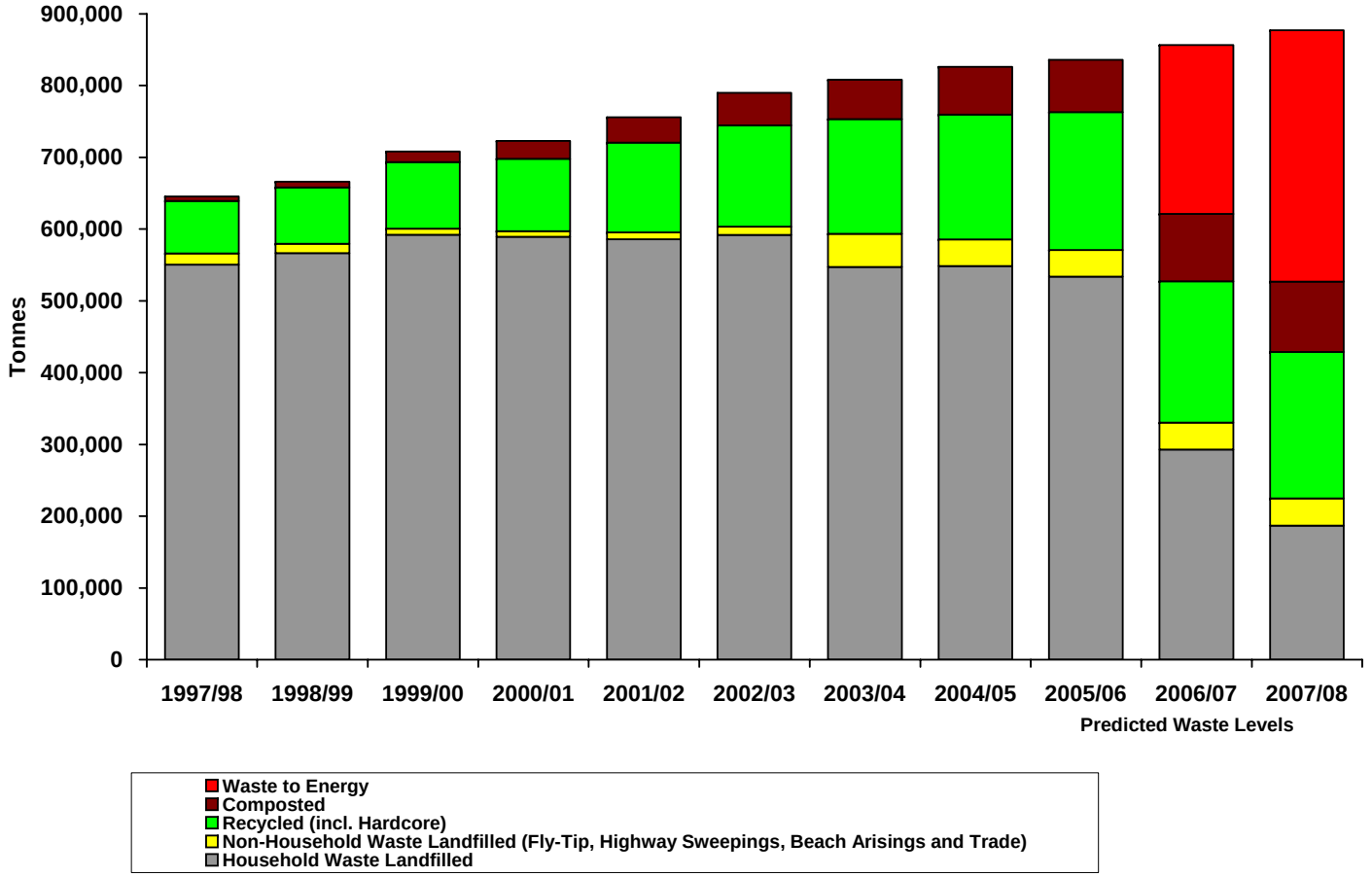
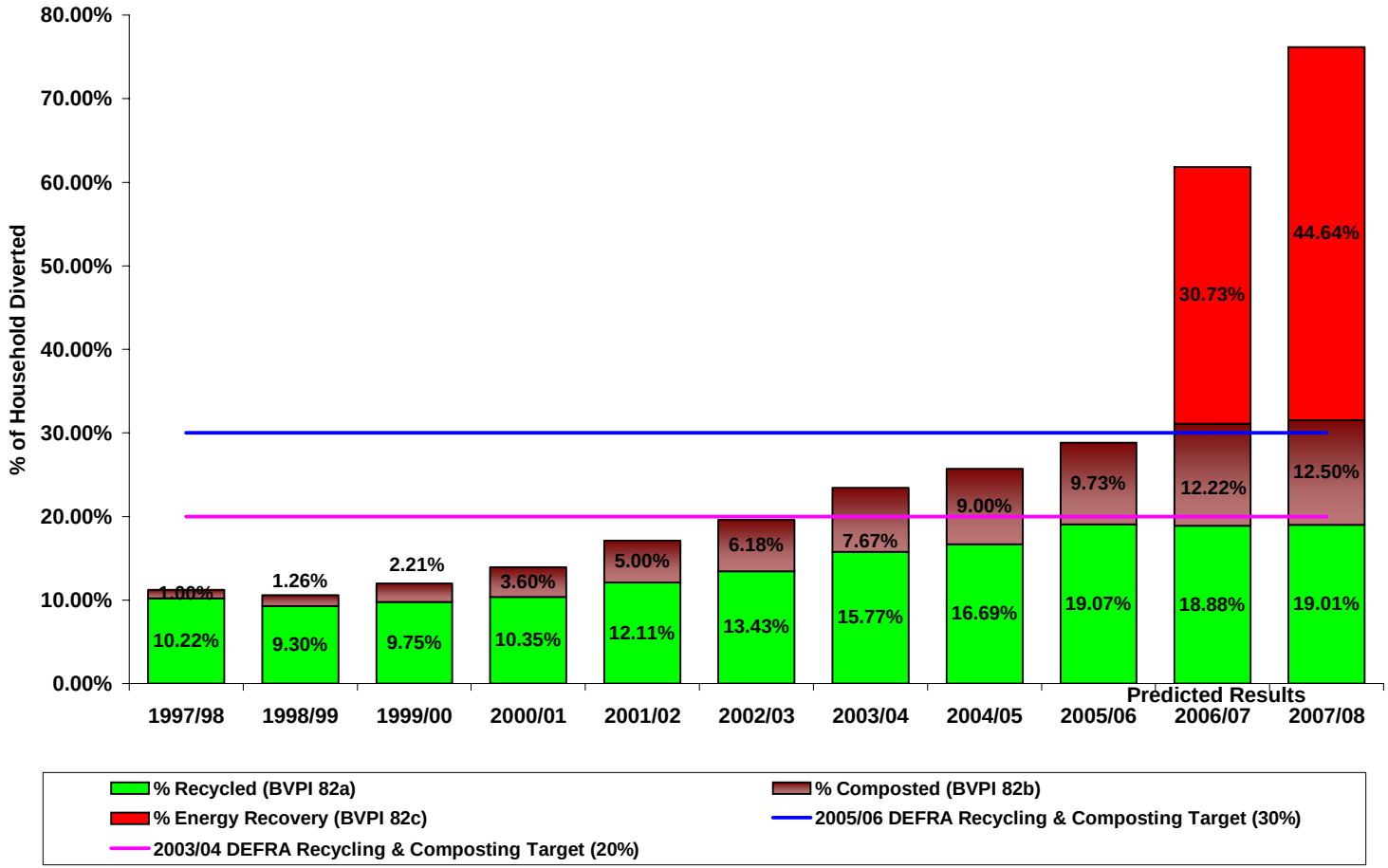


Figure 13 - Levels of Recycling/Composting and Recovery in Kent



3.1.3. District Trends in Annual Waste Arisings and Recycling

Tables 3 and 4 and Figure 14 give an overview of District trends in growth in waste arisings and recycling performance. Appendix 1 provides more in depth detail of District Waste Arisings. The average rate of growth in waste arisings between 2002/3 and 2004/5 is around 3%. MSW is still growing but the rate of growth has slowed over the last 2 years.

Canterbury and Shepway have some of the highest growth rates for waste arisings, but also some of the highest recycling rates. This is pointing to the fact that an increase in green waste collections and changes to collection methods (e.g. fortnightly collections) may cause an initial growth in MSW arisings. Further specific District detail has been given below. Data on average waste per household has been taken from the earlier Enviros Report (2004) and is based on 2003 calculations.

Table 3 - Waste Growth in Kent 2002-2005

Growth analysis - MSW	**2002/03**	**2003/04**	**2004/05**
Ashford	5.40%	3.43%	2.49%
Canterbury	2.98%	7.75%	3.34%
Dartford	1.87%	2.09%	1.73%
Dover	3.68%	3.35%	0.30%
Gravesham	2.61%	1.86%	3.31%
Maidstone	1.29%	-1.02%	5.65%
Sevenoaks	1.11%	1.76%	-0.81%
Shepway	5.74%	2.25%	7.86%
Swale	4.70%	-0.95%	0.54%
Thanet	2.80%	1.75%	2.71%
Tonbridge & Malling	-1.62%	-0.26%	1.54%
Tunbridge Wells	1.11%	-3.99%	4.37%
Kent's Total	4.75%	2.36%	2.15%

KCC Household Recycling Centres	8.74%	3.34%	1.56%

Table 4 - District Recycling Performance 2001/2-2004/5

	2001/02	**2002/03**	**2003/04**	**2004/05**
Ashford	9.18%	12.42%	14.63%	14.42%
Canterbury	12.51%	15.16%	31.06%	35.15%
Dartford	5.67%	6.44%	13.81%	14.62%
Dover	4.23%	6.48%	9.05%	10.96%
Gravesham	8.47%	11.13%	12.12%	20.4%
Maidstone	12%	13.55%	15.5%	16.79%
Sevenoaks	11.68%	14.34%	20.16%	23.40%
Shepway	12.71%	15.05%	19.25%	25.99%
Swale	13.37%	15.16%	14.77%	14.53%
Thanet	3.99%	6.84%	13.40%	18.29%
Tonbridge & Malling	15.30%	16.37%	16.86%	18.05%
Tunbridge Wells	12.82%	21.14%	24.55%	32.8%
Kent's Total (without hardcore)	17.11%	19.05%	23.06%	25.67%

KCC Household Recycling Centres				
% Recycled (without hardcore)	41.08%	42.13%	42.06%	42.54%
% Recycled (with hardcore)	53.34%	53.91%	54.86%	55.98%

Ashford Borough Council's rate of growth in MSW during 2004/5 is above the Kent average at 2.49%. This could be attributed to the high rate of development the area is currently facing. The household waste arisings (per person) in Ashford Borough are about average for Kent at 404 kg. No limit is given to the quantitities of waste which may be left, which may explain why the amount of bulky materials has increased initially. However, Ashford now charge for bulky items which is now resulting in a reduction. Ashford achieved a 14.42% recycling/composting rate for 2004/5. Ashford is investigating the potential of green waste collections in helping to meet the 2005/6 target of 21%.

Canterbury City Council's rate of growth in MSW during 2004/5 is high in comparison to the Kent average at 3.34%. This can be attributed mostly to the increase in green waste recycling and the change to fortnightly refuse collections. The household waste arisings (per person) in Canterbury are relatively high for Kent at 443kg. Canterbury achieved a 35.15% recycling/composting rate for 2004/5, and has the highest rate in Kent. This is predicted to rise to 38% for 2005/6, helped by Canterbury's alternate weekly collections.

Dartford Borough Council's rate of growth in MSW during 2004/5 is below the Kent average at 1.73%. The household waste arisings (per person) in Dartford are the highest Kent at 453kgpp. This is, in part, due to the policy of accepting all residual waste presented by the householder, which is possibly why bulky waste has increased significantly since 2003/4. Dartford achieved a 14.62% recycling/composting rate for 2004/5. Dartford will need additional measures to reach the target of 21% for 2005/6; perhaps the separate collection of green waste.

Dover District Council's rate of growth in MSW during 2004/5 is below average the Kent average at 0.30%. The household waste arisings (per person) in Dover are also the lowest in Kent at 339 kg pp, despite having a policy to accept all the waste presented at the kerbside. Dover achieved a 10.96% recycling/composting rate for 2004/5. Dover is currently operating at a rate of about 12% and is likely to require the separate collection of green waste or other additional measures if it is to achieve the target of 18% for 2005/6.

Gravesham Borough Council's rate of growth in MSW during 2004/5 is above the average for Kent at 3.31%. The household waste arisings (per person) in Gravesham are very low at 369.2kg. Gravesham achieved a 20.4% recycling rate for 2004/5. Gravesham has ambitions to introduce a green waste collection which will help to reach its target of 30% for 2005/6.

Maidstone Borough Council's rate of growth in MSW during 2004/5 is above the Kent average at 5.65%. The household waste arisings (per person) in Maidstone are relatively high at 429.7 kg. Maidstone achieved a 16.79% recycling/composting rate for 2004/5 and is on course to meet the 2005/6 target of 18%.

Sevenoaks District Council's rate of growth in MSW during 2004/5 has decreased to –0.81%. The household waste arisings (per person) in Sevenoaks is also below average at 389kg. Sevenoaks achieved a 23.40% recycling/composting rate for 2004/5. Indications are that the current programme of planned measures will result in a recycling rate in excess of 30% for 2005/6.

Shepway Borough Council's rate of growth in MSW during 2004/5 was the highest in the County at 7.86%. The household waste arisings (per person) in Shepway are relatively low at 395kg. This growth could be attributed mostly to the increase in green waste recycling and a change to fortnightly refuse collections. Shepway achieved a 25.99% recycling/composting rate for 2004/5. The target for 2005/6 is 30%.

Swale Borough Council's rate of growth in MSW during 2004/5 was much lower than the Kent average at 0.54%. The household waste arisings (per person) in Swale are, however, the third highest at 459kg. Swale achieved a 14.53% recycling/composting rate for 2004/5. The target for 2005/6 is 24%, but the projection for the period is currently only 16.7%.

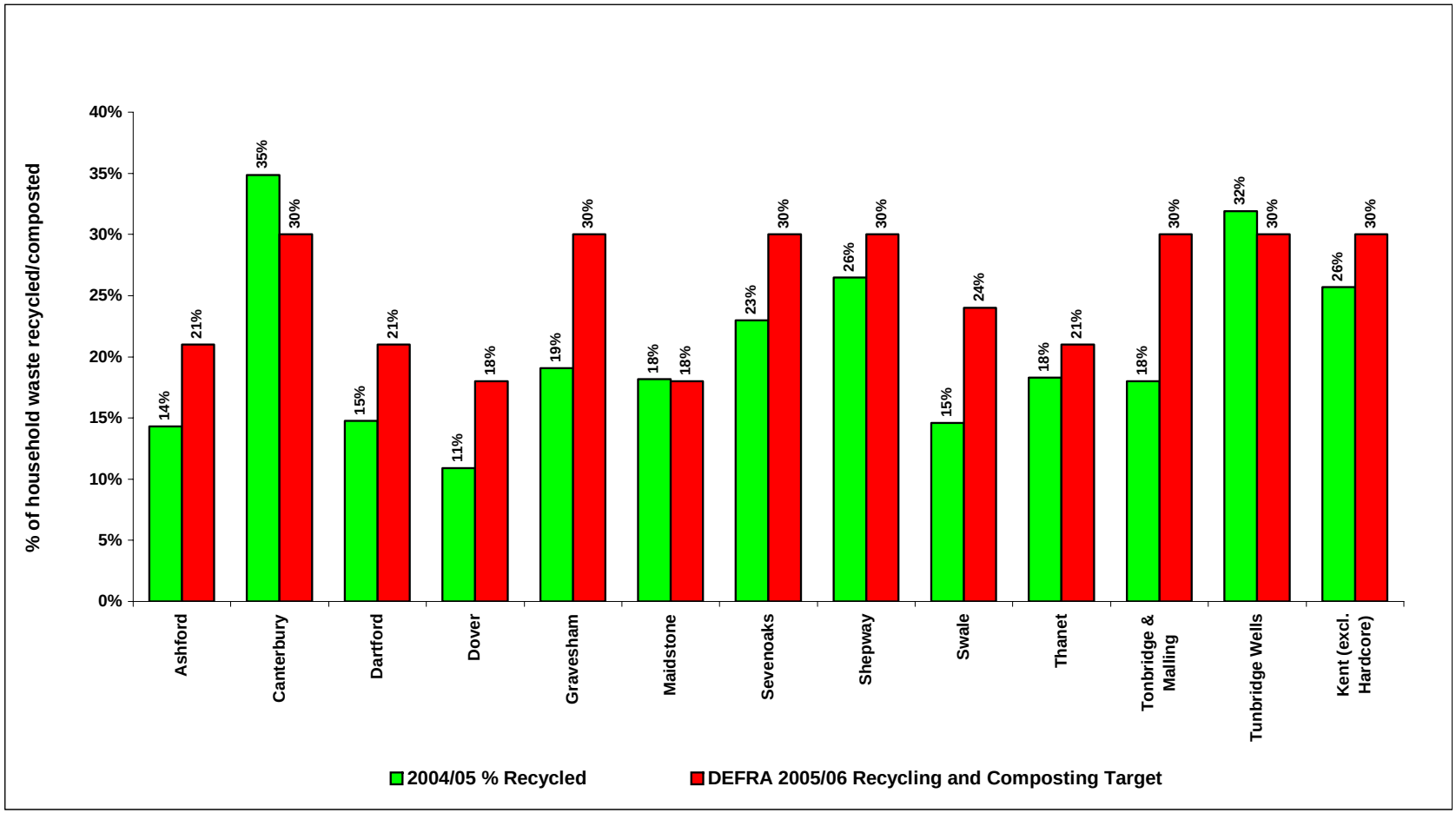
Thanet Borough Council's rate of growth in MSW during 2004/5 was higher than the Kent average at 2.71%. The household waste arisings (per person) in Thanet are also low at 371.6kg. Thanet achieved an 18.29% recycling/composting rate for 2004/5. The projected rate for 2005/6 is 21.1% which will meet the target of 21%.

Tonbridge and Malling Borough Council's rate of growth in MSW during 2004/5 was below the Kent average at 1.54%. The household waste arisings (per person) in Tonbridge and Malling are almost the highest in the County at 452kg. Tonbridge and Malling achieved an 18.05%

recycling/composting rate for 2004/5. The projected rate for 2005/6 is 27% while the statutory target is 30%.

Tunbridge Wells Borough Council's rate of growth in MSW during 2004/5 was higher than the Kent average at 4.37%. The household waste arisings (per person) are around the Kent average at 417kg. Tunbridge Wells achieved a 32.08% recycling/composting rate for 2004/5. The projected rate for 2005/6 is 38% which will exceed the statutory target of 30%.

Figure 14 - Levels of Recyling/Composting Rates and Targets in Kent by District (2005/6 Targets capped at 30%)



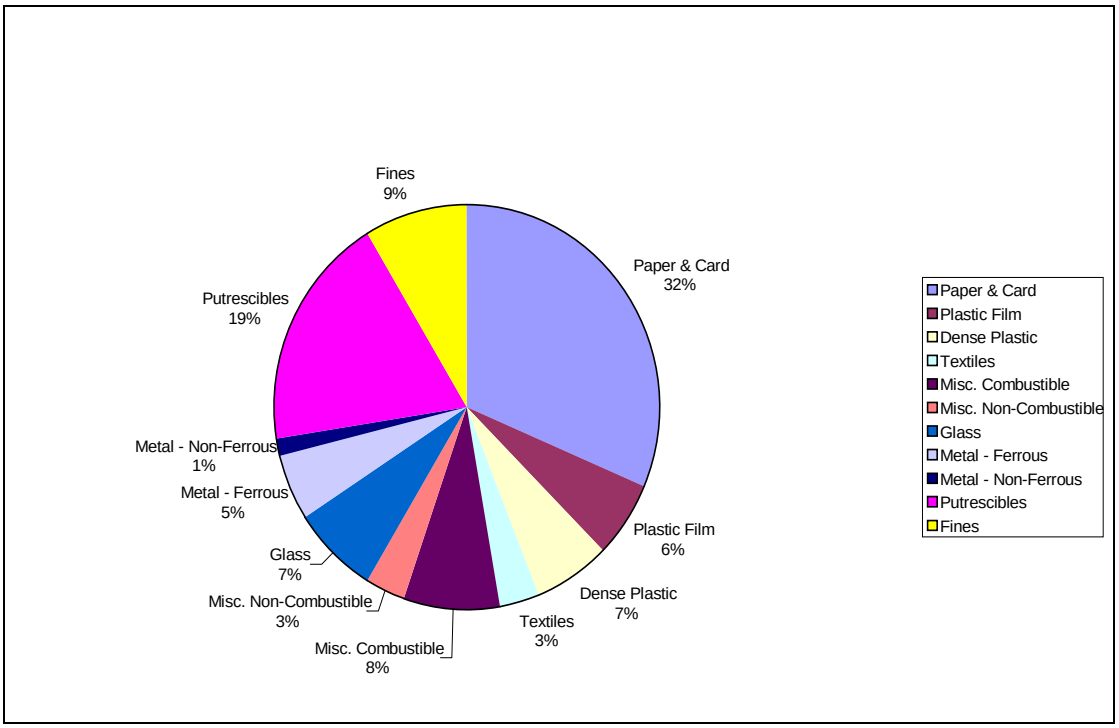
3.1.4. Materials Capture Analyis

Table 5 shows the current breakdown of materials being recycled or composted in Kent 2004/5. Of this the largest proportion is green waste accounting for almost 28%, with paper and card at 20% and glass at 8%. Currently only 10% is co-mingled; collected by white/clear bag schemes.

Three of the 12 Districts; Dartford, Dover and Gravesham Borough, do not have green waste collections which provides a significant opportunity for increasing recycling and diversion rates in Kent. In addition only 5 of the Districts are currently carrying out co-mingled collections an increase which could lead to more recycling of mixed cans and plastics.

Figure 15 gives a basic waste composition analysis of the domestic waste currently being sent to landfill via District Doorstep Collections. It shows that the largest proportion of this waste is paper and card 32%, and putricibles 19% and is therefore recyclable.

Figure 15 - Kent Waste Composition (Based on Waste Analysis Report for Allington March 2001)



	Glass	Paper and Card	Mixed Cans	Plastic	Textiles	Scrap Metal	Fridges & Freezers	WEEE	Co-mingled for Sep'tion (MRF)	Wood/ Timber	Vehicle Batteries	Oil	Misc.	Green Waste	Soil and Hardcore (Rubble)	**Total**
Ashford	1,950	3,692	151		125	26	84						267	55		**6,350**
Canterbury	1,669	933	4		128	11	68		10,394					8,740		**21,947**
Dartford	808	448	9		125		38		4,354				35	0		**5,817**
Dover	1,211	2,750	173		60		33							0		**4,227**
Gravesham	746	531	4		128	122	77		5,448					0		**7,056**
Maidstone	1625	3690	45		284		117							4,102		**11,151**
Sevenoaks	1,918	1,120	20		264		56		4,898				92	1,515		**9,883**
Shepway	1,212	4,961			143		50							4,225		**10,591**
Swale	1,102	5,553	68		168	498	180		368				11	454		**8,402**
Thanet	934	4,788	37		92		93						10	2,924		**8,878**
Tonbridge & Malling	1,733	5,421	184		152		124						28.3	930		**8,572**
Tunbridge Wells	1,824	6,909	71		133	13	34						1	5,417		**14,506**
KCC CA Sites	2,124	6,497	18	113	940	14,810	1,822	529	0	3,768	762	199	974	38,304	50,896	**121,756**
Total	**19,385**	**48,064**	**893**	**113**	**2,849**	**15,480**	**2,770**	**529**	**25,462**	**3,768**	**762**	**199**	**1,552**	**66,712**	**50,896**	**239,434**

Table 5 - Materials Recycled and Composted Analysis 2004

3.2. Waste Collection and Disposal Infrastructure

This section provides detail of current collection and disposal infrastructure in place in Kent. The information has been taken from the Enviros Report (2004) and is, therefore, current up to 2003. Figures 16 and 17 give an overview of the orgin and destination of waste arisings in both East and West Kent. Figure 17 illustrates the predicted impact of the Allington Waste to Energy Plant when it becomes fully operational in 2007-8.

3.2.1 Ashford

The waste service for Ashford is provided by a private contractor (SITA). The contract runs until 2022.

Dry recyclables including glass, paper and cans are collected from the kerbside on a fortnightly basis via a blue box. Green waste is currently being trialled on a single collection round.

Non recyclable refuse is collected on a weekly basis. No containers are provided and the quantity of waste that can be left out for collection is unlimited.

The cost of collection per household is high at £35.70.

3.2.2 Canterbury

The waste service for Canterbury is provided by a private contractor (Serco). The contract runs until 2013. This contractor also undertakes street cleansing services.

Dry recyclables including paper, card, cans, plastics and foil are collected from the kerbside on a fortnightly basis, commingled in clear sacks. Green waste is collected at the same time via a 240L wheeled bin or reusable sacks.

Non recyclable refuse is collected on an alternate weekly basis (alternate week to green waste and dry recyclables) via a black 240L wheeled bin, and the quantity of waste is limited due to a policy of no side waste.

The cost of collection per household is high at £39.30.

3.2.3 Dartford

The waste collection service for Dartford is provided by a private contractor (Cleanaway – the contract is being retendered in July 2006). This contractor also undertakes street cleansing services.

Dry recyclables including paper, cardboard, cans, dense plastics and plastic film are collected from the kerbside on a weekly basis via a 55L box. Green waste collection is planned for 2005/2006.

Non recyclable refuse is collected on a weekly basis via a wheeled bin and the quantity of waste is unlimited, as side waste is permitted, and garden waste is currently permissible in the wheeled bins for refuse.

The cost of collection per household is relatively high at £32.50.

3.2.4 Dover

The waste collection service for Dover is provided by a private contractor (SITA). The contract runs until 2008.

Dry recyclables including paper, glass and cans are collected from the kerbside on a fortnightly basis via a black box for around two thirds of houses (28,000). Green waste is collected weekly (same collection as dry non recyclable refuse) via clear sacks (£3.20 for a roll of 10) for 11,000 properties, expanding to a further 10,000 properties in March 2006.

Non recyclable refuse is collected on a weekly basis. No containers are provided and the quantity of waste that can be left out for collection is unlimited.

The cost of collection per household is low at £21.90pa.

3.2.5 Gravesham

The waste collection service for Graveshame is an ‘in-house’ function.

Dry recyclables including paper, cans, foil plastics and card are collected from the kerbside on a weekly basis in clear sacks. Green waste is currently not collected.

Non recyclable refuse is collected on a weekly basis in black sacks (provided by the Authority, 15 per quarter) and the quantity of waste collected is unlimited.

The cost of collection per household is low at £23.31pa.

3.2.6 Maidstone

The waste collection service for Maidstone is provided by a private contractor (Biffa). There is potential for review of the contract in 2006 and this could include the option of bringing the service in-house (street cleansing and grounds maintenance already in-house).

Dry recyclables including paper and/or glass are collected from the kerbside on a fortnightly basis via either a black box or reusable hesian bag (for paper – 29,000 properties) or a yellow box (for glass – 14,500 properties). Green waste is collected fortnightly at an annual charge of either, hiring a green wheeled bin (£18/year) or through purchase of green waste sacks (£1.55 for 5). This green waste service is currently available to 29,000 properties.

Non recyclable refuse is collected on a weekly basis via a 240L (180L on request) wheeled bin and the quantity of waste is limited by discouraging side waste.

The cost of collection per household is £37.79pa.

3.2.7 Sevenoaks

The waste collection service for Sevenoaks is an 'in-house' function.

Dry recyclables including cans, tins, metal jar lids, paper, cardboard, aluminium foil, plastic bottles and plastic carrier bags are collected from the kerbside on a weekly basis in clear sacks. Green waste is collected fortnightly via a purchase scheme of either, an annual permit (£25), which provides a wheeled bin, or through the purchase of green waste sacks (£3 for 12 sacks).

Non recyclable refuse is collected on a weekly basis via black sacks and the quantity of waste is unlimited.

The cost of collection per household is relatively high at £34.90pa.

3.2.8 Shepway

The waste collection service for Shepway is operated by Cleanaway, who are contracted until 2008.

Dry recyclables including paper, card, plastic bottles, cans and glass are collected from the kerbside on a fortnightly basis, via blue sacks for paper and card, and a black box for plastic bottles, cans and glass. Green waste is collected fortnightly (alterative weekly to non recyclable refuse) via a brown lidded wheeled bin on an 'opt in' basis.

Non recyclable refuse is collected on a fortnightly basis via a wheeled bin, and the quantity of waste is limited due to a policy of no side waste.

The cost of collection per household is relatively low at £28.60pa.

3.2.9 Swale

The waste collection service for Swale is provided by a private contractor (Biffa). The contract runs until 2008.

Dry recyclables including paper and cardboard are collected from the kerbside on a fortnightly basis although no container is provided. A much wider range of materials is collected from two pilot areas covering around 10% of the Borough (5400 properties).

The two pilot schemes are th Swale Organic Collection Scheme (SOCS) and the Seaside Community Recycling Scheme (SCRS). 1) SOCS: Green waste collection is fortnightly via a wheeled bin and dry recyclables (excluding glass) are collected the following day in clear sacks, with non recyclables collected fortnightly via a wheeled bin; an adjacent scheme comprises of dry recyclables (excluding glass) collected fortnightly in clear sacks, with non recyclables collected weekly via a wheeled bin. 2)SCRS: Dry recyclables including paper and

cardboard are collected in one box, and cans, foil and glass in a second box, collected on a fortnightly basis.

The cost of collection per household is £33.11pa.

3.2.10 Thanet

The waste collection service for Thanet is provided by a private contractor (SITA), but it will be brought back 'in house' in 2006.

Dry recyclables including paper and card are collected from the kerbside on a fortnightly basis via a box, clear sacks or own receptical. Green waste is collected alternate weekly via sacks (not provided) limited to 2 sacks.

Non recyclable refuse is collected on a weekly basis (or alternate weekly with green waste) via black sacks or a wheeled bin.

The cost of collection per household is low at £25.20pa.

3.2.11 Tonbridge and Malling

The waste collection service for Tonbridge and Malling is provided a private contractor (Cleanaway). The contract runs until 2019.

Dry recyclables including paper, cans, aluminium foil and aerosol cans are collected from the kerbside on an alternative weekly basis via a 55L green box. Green waste and card are collected together on an alternative weekly basis via a 240L wheeled bin – 18,000 properties, from 2005.

Non recyclable refuse is collected on a weekly basis (or alternate weekly for those houses with a green waste alternate weekly collection) via a 240L wheeled bin. The quantity of waste is limited due to a policy of no side waste.

The cost of collection per household is high at £30.16pa.

3.2.12 Tunbridge Wells

The waste collection service for Tunbridge Wells is provided by the private sector (Cleanaway). The contract runs until 2008.

Dry recyclables including paper and card are collected from the kerbside on an alternate weekly basis via a green box. Green waste is also collected on an alternate weekly basis via a 240L wheeled bin (alongside the dry recyclable green box, and alternate fortnightly collection of non recyclable refuse) – 35,000 properties from September 2005.

Non recyclable refuse is collected on a weekly basis (or alternate weekly for those houses with a green waste alternative weekly collection) via a 240L wheeled bin (or black sacks/110L wheeled bin for multi-occupancy). The quantity of waste is limited due to a policy of no side waste. The cost of collection per household is low at £26.70pa.

3.2.13 Waste Disposal Infrastructure

KCC is rated excellent under the explanation – (CPA) evaluations and achieves a 4 rating for environmental services. The recycling and composting rate for Kent is currently 29% (excluding hardcore), with the remainder sent to landfill.

The County produces 534 kg of household waste pp (national average 533.5 kg) and the cost of the disposal service is £44.30/tonne which is higher than the national average of £40.70/tonne.

The authority currently disposes of its waste through five landfill contracts, those serving the Western authorities are due to expire over the period October 2006 – March 2008, whilst the Shelford contract runs until 2012 and services the five districts in the East of Kent. The contracts are with Cleanaway (S. Ockendon / Rainham), Brett Waste Management (for Shelford landfill) and Waste Recycling Group (Offham landfill).

The County provides 18 Household Waste Recycling Centres (HWRCs), five of which are also Transfer Stations The contracts for the operation and management of the Household Waste Sites are presently managed by four contractors (John Slattery Partnership, Skipaway Ltd, Biffa Waste Management Ltd, South Herts Waste Management) and have recycling rates ranging between 40 – 75%.

The composting of green waste from the HWSs is undertaken through a contract with Waste Recycling Group at their Dunbrik and Shelford operations for West Kent and East Kent respectively. A new contract is currently being let for an 'In-Vessel' Composting facility, capable of receiving kitchen waste and cardboard in addition to green waste. This contract will be in the range of 12,000 – 25,000tpa capacity and the facility is likely to process wastes derived from Tunbridge Wells and Tonbridge & Malling. There is potential for organic waste from other authorities to also be processed within the facility/ies.

A new contract has been let for the recovery of waste through a 500,000tpa fluidised bed Waste to Energy plant. The contract is with Kent Enviropower (a subsidiary of Waste Recycling Group Ltd). The contract period is 25 years and the plant is planned to serve seven Districts – Maidstone, Tonbridge & Malling, Tunbridge Wells, Sevenoaks, Swale, Dartford, and Gravesham. In the event of any surplus in contract capacity, the County may transfer waste from other districts. This plant will come on-stream in 2006 and will process ~60% of Kents residual waste. The facility will also have a 60,000tpa Materials Recovery Facility, to sort co-mingled dry recyclables. At present KCC does not have binding arrangements with the Districts for materials to be supplied into these facilities.

The County do not have long term contracts for sale of recyclate and tend to play the spot market to get the best deal for recyclables.

Figure 16 - Waste Origin and Destination 2004/5 (in tonnes)

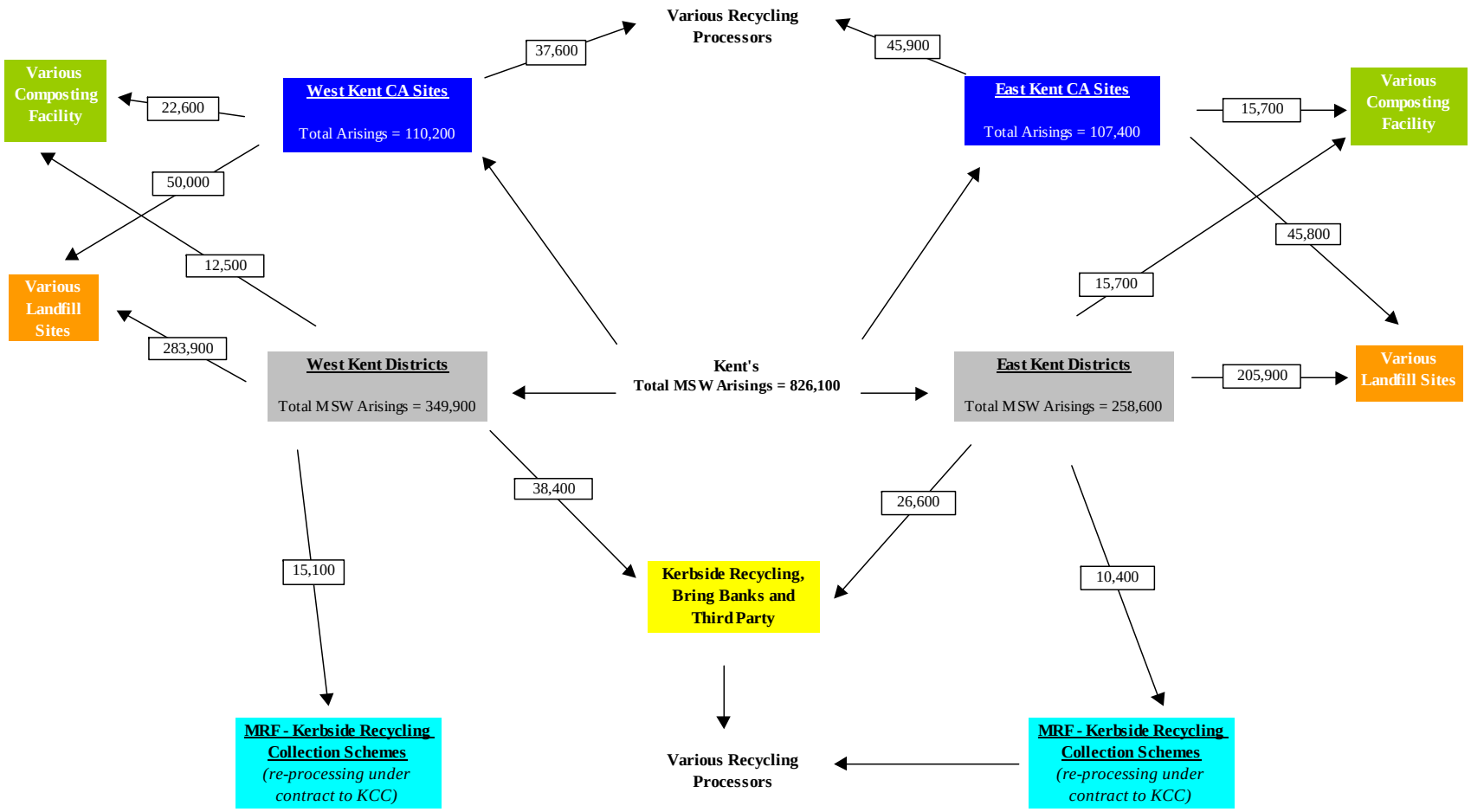
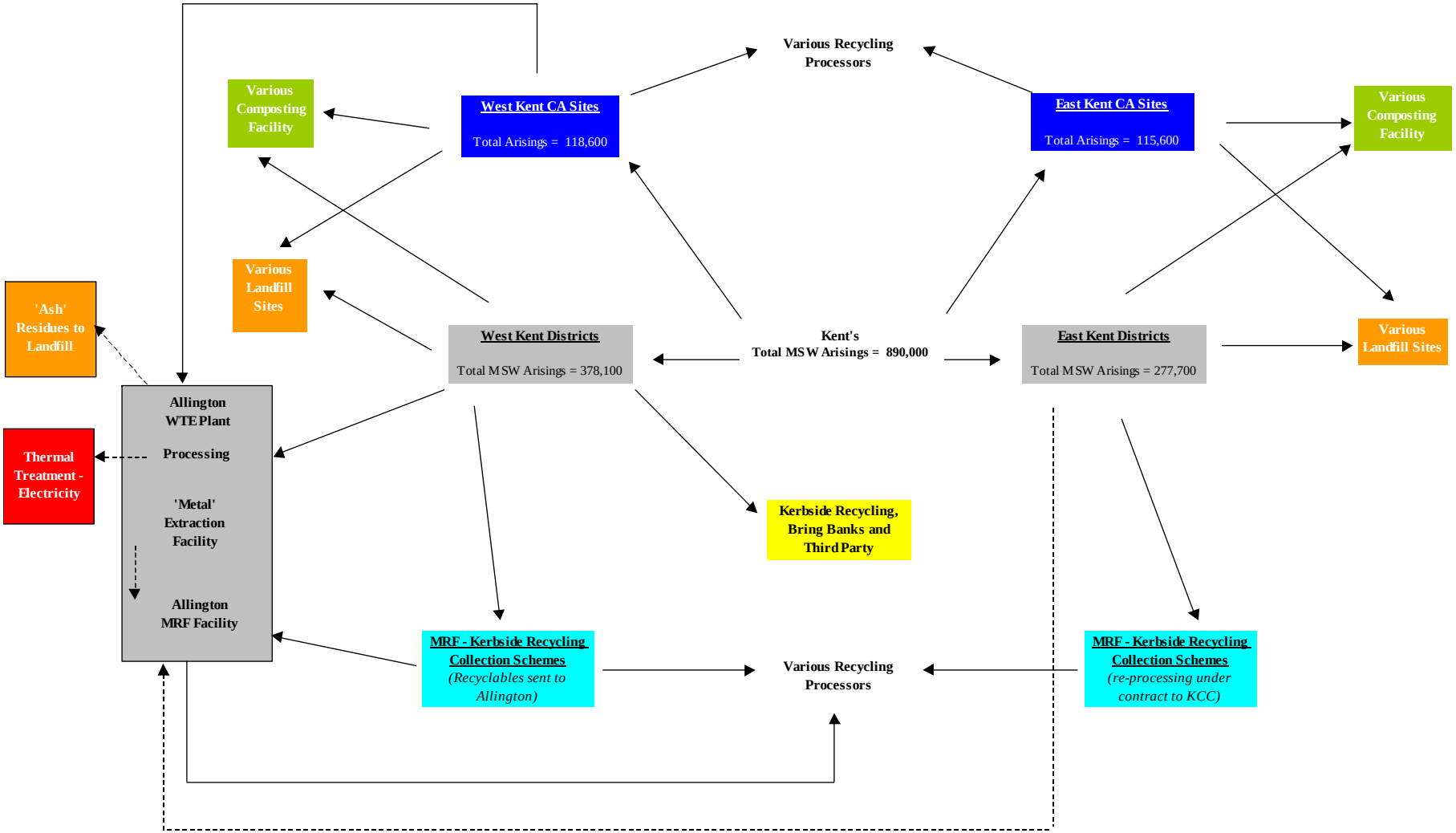


Figure 17 - Waste Origin and Destination 2007/8 (in tonnes)



3.3. Waste Minimisation

Each year Kent produces nearly 800,000 tonnes of domestic waste. That is enough to fill all 3 lanes of the M25 with refuse lorries parked nose to tail.

We need to reduce the amount of waste we produce for the benefit of the environment and because of the cost involved.

Kent County Council launched the War on Waste Campaign in October 1998 to tackle the ever increasing problem of household waste. This encouraging householders to look seriously at the amount of waste they produce and how they dispose of it. The campaign itself consists of many different types of projects enabling us to reach people of all ages and socio-economic groupings.

A mobile exhibition unit allows us to take this message to town centres, schools, supermarkets and country fairs. The unit, which uses interactive activities for both adults and children, can usually be found at any number of different venues during the week, weekends and bank holidays throughout the year. All the information is backed up on the War on Waste website with online facilities available for help and advice.

The Campaign has been delivering a number of inspirational initiatives over recent years.

3.3.1 Kent Real Nappy Scheme

The Kent Real Nappy Scheme (launched April 2001) encourages parents to use real cotton nappies instead of disposables, to help reduce the amount of waste being disposed of. In Kent some 5% of all household waste is disposable nappies, costing some £1.8 million to collect and dispose of alone.

3.3.2 Waste Reduction Theatre Workshops

The Waste Reduction Theatre Workshops have proved very successful in Primary Schools with officers from the District Councils, KCC and a theatre group visiting schools to promote an understanding of waste issues through drama.

3.3.3 Subsidised compost bins

Subsidised compost bins have been made available to Kent residents for over four years. The aim of which is to encourage householders to reduce the amount of waste being sent to landfill by separating out their green waste. A network of Composter Advisors, in a partnership with British Trust for Conservation Volunteers, was established in 2001. Trained volunteers are able to give composting information and advice to others living locally.

Kent War on Waste is a partnership between KCC, the 12 District and Borough Councils of Kent and Medway, and ReMaDe set up to promote the message "Reduce, Re-use and Recycle your waste".

4 Forecast of Future Waste Arisings[1]

4.1. Waste Growth

In developing a waste strategy for Kent, it is important to try to predict the likely future quantities of waste which will need to be dealt with. The amount and type of waste that arises will be dependent on a number of factors, including:

- increasing numbers of new homes. The number of households in the region is expected to increase significantly in coming years, with close to 70 000 new homes planned for the County over the next 15 years, as outlined in the Kent and Medway Structure Plan, Policy HP1;
- changing family types, such as smaller households, which generate more waste per head;
- Government policy and legislation;
- Council waste reduction and reuse initiatives, such as home composting, awareness-raising etc; and
- changes in retail packaging, marketing and improvements in product design.

The amount of municipal solid waste (MSW) produced within Kent and associated Districts has increased steadily over the last 4 years. A number of growth scenarios have been examined for how this might change in the future; and the effect it would have on the tonnages that will require management:

- **Scenario 1** - a forecast of no growth in MSW arisings (static);
- **Scenario 2** - a forecast of MSW arisings based on a constant 3% increase per annum, in line with the national rate quoted in Waste Strategy 2000 and the rate used to demonstrate the effect of waste growth in Kent's 2002 joint strategy for household waste[2];
- **Scenario 3** - a forecast of MSW arisings based on the average growth rate experienced in Kent between 2001/02 and 2004/05 (the historic 3-year growth rate);
- **Scenario 4** - a forecast of MSW arisings based on the average growth rate experienced in Kent between 2002/03 and 2004/05 (the historic 2-year growth rate);
- **Scenario 5** – a forecast demonstrating the affect of a rapid decrease in growth rate following, for example. the implementation of minimisation initiatives;
- **Scenario 6** - a forecast of MSW arisings based on the likely increase in number of households across Kent[3] and assuming the amount of waste produced per household remains the same. This scenario also assumes that non-household waste arisings remain static;
- **Scenario 7** - a forecast of MSW arisings based on assumptions used in the Proposed Regional Planning Guidance (RPG 9). This assumes that waste growth will decrease to 1% per annum by 2010and 0.5% per annum by 2020. Household growth is not taken into consideration; and
- **Scenario 8** - a forecast of MSW arisings based on assumptions used in Kent's Waste Development Framework (As outlined in the *Assessment of Need for Waste Management and Disposal Facilities in Kent* (2004), prepared for Kent County Council by Jacobs Babtie). This assumes a rapid decrease in the growth in household waste from the historic 3-year rate (3.1% increase per annum) to

[1] Section 4 - Produced by ERM for the Baseline Report
[2] Joint Strategy for the Sustainable Waste Management of Household Waste for Kent, adopted by the Kent Waste Forum, 15th November 2002
[3] Derived from Kent and Medway Structure Plan Provision 2003 (data for 2006-2020)

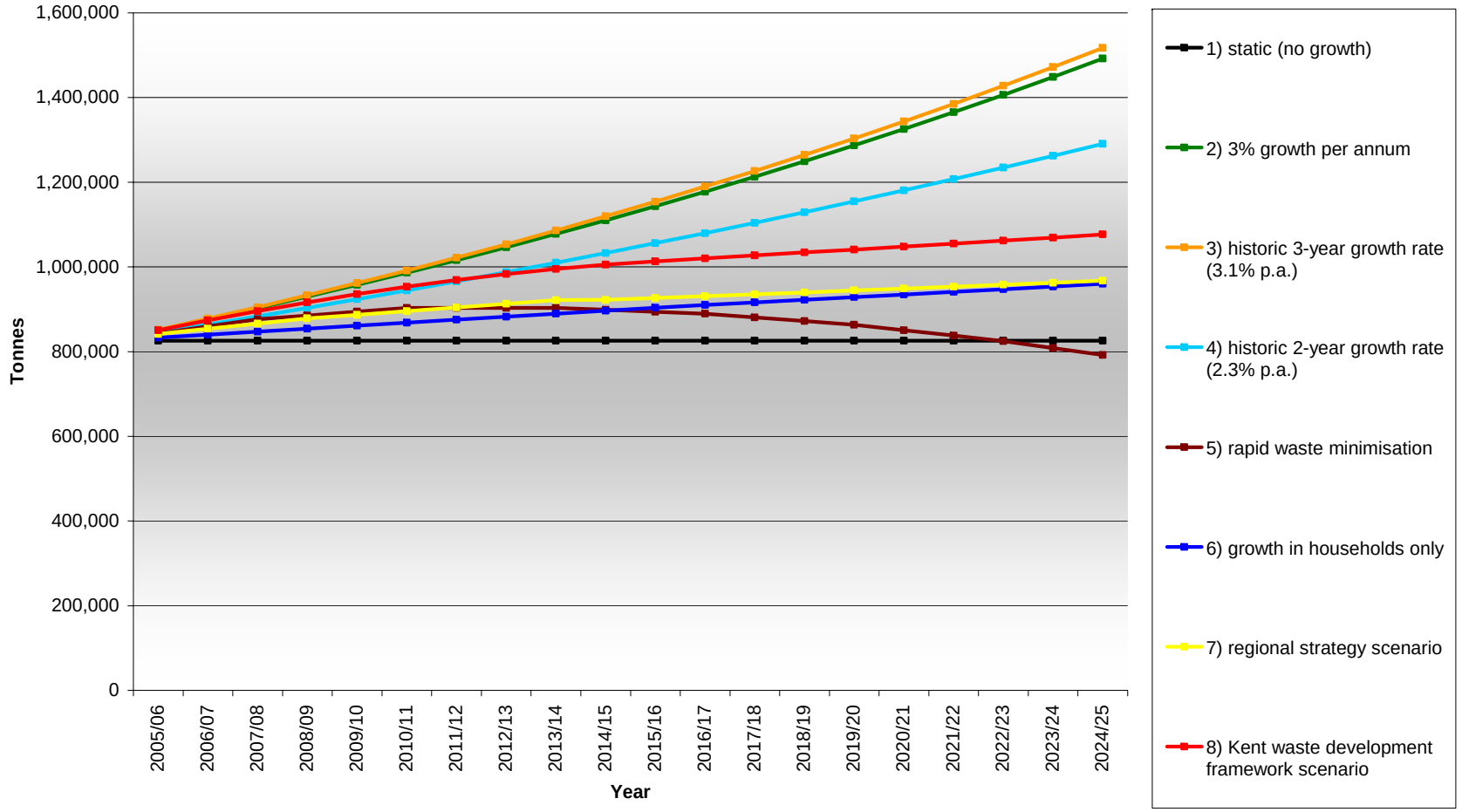
become proportional to projected household figures (0.7% increase per annum) in 2016. The scenario also assumes that non-household waste arisings remain static.

Figure 18 and Table 6 show the effect of these alternative scenarios on future tonnages of municipal waste. Table 6 further shows that if the historic growth rate of 3.1% per annum continues across the County, the amount of MSW requiring management will almost double. Conversely, if waste reduction and reuse initiatives are successful in reversing the trend of waste growth, the amount of waste requiring management could decrease. These alternative tonnages have significant financial implications, as well as impacting recycling rates and LATS obligations.

Table 6 - Projected Waste Growth in Kent

Scenario	Tonnes MSW in 2010	Tonnes MSW in 2015	Tonnes MSW in 2020	Tonnes MSW in 2025	Difference 2004/05 - 2025
1) no growth	826 021	826 021	826 021	826 021	no change
2) 3% growth per year	957 631	1 110 157	1 286 976	1 491 958	665 897 tonnes increase
3) historic 3-year rate	961 702	1 119 615	1 303 458	1 517 488	691 427 tonnes increase
4) historic 2-year rate	923 597	1 032 650	1 154 579	1 290 905	464 844 tonnes increase
5) rapid minimisation	894 243	898 669	863 280	792 342	33 719 tonnes decrease
6) growth in households only	861 296	896 837	928 587	960 153	134 092 tonnes increase
7) regional strategy scenario	887 031	921 993	944 344	967 258	141 197 tonnes increase
8) waste development framework scenario	935 651	1 005 318	1 041 073	1 076 621	250 560 tonnes increase

Figure 18 - Projected Waste Growth Scenarios (Total MSW Arising in Kent)



4.2. Chosen Waste Growth Scenario

Following the first round of 'visioning' workshops and the Kent Waste Open Forum, a number of working objectives for waste minimisation were identified. These were:

- to break the link between waste growth and economic growth
- to look at waste growth in Kent on a per capita basis
- to lobby Government for new measures in areas such as product design, packaging and producer responsibility, which need to be addressed at national or international level

The waste minimisation targets put forward in RPG 9 concentrate on reducing waste growth overall, rather than looking at it 'per capita'. The number of households in Kent is expected to grow considerably over the next 20 years. It is therefore essential that this is taken into consideration when upon a waste growth scenario for Kent.

The Forum and workshops also identified a clear need for both the Strategy and minerals and waste development framework (MWDF) to be fully integrated. This will ensure they are both deliverable.

It has therefore been agreed that a 'stabilised growth rate', given in the MWDF need assessment, is used as the basis for the Strategy options appraisal. This rate takes on board the proposed increases in households. This scenario is as no way as 'optimistic' as that proposed in RPG 9, however, still requires significant waste growth reduction, at a per capita level.

Sensitivity analyses of the effect of differing growth rates will also be explored during development of the Strategy.

Quantitative examples of how these reductions can be achieved will be fully explored in the waste minimisation options appraisal report.

Appendix 1 – MSW By District and Material Type 2001/2-2004/5

Waste Arisings in Kent 2004-5

	MSW Sent to Landfill			MSW Recycled/Composted					
	Household Waste	Non-Household Waste	Total	Recycled Materials	MRF Recyclables *(under contract to KCC)*	Composted	Soil/Rubble Recycled	Total	Total MSW
2004/05									
Ashford	37,679	1,072	**38,751**	6,295	0	55	0	**6,350**	**45,101**
Canterbury	40,486	10,004	**50,490**	3,085	10,394	8,470	0	**21,949**	**72,439**
Dartford	33,727	1,918	**35,645**	1,419	4,354	0	0	**5,773**	**41,418**
Dover	34,772	4,007	**38,779**	4,281	0	0	0	**4,281**	**43,060**
Gravesham	30,065	620	**30,685**	1,657	5,448	0	0	**7,105**	**37,790**
Maidstone	50,416	2,189	**52,605**	7,138	0	4,102	0	**11,240**	**63,845**
Sevenoaks	33,010	4,066	**37,076**	3,437	4,898	1,515	0	**9,850**	**46,926**
Shepway	31,591	2,027	**33,618**	6,866	0	4,225	0	**11,091**	**44,709**
Swale	49,171	2,682	**51,853**	7,580	368	454	0	**8,402**	**60,255**
Thanet	40,152	4,145	**44,297**	6,061	0	2,924	0	**8,985**	**53,282**
Tonbridge & Malling	40,903	1,659	**42,562**	8,118	0	976	0	**9,094**	**51,656**
Tunbridge Wells	30,720	2,491	**33,211**	9,089	0	5,417	0	**14,506**	**47,717**
KCC Household Recycling Centres	95,777	0	**95,777**	32,616	0	38,304	50,896	**121,816**	**217,593**
Total	**548,469**	**36,880**	**585,349**	**97,642**	**25,462**	**66,442**	**50,896**	**240,442**	**825,791**

Waste Arisings in Kent 2003-4

	MSW Sent to Landfill			MSW Recycled/Composted					
	Household Waste	Non-Household Waste	Total	Recycled Materials	MRF Recyclables *(under contract to KCC)*	Composted	Soil/Rubble Recycled	Total	Total MSW
2003/04									
Ashford	36,426	1,337	**37,763**	6,241	0	0	0	**6,241**	**44,004**
Canterbury	41,390	10,054	**51,444**	2,694	8,994	6,964	0	**18,652**	**70,096**
Dartford	33,262	2,121	**35,383**	1,127	4,204	0	0	**5,331**	**40,714**
Dover	35,309	4,110	**39,419**	3,512	0	0	0	**3,512**	**42,931**
Gravesham	31,436	806	**32,242**	1,760	2,577	0	0	**4,337**	**36,579**
Maidstone	50,663	2,333	**52,996**	6,765	0	2,972	0	**9,737**	**62,733**
Sevenoaks	33,621	5,197	**38,818**	4,188	3,593	710	0	**8,491**	**47,309**
Shepway	31,290	2,703	**33,993**	6,705	0	752	0	**7,457**	**41,450**
Swale	48,258	2,957	**51,215**	7,886	355	474	0	**8,715**	**59,930**
Thanet	41,047	4,476	**45,523**	5,165	0	1,186	0	**6,351**	**51,874**
Tonbridge & Malling	40,910	1,889	**42,799**	7,930	0	330	0	**8,260**	**51,059**
Tunbridge Wells	32,734	2,400	**35,134**	8,470	0	2,105	0	**10,575**	**45,709**
KCC Household Recycling Centres	91,051	5,671	**96,722**	30,830	0	39,382	47,314	**117,526**	**214,248**
Total	**547,397**	**46,054**	**593,451**	**93,273**	**19,723**	**54,875**	**47,314**	**215,185**	**808,636**

Waste Arisings in Kent 2002-3

	MSW Sent to Landfill			MSW Recycled/Composted					
	Household Waste	Non-Household Waste	Total	Recycled Materials	MRF Recyclables *(under contract to KCC)*	Composted	Soil/Rubble Recycled	Total	Total MSW
2002/03									
Ashford	37,262	0	**37,262**	5,282	0	0	0	**5,282**	**42,544**
Canterbury	50,407	5,641	**56,048**	5,916	2,516	572	0	**9,004**	**65,052**
Dartford	37,315	0	**37,315**	2,138	429	0	0	**2,567**	**39,882**
Dover	37,277	1,679	**38,956**	2,584	0	0	0	**2,584**	**41,540**
Gravesham	31,750	182	**31,932**	2,533	1,445	0	0	**3,978**	**35,910**
Maidstone	53,499	0	**53,499**	5,406	0	3,021	0	**8,427**	**61,926**
Sevenoaks	39,085	860	**39,945**	5,199	685	660	0	**6,544**	**46,489**
Shepway	34,252	219	**34,471**	5,828	0	240	0	**6,068**	**40,539**
Swale	51,326	6	**51,332**	8,414	287	469	0	**9,170**	**60,502**
Thanet	47,495	0	**47,495**	3,013	219	255	0	**3,487**	**50,982**
Tonbridge & Malling	41,040	2,270	**43,310**	7,709	0	374	0	**8,083**	**51,393**
Tunbridge Wells	35,545	842	**36,387**	8,204	0	1,323	0	**9,527**	**45,914**
KCC Household Recycling Centres	95,552	0	**95,552**	30,984	0	38,579	42,207	**111,770**	**207,322**
Total	**591,805**	**11,699**	**603,504**	**93,210**	**5,581**	**45,493**	**42,207**	**186,491**	**789,995**

Waste Arisings in Kent 2001-2

	MSW Sent to Landfill			MSW Recycled/Composted					
	Household Waste	Non-Household Waste	Total	Recycled Materials	MRF Recyclables *(under contract to KCC)*	Composted	Soil/Rubble Recycled	Total	Total MSW
2001/02									
Ashford	36,662	0	**36,662**	3,704	0	0	0	**3,704**	**40,366**
Canterbury	50,347	5,625	**55,972**	7,197	0	0	0	**7,197**	**63,169**
Dartford	36,932	0	**36,932**	2,218	0	0	0	**2,218**	**39,150**
Dover	37,013	1,419	**38,432**	1,635	0	0	0	**1,635**	**40,067**
Gravesham	31,834	219	**32,053**	2,944	0	0	0	**2,944**	**34,997**
Maidstone	52,604	0	**52,604**	4,497	0	2,197	0	**6,694**	**59,298**
Sevenoaks	39,927	770	**40,697**	4,815	0	467	0	**5,282**	**45,979**
Shepway	32,756	813	**33,569**	4,771	0	0	0	**4,771**	**38,340**
Swale	49,856	232	**50,088**	7,446	0	250	0	**7,696**	**57,784**
Thanet	47,617	0	**47,617**	1,978	0	0	0	**1,978**	**49,595**
Tonbridge & Malling	42,214	65	**42,279**	7,117	0	339	0	**7,456**	**49,735**
Tunbridge Wells	38,491	893	**39,384**	5,660	0	0	0	**5,660**	**45,044**
KCC Household Recycling Centres	88,969	0	**88,969**	26,710	0	35,321	39,664	**101,695**	**190,664**
Total	**585,222**	**10,036**	**595,258**	**80,692**	**0**	**38,574**	**39,664**	**158,930**	**754,188**

MSW Arisings by Material Type 2004-5

	Household Waste sent to Landfill						Non-Household Waste						
2004/05	**Domestic Collected Waste**	**Bulky Collection**	**Weekend Service**	**Street Arisings**	**Other Household Waste**	**Total Household Waste Landfilled**	**Highway Mechancial Sweepings**	**Beach Cleansing**	**Fly Tipped Waste**	**Trade Waste**	**Total Non-Household Waste Landfilled**	**Total District MSW Landfilled**	**Recycled Materials**
Ashford	34,558	2,873	0	248	0	**37,679**	1,037	0	35	0	**1,072**	**38,751**	6,295
Canterbury	39,253	238	0	784	211	**40,486**	2,497	374	116	7,017	**10,004**	**50,490**	3,085
Dartford	30,637	1,776	0	1,314	0	**33,727**	1,918	0	0	0	**1,918**	**35,645**	1,419
Dover	33,194	742	0	629	207	**34,772**	1,633	91	303	1,980	**4,007**	**38,779**	4,281
Gravesham	29,768	26	0	271	0	**30,065**	501	0	0	119	**620**	**30,685**	1,657
Maidstone	47,980	1,139	905	392	0	**50,416**	1,685	0	504	0	**2,189**	**52,605**	7,138
Sevenoaks	32,018	0	303	661	28	**33,010**	3,405	0	265	396	**4,066**	**37,076**	3,437
Shepway	30,375	274	0	776	166	**31,591**	1,479	160	188	200	**2,027**	**33,618**	6,866
Swale	47,745	383	0	1,043	0	**49,171**	1,857	0	825	0	**2,682**	**51,853**	7,580
Thanet	38,093	0	0	2,007	52	**40,152**	2,691	217	1,237	0	**4,145**	**44,297**	6,061
Tonbridge & Malling	38,671	681	1,025	470	56	**40,903**	1,549	0	110	0	**1,659**	**42,562**	8,118
Tunbridge Wells	25,826	1,308	2,457	1,399	0	**30,990**	2,105	0	244	142	**2,491**	**33,481**	9,089
KCC Household Recycling Centres	0	0	0	0	0	**95,777**	0	0	0	0	**0**	**95,777**	32,616
Total	**428,118**	**9,440**	**4,690**	**9,994**	**720**	**548,739**	**22,357**	**842**	**3,827**	**9,854**	**36,880**	**585,619**	**97,642**

MSW Arisings by Material Type 2003-4

	Household Waste sent to Landfill						Non-Household Waste						
2003/04	**Domestic Collected Waste**	**Bulky Collection**	**Weekend Service**	**Street Arisings**	**Other Household Waste**	**Total Household Waste Landfilled**	**Highway Mechancial Sweepings**	**Beach Cleansing**	**Fly Tipped Waste**	**Trade Waste**	**Total Non-Household Waste Landfilled**	**Total District MSW Landfilled**	**Recycled Materials**
Ashford	35,342	981	0	103	0	**36,426**	1,002	0	335	0	**1,337**	**37,763**	6,241
Canterbury	40,351	223	0	575	241	**41,390**	2,255	295	354	7,150	**10,054**	**51,444**	2,694
Dartford	29,921	1,351	0	1,990	0	**33,262**	2,121	0	0	0	**2,121**	**35,383**	1,127
Dover	33,874	647	0	596	192	**35,309**	1,807	85	311	1,907	**4,110**	**39,419**	3,512
Gravesham	31,293	39	0	104	0	**31,436**	608	0	0	198	**806**	**32,242**	1,760
Maidstone	47,983	1,564	713	403	0	**50,663**	1,933	0	400	0	**2,333**	**52,996**	6,765
Sevenoaks	32,227	0	406	962	26	**33,621**	4,154	0	145	898	**5,197**	**38,818**	4,188
Shepway	30,240	71	0	877	102	**31,290**	2,023	289	113	278	**2,703**	**33,993**	6,705
Swale	46,532	516	0	1,210	0	**48,258**	2,029	0	928	0	**2,957**	**51,215**	7,886
Thanet	39,362	0	0	1,618	67	**41,047**	3,013	81	1,382	0	**4,476**	**45,523**	5,165
Tonbridge & Malling	38,615	693	1,056	504	42	**40,910**	1,777	0	112	0	**1,889**	**42,799**	7,930
Tunbridge Wells	29,029	375	2,414	916	0	**32,734**	1,702	0	174	524	**2,400**	**35,134**	8,470
KCC Household Recycling Centres	0	0	0	0	0	**91,051**	0	0	0	5,671	**5,671**	**96,722**	30,830
Total	**434,769**	**6,460**	**4,589**	**9,858**	**670**	**547,397**	**24,424**	**750**	**4,254**	**16,626**	**46,054**	**593,451**	**93,273**

MSW Arisings by Material Type 2002/3

	Household Waste sent to Landfill						Non-Household Waste						
2002/03	**Domestic Collected Waste**	**Bulky Collection**	**Weekend Service**	**Street Arisings**	**Other Household Waste**	**Total Household Waste Landfilled**	**Highway Mechancial Sweepings**	**Beach Cleansing**	**Fly Tipped Waste**	**Trade Waste**	**Total Non-Household Waste Landfilled**	**Total District MSW Landfilled**	**Recycled Materials**
Ashford	34,489	1,109	0	1,664	0	**37,262**	0	0	0	0	**0**	**37,262**	5,282
Canterbury	47,369	140	0	2,704	194	**50,407**	0	0	392	5,249	**5,641**	**56,048**	5,916
Dartford	31,684	0	0	5,631	0	**37,315**	0	0	0	0	**0**	**37,315**	2,138
Dover	34,630	326	0	2,288	33	**37,277**	0	0	0	1,679	**1,679**	**38,956**	2,584
Gravesham	30,925	32	0	793	0	**31,750**	0	0	0	182	**182**	**31,932**	2,533
Maidstone	48,091	2,602	483	2,323	0	**53,499**	0	0	0	0	**0**	**53,499**	5,406
Sevenoaks	32,968	0	448	5,644	25	**39,085**	0	0	0	860	**860**	**39,945**	5,199
Shepway	30,814	8	0	3,430	0	**34,252**	0	0	0	219	**219**	**34,471**	5,828
Swale	47,075	837	0	3,414	0	**51,326**	0	0	6	0	**6**	**51,332**	8,414
Thanet	41,376	0	0	6,055	64	**47,495**	0	0	0	0	**0**	**47,495**	3,013
Tonbridge & Malling	38,707	500	1,135	645	53	**41,040**	2,136	0	134	0	**2,270**	**43,310**	7,709
Tunbridge Wells	31,223	289	2,235	1,798	0	**35,545**	0	0	204	638	**842**	**36,387**	8,204
KCC Household Recycling Centres	0	0	0	0	0	**95,552**	0	0	0	0	**0**	**95,552**	30,984
Total	**449,351**	**5,843**	**4,301**	**36,389**	**369**	**591,805**	**2,136**	**0**	**736**	**8,827**	**11,699**	**603,504**	**93,210**

MSW Arisings by Material Type 2001/2

	Household Waste sent to Landfill						Non-Household Waste						
2001/02	**Domestic Collected Waste**	**Bulky Collection**	**Weekend Service**	**Street Arisings**	**Other Household Waste**	**Total Household Waste Landfilled**	**Highway Mechancial Sweepings**	**Beach Cleansing**	**Fly Tipped Waste**	**Trade Waste**	**Total Non-Household Waste Landfilled**	**Total District MSW Landfilled**	**Recycled Materials**
Ashford	33,016	1,826	0	1,820	0	**36,662**	0	0	0	0	**0**	**36,662**	3,704
Canterbury	47,268	136	0	2,823	120	**50,347**	0	0	245	5,380	**5,625**	**55,972**	7,197
Dartford	31,309	0	0	5,623	0	**36,932**	0	0	0	0	**0**	**36,932**	2,218
Dover	34,230	571	0	2,206	6	**37,013**	0	0	0	1,419	**1,419**	**38,432**	1,635
Gravesham	30,792	19	0	1,023	0	**31,834**	0	0	0	219	**219**	**32,053**	2,944
Maidstone	47,705	2,273	406	2,220	0	**52,604**	0	0	0	0	**0**	**52,604**	4,497
Sevenoaks	33,097	0	155	6,653	22	**39,927**	0	0	0	770	**770**	**40,697**	4,815
Shepway	29,291	0	0	3,465	0	**32,756**	0	0	0	813	**813**	**33,569**	4,771
Swale	45,670	706	0	3,480	0	**49,856**	0	0	0	232	**232**	**50,088**	7,446
Thanet	42,873	0	0	4,726	18	**47,617**	0	0	0	0	**0**	**47,617**	1,978
Tonbridge & Malling	38,400	551	1,051	2,171	41	**42,214**	0	0	65	0	**65**	**42,279**	7,117
Tunbridge Wells	33,917	303	2,392	1,879	0	**38,491**	0	0	172	721	**893**	**39,384**	5,660
KCC Household Recycling Centres	0	0	0	0	0	**88,969**	0	0	0	0	**0**	**88,969**	26,710
Total	**447,568**	**6,385**	**4,004**	**38,089**	**207**	**585,222**	**0**	**0**	**482**	**9,554**	**10,036**	**595,258**	**80,692**

Appendix 2 - Policies and Targets

Waste Regulation and Disposal (Authorities) Order 1985
In Kent, all District Councils (12) are responsible for waste collection. Medway Council is a Unitary authority, responsible for both waste collection and disposal. The Waste Regulation and Disposal (Authorities) Order 1985 gives provision for the setting up of Statutory Joint Waste Disposal Authorities, i.e. collection and disposal authorities.

Environmental Protection Act 1990
The Environmental Protection Act 1990, as amended by the Environment Act 1995, is the main legislation on waste management in England and Wales. This sets out the duties of Local Authorities with respect to waste management.

Refuse Disposal (Amenity) Act 1978
Section 3 places duty on Local Authority to remove vehicles which are apparently abandoned on highways, and some other land to which the public have access, subject to giving notice of removal. The notice period is 24 hours in the case of vehicles which, in the opinion of the local authority, ought to be destroyed.

Landfill Regulations 2002
The Landfill Regulations 2002 brings the European Council Directive 99/31/EC on the landfill of waste into UK law. Landfill sites had previously been controlled under the Waste Management Licensing Regulations 1994 or the Pollution Prevention and Control Regulations 2000. Under the new regulations, there is the need to divert biodegradable waste away from landfill in order to match EU targets. These state that by 2010, levels are at 75% of that in 1995, by 2012- 50% and by 2020-35%. This will have cost implications for KCC, in terms of promoting targets and managing the incresed levels of biodegradable waste that will result.

Landfill Tax Regulations 1996
A tax of £7 per tonne for active waste and £2 per tonne for inactive waste was introduced on 1 October 1996. In the March 1998 Budget, the standard rate of landfill tax was raised to £10 per tonne for active waste, to take effect from 1 April 1999, while the lower rate for inactive waste was frozen at £2 per tonne. The 1999 Budget announced that the tax on active waste would rise by a further £1 per tonne per year. A £3 escalater was introduced in 2005/6, raising this figure to £18 per tonne, with a confirmed £3 per tonne increase each year until April 2007. The Government have indicated that they expect Landfill Tax will be £35 per tonne in 2009. Inert wastes used in the restoration of landfill sites and quarries were made exempt from 1 October 1999. The obvious implication for Kent, in particular KCC, is the increased cost of any waste going to landfill.

Waste and Emissions Trading (WET) Act 2003
The Waste and Emissions Trading (WET) Act 2003 is a measure that the government is using to meet the demands of the European Landfill Directive.

Under the targets of the Landfill Directive, the WET Act will see progressively tighter restrictions on the amount of biodegradable municipal waste, food, paper and garden waste that local waste disposal authorities can landfill. Local authorities have some flexibility in the way they meet these progressively tighter restrictions. The key measure of the WET Act is the Landfill Allowances Trading Scheme (LATS).

The system works through the allocation by the government of a certain amount of "landfill allowances" to waste disposal authorities each year. Authorities can then either stick to their landfill limits each year, or they can trade these allowances. High landfilling authorities may need to buy more allowances if they expect to landfill more than their limit. Authorities with low landfill rates can sell their surplus allowances to those authorities that may require them.

Statutory Recycling and Composting Standards
In England the aim is to achieve a combined recycling and composting rate of 33% of household waste by 2015.

The Audit Commission assesses individual local authority recycling and composting rates through best value performance indicators. Although the interim target of 17%

recycling/composting by 2003/04 has been met, not all authorities have succeeded; with one in four councils failing to meet their individual targets.

There will be implications, in terms of capacity, if a wider range of materials are collected at 'HWRC's.

Local Government Act 1999
The Local Government Act 1999, Section 19: best value and procurement: handling of workforce matters in contracting, is divided into four sections.

Sections 1, 2 and 3 contain guidance to Best Value authorities made under the provisions of Section 19(4) of the Local Government Act 1999. Section 4 contains additional guidance on related fair employment matters.

Household Waste Recycling Act 2003
The Household Waste Recycling Act 2003 requires all local authorities in England to provide kerbside collections for all householders for a minimum of two materials by 2010. Under the Act, kerbside collections of food waste, as well as green waste, will count as "'A' type or recyclable (providing the waste collection authority does not levy a charge for green waste collections). This will result in cost implications if more districts use clear bag schemes or collect numerous waste streams i.e. increased collection costs or storage at transfer stations.

Waste Minimisation Act 1998
This Act enabled waste collection authorities, or waste disposal authorities, to make arrangements to minimise the generation of controlled waste in their area (i.e. household, commercial or industrial waste). The Act also authorised the relevant authority to contribute towards the expense of making such arrangements for controlled waste generated in its area.

Animal By-Products Regulations 2003
The Animal By-Products (Identification) Regulations 1995 (the ABPI Regulations), which require the staining of 'high risk' animal by-products, will be retained, but in view of the adoption of both the EU and proposed SEERAD Animal By-Products Regulations, consequential amendments to the ABPI Regulations will be necessary.

Hazardous Waste Regulations
On 16 July 2005 the Hazardous Waste (England and Wales) Regulations and the List of Wastes (England) Regulations come into force replacing the Special Waste Regulations. The Special Waste Regulations 1996 transposed the requirements of the European Hazardous Waste Directive (91/689/EEC) which sets out requirements for the controlled management of hazardous (special) waste. The Regulations set out procedures to be followed when disposing of, carrying and receiving hazardous waste. The Special Waste regulations 1996 were amended by the Special Waste (Amendment) Regulations 1996; the Special Waste (Amendment) Regulations 1997 and the Special Waste (Amendment) (England & Wales) Regulations 2001.

The mixing of hazardous waste is prohibited. This could lead to the need for 14 separate containers in line with the number of designated categories for municipal waste designated as hazardous. The demand for space for hazardous materials at HWRC's will obviously become a major issue. This may lead to taking hazardous waste on payment of charge, with a concession system.

As with white goods, the need for a separate kerbside collection of Hazardous waste may become an issue, with waste then transferred to a designated reprocessor for treatment or taken to a HWRC in the interim.

End of Life Vehicles Regulations 2003
The EC directive on End-of-Life Vehicles (ELVs) aims to reduce, or prevent, the amount of waste produced from ELVs and increase the recovery and recycling of ELVs that do arise.

The End-of-Life Vehicles Directive passed into European law in October 2000 and was due to be transposed into national law in all Member States by 21 April 2002. This was delayed (as in most other Member States). The UK is currently in the process of introducing the remaining provisions relating to the producer responsibility Articles of the ELV Directive (5 and 7) and

these will be transposed through the End-of-Life Vehicles (Producer Responsibility) Regulations 2005.

This could result in increased CUBIT operations and therefore costs, as 95% of ELVs will need to be recovered or recycled by 2015.

Ozone Depleting Substances Regulation 2000 (2037/2000)
The new EC Regulation introduces bans on the supply and use of CFCs, halons, 1,1,1 trichloroethane, carbon tetrachloride and CBM. These prohibitions took effect on 1st October 2000.The EC Regulation also introduced a revised schedule for the phase out of HCFCs, accompanied by a number of important new use controls.

Waste Incineration Regulations 2002
The Waste Incineration Regulations are the result of the transposition into UK legislation of the EU Directive on the Incineration of Waste 2000. They amend the Pollution Prevention and Control (PPC) Regulations 2000 under the PPC Act 1999 (see 2.D1), and essentially lay out how the latter applies to incineration and co-incineration of waste. Its main concerns are permits and control of emissions for waste incineration. Although addressed to date by the PPC Regulations 2000, the new Waste Incineration Regulations 2002 implement more stringent permits and control of emissions, and set higher standards for the best technical option to prevent waste incineration emissions to air, water and ground. The Regulations apply to all new waste incinerators in operation from 28th December 2002. All existing incinerators must comply with the Regulations and have the relevant operating permits by 28th December 2005.

Producer Responsibility Obligations (Packaging Waste) Regulations 1997
EU Member States are to achieve set targets by December 31, 2008. In the UK, producers of packaging waste are obligated to recover or recycle their share of packaging under the Producer Responsibility Obligations (Packaging Waste) Regulations of 1997. Under these regulations, the UK government sets producers recycling and recovery targets for each year, in line with the European targets.

Most obligated companies demonstrate their compliance with these targets by purchasing packaging waste recovery notes (PRN) either directly themselves or through compliance schemes.

Appendix 3 - Technology Overview

Open Windrow Composting

In open windrow composting, the material to be composted is arranged in long rows (windrows) that are aerated by convective air movement, diffusion, and periodic mechanical turning that exposes the material to oxygen. The raw materials are mixed and aerated with front-end loaders or windrow turners. They are turned frequently during the initial period of high oxygen demand and heat generation, and may be turned less frequently as the composting process proceeds. They may need to be turned as frequently as several times per week, depending on the material being composted.

In-vessel Aerobic Composting

In-vessel, bin or closed-reactor composting takes place in partially- or wholly-enclosed containers in which environmental conditions are closely controlled. The principles of operation are essentially the same as for windrow and static pile systems, as the material is piled (in a container) and aerated by turning or forced air. In-vessel systems are more space efficient than the other options and have greater process controls. They are also much more expensive. Within the in-vessel category there are many proprietary systems.

Anaerobic Digestion

This process involves the decomposition of the organic elements in the waste in the absence of air under controlled conditions in closed vessels. The products are methane gas (which is used for power generation) and compost or soil conditioner, or inert residues for landfill. If all the contaminants can be removed, a high quality growing medium can be produced. There are various commercial scale plants operating in Europe using this technology to treat whole MSW. However, in most cases due to contamination levels the residue material is only used as intermediate landfill cover material.

Gasification and Pyrolysis

Gasification and pyrolysis are related similar technologies. Gasification is a process that has actually been used for many years and involves converting complex organic molecules and carbon, in both the liquid and solid state, to simple gases by heating the material, in either the presence of very small amounts of air or no air at all. Most of the gases produced are flammable and are, therefore, used as fuel in processes or applications where flammable gases are required or to generate power. When no air is used, the process is called pyrolysis or destructive distillation. Before the introduction of natural gas into the United Kingdom in the early 1970s, all gas used in homes and industry came from the gasification of coal. Both systems are relatively untried on a commercial scale in the UK.

Mechanical Biological Treatment

Mechanical Biological Treatment is a means of removing recyclable materials and treating the organic fraction prior to landfill. By treating the organic fraction prior to landfilling, the material will already have undergone degradation, hence, less biogas will be produced from the landfill and the leachate produced will contain less nitrogen and have a lower biological oxygen demand (BOD). The volume reduction in the material sent to landfill will mean that the landfill has a greater capacity for waste, and also the landfill will have better stability. Environmental issues which are associated with MBT are bioaerosols, pathogens, air and water pollution, and heavy metal content. There are many different commercial MBT systems, and it is currently still unclear the percentage contribution to landfill diversion each type will make.

Alternate use of the processed material is to use it as Refuse Derived Fuel in an Incineration Plant.

Energy from Waste

This process involves the combustion of waste under controlled conditions to produce steam, which is then used to generate electricity,supply heat or both. Modern plants have the ability to deal with large quantities of waste in a sustainable manner. There are two basic types of waste incinerator:

- **Moving Grate**

Waste is burnt without any pre-processing. Incoming waste from a storage area is transferred directly into furnace feed chutes which deliver the waste onto a sloping grate. The grate moves to mix the waste thoroughly with air.

- **Fluidised-Bed**

Waste is pre-treated prior to incineration. Jets of air are forced upwards through a bed of hot sand and the airflow suspends the particles of sand which circulate at high speed (like in a fluid). The prepared waste is introduced into the combustion chamber and, because the bed material and its burning contents are moving turbulently, this provides even combustion; heat transfer is more efficient, and emissions require less treatment to meet required standards. The residues are cleaner than traditional Moving Grate plants with greater potential for use in the building industry. Fluidised-Bed is not yet widely used in the UK for the treatment of MSW.

Autoclave

An autoclave is a pressurised vessel that uses superheated steam to sterilize materials and equipment. The process is similar in principle to a pressure cooker. In dealing with waste it is an intermediate process stage to render the material inert prior to further treatment or landfilling. It is generally used in the UK for specialist waste streams such as clinical waste.

Landfill/Landraising

Traditionally Landfill/Landraising (where waste is buried in or left on the land), has been the preferred method for final disposal in Kent. Generally, waste is deposited into pre-formed cells, and covered with subsoil until the levels reach a predetermined contour. Environmental protection requirements include the impermeable lining of the site, a properly engineered drainage system to prevent the escape of leachate, and a system to safely burn off or process gas emissions. The process is continued until all cells are full and a final layer topsoil placed in order the site may be restored to a beneficial after-use, usually agriculture.

Landfill is increasingly viewed as a waste of resource, is unsustainable and has the potential to harm the environment. Since 1996 with the introduction of the Landfill Tax and a more stringent pollution prevention regime, there has seen a sharp rise in disposal costs, making Landfill a less financially attractive option. Current remaining permitted landfill void space in Kent for MSW is approximately seven years, and with ever tighter environmental and land use controls, capacity is unlikely to be extended much beyond this period. However, there will always be an on-going need for landfilling to deal with the residues from other waste treatment processes, and to meet this need, existing capacity in Kent must be preserved as far as possible.