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Medway LACW Management Requirements

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Abbreviations and Glossary of Terms

Abbreviations

AD	Anaerobic Digestion		
DEFRA	Department for Environment, Food and Rural Affairs		
DMR	Dry mixed recyclables		
EA	Environment Agency		
EfW	Energy from Waste		
EWC	European Waste Catalogue		
GVA	Gross value added		
HWRC	Household Waste Recycling Centre		
LACW	Local Authority Collected Waste		
MRF	Material Recycling Facility		
MSW	Municipal Solid Waste		
MWMS	Municipal Waste Management Strategy		
WCA	Waste Collection Authority		
WDA	Waste Disposal Authority		
WEEE	Waste Electrical & Electronic Equipment		
WNA	Waste Needs Assessment		
WPA	Waste Planning Authority		



Glossary of Terms

Anaerobic Digestion	A process to manage organic matter including green waste and food waste
2	broken down by bacteria in the absence of air, producing a biogas and
	nutrient rich solid or liquid (digestate). The biogas can be used to generate
	energy or to power vehicles, and digestate can be applied to land as a
	fertiliser. Classed alongside composting even though Energy from Waste.
Commercial Waste	Waste arising from premises which are used wholly or mainly for trade,
	business, sport, recreation or entertainment, excluding industrial waste.
DEFRA	The UK Government department responsible for developing and
	implementing national waste management policy
Energy from Waste	The conversion of the calorific value of waste into energy, normally heat or
	electricity through applying thermal treatment of some sort May also
	include the production of gas that can be used to generate energy. The
	management of waste by Energy from Waste is classed as 'other recovery'.
Environment Agency	The body responsible for the regulation of waste management activities
	through issuing permits to control activities that handle or produce waste.
	It also provides up-to-date information on waste management matters and
	deals with other matters related to the water environment including flood
	protection advice.
Green waste	Biodegradable plant waste from gardens and parks such as grass or flower
	cuttings and hedge trimmings, from domestic and commercial sources
	suitable for composting.
Hazardous Waste	Waste requiring special management under the Hazardous Waste
	Regulations 2005 due to it posing potential risk to public health or the
	environment (when improperly treated, stored, transported or disposed).
	This can be due to the quantity, concentration, or its characteristics
Household Waste	Waste from households collected through kerbside rounds, bulky items
	collected from households and waste delivered by householders to
	household waste recycling centres and "bring recycling sites". along with
	waste from street sweepings, and public litter bins.
Household Waste	A facility that is available to the public to deposit waste not collected
Recycling Centres	The controlled combustion of waste. Energy may also be recovered in the
	form of heat (see Energy from Waste). If energy may also be recovered in the
Incineration	the bottom of the waste biorarchy and is classed as 'disposal' alongside
	Landfill
Industrial Waste	Waste arising from any factory and from any premises occupied by an
	industry (excluding mines and quarries)
Kerbside Collection	The collection of materials and waste from households or occasionally
Kerbside Concetion	industrial and commercial premises
Landfill (including land	The permanent disposal of waste to land, by filling voids or similar features
raising)	or the construction of landforms above ground level (land-raising)
Landfill Directive	European Union requirements restricting the landfilling of biodegradable
	municipal waste and requiring one treatment of all waste to be landfilled
	and separate disposal of hazardous and non hazardous and inert wastes to
	and separate disposal of hazardoos, and non hazardoos and mert wastes to
L	iunum.



Local Authority	Waste collected by, or on behalf of, local authorities. LACW includes waste
Collected Waste	produced by householders both collected from their homes (collected
	household waste), and deposited at Household Waste Recycling Centres
	(HWRCs), plus as municipal parks and gardens waste and waste resulting
	from the clearance of fly-tipped materialandstreet sweepings, litter and
	trade waste collected by or on behalf of councils,
Materials Recycling	A facility for sorting recyclable materials from the incoming waste stream.
Facility (MRF)	
Medway Municipal	A strategy developed by Medway Council as Waste Collection and Waste
Waste Management	Disposal Authority that presents a fifteen year plan for the future of
Strategy	recycling and management of former municipal waste ie LACW arising in
	Medway from 2005 to 2020
Municipal Solid Waste	Local Authority Collected Waste plus any wastes similar in nature and
(MSW) (from 2010)	composition including that collected from businesses by private waste
	collection companies (Term used for reporting on EU Directive purposes
	only)
Open Windrow	A process in which biodegradable waste (such as green waste) is broken
Composting	down in an open air environment (aerobic conditions) by naturally occurring
	micro-organisms to produce a material suitable for use as a soil improver.
Other Recovery	Processes such as energy from waste that recover value from waste other
	than recycling or composting. Sits lower down the waste hierachy, but
	above disposal.
Recovery	Subjecting waste to processes that recover value including recycling,
Decuding	Composting or thermal treatment to recover energy.
Recycling	(the same of a class bettles) as a different one of a processing into products
	The area subject to the Local Plan to which this study relates, in this case
The Plan Area	Medway
Residual Waste	Waste remaining after materials for re-use recycling and
Residual Waste	composting/organic waste treatment e.g. anaerobic digestion have been
	removed
Waste Collection	A local authority that has a duty to collect household waste. They also have
Authority (WCA)	a duty to collect commercial waste if requested to do so and may also
	collect industrial waste. In this case Medway Council. In two tier areas the
	District or Borough Council.
Waste Disposal	A local authority responsible for managing the waste collected by waste
Authority (WDA)	collection authorities and the provision of household waste recycling
	centres. In this case Medway Council. In two tier areas the County Council.
Waste Minimisation /	The most desirable way of managing waste according to the waste
Reduction	hierarchy, by avoiding the production of waste in the first place.
Waste Planning	The local authority responsible for waste planning and development
Authority (WPA)	control. In the case of Medway this is Medway Council. In two tier areas the
	County Council.
Waste Transfer Station	A site to which waste is delivered for bulking prior to transfer to another
	place for further processing or disposal.



1 Introduction

1.1 BPP Consulting LLP has been commissioned by Medway Council to produce a 'Waste Needs Assessment' (WNA) for Medway. This work is being carried out in the context of the National Planning Policy for Waste (NPPW) and the waste chapter of the Planning Practice Guidance (PPG) which expects that:

"Planned provision of new capacity and its spatial distribution should be based on robust analysis of <u>best available data and information....</u>" (emphasis added)¹

- 1.2 The WNA (known as the 'Medway Waste Needs Assessment 2020') consists of an overall main summary report and five waste stream specific supporting reports, namely:
 - 1. Local Authority Collected Waste;
 - 2. Commercial and Industrial Waste;
 - 3. Construction, Demolition & Excavation Waste;
 - 4. Hazardous Waste; and
 - 5. 'Other' Waste.
- 1.3 This report assesses the baseline data for the Local Authority Collected Waste (LACW) stream arising in Medway, and projects forward to provide an assessment of future management requirements for LACW predicted to arise in Medway to 2037.

Definitions

- 1.4 In the UK, until 2010, the term Municipal Solid Waste (MSW) was taken as meaning waste collected by local authorities (mainly from households). However, to ensure consistency with the EU definition of MSW, in 2010, the UK expanded its definition to include not just waste from households but any wastes similar in nature and composition and so, for the first time, MSW included wastes (of a similar type) collected from businesses by private waste collection companies.
- 1.5 In light of this it was necessary to establish a new term for waste that was collected only by local authorities this term is "local authority collected waste" (LACW). LACW includes 'household waste' (which is waste produced by householders collected from their homes (collected household waste) and waste deposited at Household Waste Recycling Centres (HWRCs)), plus commercial waste collected by councils, street sweepings, litter and fly tipped materials. In general, the non-household waste fraction of LACW represents around 5% of the total LACW arisings.

¹ DEFRA. 2014. National Planning Policy for Waste.



Medway Council

- 1.6 Since its formation as a unitary authority in 1999, Medway Council has responsibilities both as the statutory Waste Collection Authority (WCA) and the Waste Disposal Authority (WDA) for Medway.
- 1.7 Medway Council contracts out both collection and subsequent management of LACW including contracts for the bulking, transportation and sorting of dry mixed recyclables (DMR), the composting of garden and food waste and disposal of residual waste as follows:
 - Residual Waste is managed by Veolia until 2035 (with a 5 year option to extend).
 - Green and food waste collected from households is managed by Countrystyle until 2025 (with a 5 year option to extend) (c20,000 tonnes per annum (ktpa));
 - DMR is managed by Veolia at its Materials Recovery Facility (MRF) in Southwark until 2021 (with the option to extend for 2 years).

Where is the waste managed?

- 1.8 The significant elements of the LACW stream currently follow management routes predominately outside Medway as follows:
 - Residual waste: All residual waste collected at the kerbside and HWRCs (including bulky household waste) is delivered to a Waste Transfer Station (WTS) in Medway (Rochester) operated by Veolia. This waste is then transferred onto a number of facilities (based on available capacity) as detailed below:

Energy from Waste

- SELCHP (LB Lewisham)
- Newhaven Energy Recovery Facility (ERF) (East Sussex)
- Allington ERF (Kent)

Pre treatment prior to management at a Energy from Waste facility

- SITA Sittingbourne RDF WTS (Sittingbourne, Kent)
- Veolia East Kent RDF WTS (Hersden, Kent)
- SSSI Deptford (LB Lewisham)
- Street Fuel RDF WTS (Chatham, Medway)

<u>Landfill</u>

- Pitsea landfill (Essex)
- o Rainham landfill (Essex)
- Dry mixed recyclables (DMR): Collected via kerbside schemes delivered primarily to a MRF operated by Veolia in LB Southwark, via the Veolia WTS located in Rochester, Medway.
- Separately collected paper and card: Collected via kerbside schemes transferred via the Veolia WTS to Palm Paper, Kings Lynn.



- Mixed green & food waste: A total of c22,000 tpa collected at the kerbside and delivered to two In-vessel composting (IVC) facilities, one operated by Envar Composting in Cambridgeshire and one operated by West London Composting in Uxbridge. This waste is transferred via the Veolia WTS in Rochester, Medway.
- Green waste segregated at HWRCs: Delivered direct to TJ Composting Cookham (LB Bromley).
- Street Sweepings: Delivered to Rainham Landfill in Essex for recycling as aggregate (separates the sand, stones and oil for recycling).
- Rubble disposed of at HWRCs: Delivered direct to Gallagher Aggregate, Hermitage Quarry in Kent and flytipped rubble is taken to Gallagher's via Veolia WTS in Rochester for recycling.
- Wood aggregated at HWRCs: Sent to Countrystyle Recycling, Ridham Kent.
- Waste Electrical & Electronic Equipment (WEEE):
 - Large & small electrical appliances and screens collected at Veolia Rochester WTS and HWRC's: Delivered to a recycling facility in Sittingbourne Kent operated by Sweeep Kuusakoski.
 - CFC bearing waste i.e. fridges aggregated at Veolia Rochester WTS and HWRC's: Collected by MDJ Light Brothers, for processing in Lewes, East Sussex.





2 Medway LACW Management Profile

Figure 1: Management Profile for Medway LACW 2008/09-2018/19

2.1 Figure 1 shows that the LACW management profile is underpinned by recycling and composting which peaked in 2014/15 and has stabilised with a combined rate of c47% (c62,000tpa) in the past three years². It also shows the transition in management method for residual waste (after recycling/composting), from landfill to Energy from Waste (EfW) with landfill reducing to c11% and EfW increasing to 43%, taking up growth in arisings of residual waste in recent years.

² It should be noted that as this relates to LACW this figure differs to rates reported for the purposes of NI192 which relates to household waste which is a subset of LACW.



3 Medway LACW Forecast

- 3.1 The following have been taken into account in projecting future LACW arisings in Medway over the Plan period:
 - Planning Practice Guidance
 - Government Analysis of Future Household Waste Growth
 - Historical Pattern of LACW Arisings in Medway
 - Municipal Waste Management Strategy for Medway
 - Latest measured arisings of LACW & Household Growth Forecasts.

These are discussed below.

Planning Practice Guidance

3.2 The national Planning Practice Guidance (PPG)³ states the following in relation to forecasting future MSW arisings (or more correctly LACW):

"How should waste planning authorities forecast future municipal waste arisings?

Forecasts of future municipal waste arisings are normally central to the development of Municipal Waste Management Strategies. It will be helpful to examine municipal waste arisings according to source (i.e. household collections, civic amenity site wastes, trade waste etc.). This may allow growth to be attributed to particular factors and to inform future forecasts.

A 'growth profile', setting out the assumed rate of change in waste arisings may be a useful starting point for forecasting municipal waste arisings. The growth profile should be based on two factors:

- household or population growth; and
- waste arisings per household or per capita.

How is a growth profile prepared?

A growth profile is prepared through a staged process:

- calculate arisings per head by dividing annual arisings by population or household data to establish short- and long-term average annual growth rates per household and
- factor in a range of different scenarios, e.g. constant rate of growth, progressively lowering growth rates due to waste minimisation initiatives.

The final forecast can then be modelled with scenarios based on the long- and short-term rate of growth per household, together with household forecasts."

3.3 It is notable that the examples of growth scenarios in PPG refer to either a constant rate or lowering of growth rates i.e. there is no mention of the possibility of a rising growth rate, suggesting that the Government does not see increasing growth in LACW as a scenario to be modelled. Moreover the possibility of a negative growth rate in household waste, that forms the bulk of LACW, is expressed in what remains the most current publically available forecast produced by central Government (see following section).

³ Ref.: Revision date: 16 10 2014 Paragraph: 029 & 30 Reference ID: 28-029-20141016



Government Analysis of Future Household Waste Growth

3.4 In 2013 Defra commissioned a report to inform consideration of the likelihood of meeting the Landfill Directive targets within the context of funding new waste management infrastructure via Private Finance Initiative (PFI) credits. This report was updated in 2014⁴ and provides information which may be taken into account when forecasting LACW arisings and similar waste. Upper, lower and central forecasts were produced (to 2020) resulting in a 'cone of possibility'. This is shown in Figure 2 below.



<u>Figure 2:</u> Household Waste Arising Forecasts for England to 2020 Source: Forecasting 2020 Waste Arisings and Treatment Capacity, Defra (2014)

3.5 Taken together, the forecasts presented display a 'cone of possibility' developed around a central forecast but taking account of the likelihood of deviation occurring. Hence the darker central band reflects the band within which the actual outcomes is considered to have between 30% and 70% chance of occurring, while the lighter band extends beyond the central band to cover the outcomes considered less likely, capturing the more remote 20% either side. That is to say, the chance of the actual outcome falling within the light green band is considered high with only a 10% chance that it falls outside the green cone completely. Of most significance is that the majority of the cone projected in the forecast above has values in 2020 less than the arisings baseline figure for 2010, indicating that growth is considered highly unlikely to occur⁵. This is in contrast to the forecast for the component of wider municipal waste that comes from commercial sources which presents forecasts that suggest positive growth rate. The influence of this latter growth forecast is considered in the assessment of Commercial & Industrial waste report.

⁴ 'Forecasting 2020 Waste Arisings and Treatment Capacity' Revised October 2014 Report DEFRA (Analysis to inform the review of Defra financial support for the Hertfordshire County Council residual waste treatment project)

⁵ Household waste arisings in England actually flatlined since 2010 even though household numbers have grown.



- 3.6 The report provides a feel for the direction in which growth in household waste arisings may be headed, but it should of course be noted that it is intended to provide a national picture, and so presents an average of what was predicted to happen across England. Thus, it masked any regional or local differences, such as varying levels of prosperity and associated consumption. The report does, however, reinforces the `no/declining growth' message indicated in the nPPG.
- 3.7 It should be noted that, while the updated national Resources & Waste Strategy was published in 2018⁶, it does not include arising forecasts, and hence the forecasts for LACW for England presented in the 2014 report still represents the most current national forecast published by Government albeit to 2020 only.

Historical Pattern of LACW Arisings in Medway

3.8 The applicability of the conclusions of the 2014 Defra report to the situation in Medway should also be considered against the observed pattern of LACW arisings in Medway in the past decade and a half, as shown in Figure 3 below. The decade and half period (2005/06 to 2018/19) has been selected to account for economic cycles within which peaks and troughs occur. The average annual growth rate arrived at over this period is minus 0.34%.



Figure 3: Trend in LACW Arisings in Medway 2005/06 to 2018/19

(dotted red line is trend line that indicates a compound annual growth rate of minus 0.34% over the periods).

⁶ Our Waste, Our Resources: A Strategy for England, Department for Environment, Food & Rural Affairs, December 2018,



- 3.9 Data for LACW arisings between 2005/06 and 2018/19 in Medway (shown in Figure 3) shows a declining trend in arisings to 2011/12, followed by a rise in the next three years, followed by a more erratic annual pattern with a drop in 2015/16 and rise in 2016/17 and then a return to a similar value to 2014/15 in 2017/18 with a steeper rise in 2018/19. While the growth in the last seven years suggests a compound annual growth rate of +1.45%, the overall trend over the past thirteen year period remains as a negative value (minus 0.34%) and the peak quantity in the most recent years, observed in 2018/19, is below those of the pre-downturn years of 2005/06 to 2007/08. This is against a backdrop of continuing growth in population and household numbers in Medway albeit at a reduced rate.⁷
- 3.10 The overall marginal declining trend is a product of a combination of factors including changes in service provision in kerbside collections and at Household Waste Recycling Centres (HWRC). For example, the introduction of tighter controls at HWRCs on inputs of trade waste will result in a reduction of waste being collected from these sites this reduction will be maintained providing enforcement remains effective. Conversely, the introduction of kerbside green waste collection can result in a rise in collected arisings, as otherwise such waste might be retained for composting on the property. Table 1 below shows events that may affect the baseline level of LACW arisings and whether they would be expected to have a 'one-off' effect, after which the baseline indicated would return to 'normal', or whether they have an effect of resetting the baseline from which future trends should be measured.

	Measure/Event	Direction of Effect	Predicted Effect
	Service Changes		
1	Stricter control on inputs to HWRC	Reduction in LACW	Baseline reset
2	Free kerbside green waste collection	Rise in LACW set out	Baseline reset
3	Kerbside Food Waste Collection	Reduction in overall quantity of food waste produced	Baseline reset
	External Factors		
6	Drought/hot summer	Reduction in overall quantity of green waste	One-off and bounce back
7	Recession	Reduction overall although some increase in DIY waste	One-off and bounce back
8	Flooding	Increase in quantity of residual waste	One-off and bounce back

Table 1: Events that may impact LACW Arisings in Medway

- 3.11 In the case of Medway it is understood that the following position with respect to service changes apply:
 - stricter enforcement of household waste inputs only at HWRC
 - kerbside food waste collection was introduced in 2013.
- 3.12 It should be noted that historical data indicates while household numbers in Medway grew steadily between 2009 to 2018 by an average of 0.93% per annum, over the same period

⁷ The Medway Council Population 2018 Bulletin released in July 2019 reports that the growth rate in Medway's population peaked in 2012.



household waste production fell by an average of minus 0.34% per annum. This suggests that a growth profile based on the assumption that there is a linear relationship between growth in household numbers and growth in household waste would be in error. This is reflected in the observed trend in annual collected waste per person over the past decade vs population as presented in Figure 4.



Figure 4: Collected household waste per person in Medway 2008/09 to 2018/19 vs population



Medway Municipal Waste Management Strategy 2005-2020

- 3.13 PPG points towards the Municipal Waste Management Strategy as a source of forecasts and so the Medway Municipal Waste Management Strategy 2005-2020 (adopted January 2006) has been considered. This strategy presented a fifteen year plan for the future of recycling and management of municipal waste arising in Medway from 2005 to 2020.
- 3.14 While somewhat dated, it identified an annual growth rate of waste per household of o.8%. This growth rate per household was then applied to the projected growth in household numbers based on an assessment of areas identified for housing development within Medway through to 2024. Beyond 2025 it was assumed that the capacity for housing growth would be exhausted and the annual growth in households would reduce to 0.05% per annum with the waste growth rate per household remaining at co.8% giving an annual growth in waste arisings of co.04%. This assumed waste minimisation and public education activities would be sustained. The forecast is displayed in Figure 5 below alongside a national forecast of 3% growth which while widely used at the time the strategy was formulated, has now been discredited.



Figure 5: Forecast from Medway Municipal Waste Management Strategy 2003-2032



Most Recent Forecast

3.15 Medway Council as Waste Collection & Disposal Authority has generated a forecast for Medway LACW from 2019/20 to 2024/25 based on a service by service breakdown. The annual growth rates used are displayed in Table 2 below.

Table 2: Medway WDA Forecast Per Annum Growth Rates for Medway LACW Arisings

Year	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
Annual growth rate	-	-4%	1%	1%	1%	1%	1%
LACW Arising	121 100	120 256	120 620	120 029	122 2/0	122 572	12/ 011
(tonnes)	154,100	120,550	129,039	130,938	132,249	155,575	134,911

The above growth rates give a mean growth rate over the period 2019-2025 of +0.20% per annum. However given that the initial year value of -4% skews the mean value and in effect reflects resetting of the baseline, an annual growth factor of 1% is indicated.

Generating a Forecast

- 3.16 In order to identify a preferred scenario, a number of scenarios have been modelled to create a cone of possibilities. For the purposes of this exercise the following set of growth factors have been applied as follows:
 - Historical LACW Growth based on the data presented in Figure 3 and the resulting annual growth factor of minus 0.34% per annum;
 - LACW Growth as projected by Medway WDA at +1.0% per annum.
 - Household Growth as projected by the ONS;⁸
 - Household Growth as projected in the Medway Local Plan.
- 3.17 The values applied are displayed in Table 3 below

Table 3: Forecast Per Annum Growth Rates for Medway LACW Arisings

Period	2018 - 2024	2025-2030	2031 - 2036	
Low (istorical)	-0.34%			
Med (Housing ONS)	0.89%	0.87%	0.82%	
High (Housing Local Plan)	1.29%	1.98%	1.63%	

⁸ 2016-based Household projections for England and local authority districts, ONS, May 2019.







Figure 6: Initial LACW Arisings Forecasts.

The values obtained are displayed in Table 4 overleaf.



	Historic Projection	Medway WDA	Household Forecast (ONS)	Household Forecast (Local Plan)
2018/19	134,723	134,723	134,723	134,723
2019/20	134,265	136,070	135,922	136,461
2020/21	133,808	137,431	137,132	138,221
2021/22	133,353	138,805	138,352	140,004
2022/23	132,900	140,193	139,584	141,810
2023/24	132,448	141,595	140,826	143,640
2024/25	131,998	143,011	142,051	146,484
2025/26	131,549	144,441	143,287	149,384
2026/27	131,102	145,886	144,533	152,342
2027/28	130,656	147,345	145,791	155,358
2028/29	130,212	148,818	147,059	158,434
2029/30	129,769	150,306	148,339	161,571
2030/31	129,328	151,809	149,555	164,205
2031/32	128,888	153,327	150,781	166,882
2032/33	128,450	154,861	152,018	169,602
2033/34	128,013	156,409	153,264	172,366
2034/35	127,578	157,973	154,521	175,176
2035/36	127,144	159,553	155,788	178,031
2036/37	126,712	161,149	157,066	180,933

Table 4: Initial Forecast Values for Medway LACW Arisings (Tonnes)

- 3.19 Since the break in the apparent relationship between arisings and household growth between 2008/09 and 2018/19 illustrated in Figure 4 is not explained solely in terms of service change, consideration of alternative scenarios to that indicated by a simple extrapolation displayed in Figure 6 (i.e. a linear relationship between households and arisings) is warranted.
- 3.20 Therefore another growth scenario modelled is based on the method proposed in the nPPG i.e. calculate arisings per head and factor in a range of different scenarios, e.g. constant rate of growth, progressively lowering growth rates due to waste minimisation initiatives. This approach is consistent with the 2014 Defra forecast study, which indicates a negative growth rate on the basis that waste growth decoupled from growth in household numbers.



Building A Growth Profile

- 3.21 A growth profile can be established by following the guidance in nPPG on a step by step basis:
 - Step 1 Establish short-term average annual growth rates per household/population
 - Step 2 Establish long-term average annual growth rates per household/population
- 3.22 This is done (as indicated by PPG) by dividing annual arisings by population or household data.
- 3.23 Figure 7 below shows the results of this exercise by population.





- 3.24 It is evident from this that the 2013/14 value represents a break between the steady decline in kgs per person between 2008/09 and 20012/13 and a plateauing out from 2013/14 through to 2018/19 to approximately 450 kg per household.
 - the compound annual growth rate for arisings per person for the decade 2008/09 to 2018/19 is minus 0.84%. (the long term growth rate) whereas
 - the compound annual growth rate for arisings per household for the 5 year period 20014/15 to 2018/19 is minus 0.13 % (the short term growth rate) reinforcing the decreasing trend indicated by the historic data.



3.25 The Local Plan Housing Forecast value has been multiplied by the annual growth values above and plotted to generate a range or 'cone of possibility' in Figure 8.



Figure 8: 'Cone of Possibilities' for Forecast Plan Area Household Waste Arisings (tonnes per annum)



- 3.26 Five of the six scenarios result in upward trajectories throughout the Plan period. Past data suggests that such a linear rise is unlikely to continue uninterrupted to 2037, and the DEFRA modelling work discussed earlier suggests negative growth is most likely hence this has been modelled subsequently. The trajectory resulting from the falling growth rate scenario ('Historic') shown in Fig 8 also seems unlikely since year on year falls in arisings do not follow the pattern observed over the past five years.
- 3.27 The scenarios suggest that a value somewhere between the negative growth based on the historical data and the extrapolation of a simple linear relationship between projected growth in the number of households and arising might be appropriate. Hence one must consider the second step suggested in the PPG of factoring in a range of different scenarios, using both a constant rate of growth, and progressively lowering growth rates due to waste minimisation initiatives.
- 3.28 To reflect the fact that the relationship between household waste production and household numbers is not in fact linear the following factors have been applied to the scenarios presented in Figure 6.
 - Apply the growth rates applied in the national Defra central forecast (minus 1.7% per annum) to the Baseline Projection and extrapolate that forwards to the end of the Plan period.
 - Consider what that suggests in terms of the reduction on per household arisings at the end of the Plan period.



Medway Local Plan Waste Evidence Base



<u>Figure 9:</u> 'Cone of Possibilities' for Forecast Plan Area Household Waste Arisings adjusted using DEFRA Forecast (minus 1.7). (tonnes per annum)

3.29 Comparing Figure 9 with the spread of the Cone of Possibilities indicated in the national forecast in Figure 2 suggests that the most likely zone within which the actual trajectory will fall would be bounded by the Defra Growth rate (purple line at lowest position) and the WDA Forecast (orange line at top of cluster) with the other trajectories (Household LP & Household LP (short term) above that being indicated to be 'outlying'. This suggests that there would be a 10% or less chance of it actually coming about. Therefore a value at 2037 of no more than 145,000 tpa is considered most likely.



- 3.30 The forecast based around the historic growth rates (Historic) suggests itself as having a reasonable correspondence to the median value of the national Defra forecast. This forecast implies a waste per household factor of 0.95 tonnes per annum as compared with the measured value of 1.19 tonnes⁹ in 2018/19, a reduction of 0.24 tonnes per household over the 15 year period i.e. a 1.3% fall year on year.
- 3.31 Even given the trend towards light weighting of packaging and the drive to reduce single use plastics and food waste arisings, a reduction of minus 1.3% per annum is considered to be an overly ambitious expectation. Therefore it is considered a less ambitious reduction ought to be preferred. A value that indicates a year on year fall of no more than half a percent per year on household arisings (overall a fall of 9% over the Plan period which equates to a final per household tonnage of 1.08t/hh) is considered to be more realistic and this yields the central scenario (Max Waste Min -sky blue) shown in Figure 10 below.



<u>Figure 10:</u> 'Cone of Possibilities' for Forecast Plan Area Household Waste Arisings Including Max Waste Min Forecast (tonnes per annum)

⁹ Actual arisings at 2018/19 of 134,723 tonnes LACW divided by household numbers of 113,000.



Forecast Conclusion

- 3.32 Since the changing relationship between arisings and household growth between 2008/09 and 2018/19 cannot be explained in terms of service change, consideration of alternative scenarios to that indicated by a simple extrapolation of a linear relationship between households and arisings is warranted.
- 3.33 While growth scenarios based on the method proposed in the PPG have been modelled it was felt that this doesn't reflect the most recent national modelling and PPG exhortation towards suppressed growth rates. Therefore a rate of growth that reflects a realistic effect of waste minimisation initiatives has been selected with a positive growth rate reflecting growth in households but with some decoupling of waste growth from household numbers.
- 3.34 Using the measured baseline for 2018/19 and a moderate waste growth scenario (as per the Max waste min scenario) generates a trajectory that tracks a path between applying the local long term growth rate to forecast housing growth (Household LP -long term trend) and actual historic growth trends in arisings (Historic). Therefore it is recommended to apply this 0.5% per annum growth rate when considering future capacity need. Using this scenario results in projected LACW arisings by 2037 of 144,000 tonnes, an increase of c9,000 tonnes on the 2018/19 value. This is c14,000tpa less than the forecast applying the 1% growth rate indicated by the WDA forecast.

	Preferred Scenario		
2018/19	134,723		
2019/20	135,241		
2020/21	135,758		
2021/22	136,276		
2022/23	136,793		
2023/24	137,311		
2024/25	137,828		
2025/26	138,346		
2026/27	138,863		
2027/28	139,381		
2028/29	139,899		
2029/30	140,416		
2030/31	140,934		
2031/32	141,451		
2032/33	141,969		
2033/34	142,486		
2034/35	143,004		
2035/36	143,521		
2036/37	144,039		

<u>Table 5:</u> Forecast Values for Medway LACW Arisings - Preferred Scenario (Tonnes)



4 Medway LACW Future Capacity Needs

- 4.1 Final Fate Destinations and quantities of LACW managed at these destinations in 2018 are discussed in section 1 above and summarised in Table 6 below.
- 4.2 Examination of the dataset presented in Table 6 against data of LACW management submitted to Defra indicates the following:
 - Of the c 62,000 tonnes of waste recycled, reused or composted around 36,200 tonnes was recycled or reused. Of this around 16,500t was sent direct to reprocessors via aggregation points (either HWRCs or WTS) in Medway with only 13,500t being sent onto a MRF outside of Medway. This demonstrates that increasing recycling does not require provision of additional processing capacity if materials can be collected in a condition that reprocessing sites can accept via direct delivery.
 - Around 26,000 tonnes was composted and again this would be sent direct to final fate (composting sites) via aggregation points (either HWRCs or WTS) in Medway.
- 4.3 All Medway's residual LACW meets its ultimate fate beyond its boundary via aggregation points (either HWRCs or WTS) in Medway.

	Final Fate Destination Site		Out	Note	
		Medway	Medway		
Residual Waste	SELCHP Lewisham	-	30,696	696 ERF	
	Newhaven ERF East Sussex		4,684		
	Allington EfW Kent	-	990		
	Unknown EfW via SITA/SUEZ	-	4,337		
	Pitsea Landfill	-	13,904	Landfill	
	Sittingbourne WTS, Kent	-	4,610	RDF for export	
	SSSI Deptford, LB Lewisham	-	1,271		
	Street Fuel Chatham Medway	4,688	-		
	Veolia Nathan Way Thamesmead London	-	1,698		
	Veolia East Kent RDF Facility Hersden Kent	-	6,610		
Dry Mixed	Veolia LB Southwark	-	12,983	12,983 MRF	
Recyclables	Bywaters Leyton	-	510		
Mixed Green &	Envar Composting Cambs	-	12,673	IVC	
Food Waste	West London Composting, Middx	-	9,317		
Green Waste	TJ Composting Cookham LB Bromley	-	1,809	09 Open windrow	
Rubble	Gallagher Aggregate Hermitage Quarry	-	7,842	Aggregate	
	Kent			Recycling	
Wood	Countrystyle Recycling Ridham Kent	-	6,468	Wood	
				Shredding	
WEEE	Sweeep Kuusakoski Sittingbourne, Kent	-	3,403	WEEE	
				Processing	

Table 6: Final Fate Destinations and tonnages for Medway LACW Arisings 2018 (500 t+)



Waste Management Targets

- 4.4 Having established the existing management profile, the next step is to consider what management profile may be desirable and achievable and therefore what waste management targets ought to be set in the Plan to achieve that management profile.
- 4.5 The *Medway Municipal Waste Management Strategy 2005-2020* has a stated objective of achieving a 55% recycling rate for LACW as a whole by 2020 and includes an action plan of specific steps to be taken to move towards the stated target.
- 4.6 The long term residual waste management contract (2010 -2035) includes an obligation to divert a minimum percentage of residual waste away from landfill and into energy recovery each year with the overall target of no more than 35% of municipal biodegradable waste arisings in 1995 being sent to landfill in 2020.
- 4.7 Medway Council has not yet set targets beyond 2020. However the national Resource & Waste Strategy, includes the following targets for municipal waste:
 - 65% recycling by 2035; and
 - 10% limit of landfilling by 2035.

LACW is all classed as Municipal waste along with waste of a similar nature.

4.8 Combining the targets in the MWMS with those in the national strategy gives the targets shown in Table 7 below.

italicised entries are actual values

	Milestone Year			
	2018/19	2023/24	2028/29	2035/36
Recycling/composting	$46\%^{10}$	55%	60%	65%
Other Recovery ¹¹	43%	37%	35%	33%
Overall diversion from landfill	89%	92%	95%	98%
Remainder to Landfill ¹²	11%	8%	5%	2%

¹⁰ As this relates to LACW this figure differs to rates reported for the purposes of NI192 which relates to household waste a subset of LACW.

¹¹ This identifies the consequential predicted remaining management requirement assuming the recycling/composting and landfill diversion targets are met.

¹² Progressive reduction towards more ambitious target due to predicted limited availability of landfill capacity in Kent and ambition to drive waste up the hierarchy. This reflects landfill target included in Kent MWLP Early Partial Review.



4.9 Applying the proposed targets to the preferred forecast gives the following capacity requirement:



	Forecast Arisings	Recycling/ composting	Residual Waste	Other Recovery	Landfill
2018/19	134,723	62,105	72,531	58,066	14,465
2019/20	135,241	64,645	70,596	56,480	14,116
2020/21	135,758	67,336	68,422	55,016	13,406
2021/22	136,276	70,046	66,230	53,539	12,691
2022/23	136,793	72,774	64,019	52,050	11,969
2023/24	137,311	75,521	61,790	50,548	11,242
2024/25	137,828	77,184	60,644	50,135	10,509
2025/26	138,346	78,857	59,489	49,718	9,771
2026/27	138,863	80,541	58,323	49,297	9,026
2027/28	139,381	82,235	57,146	48,870	8,276
2028/29	139,899	83,939	55,959	48,440	7,520
2029/30	140,416	85,253	55,163	48,293	6,870
2030/31	140,934	86,574	54,360	48,144	6,216
2031/32	141,451	87,902	53,549	47,992	5,557
2032/33	141,969	89,238	52,731	47,838	4,893
2033/34	142,486	90,581	51,906	47,682	4,224
2034/35	143,004	91,931	51,073	47,523	3,550
2035/36	143,521	93,289	50,233	47,362	2,870
2036/37	144,039	93,625	50,414	47,533	2,881

<u>Table 8:</u> Future Management Profile for Forecast Medway LACW Arisings (Tonnes) 2018/19 italicised as actual values

Capacity Requirements

4.10 Many types of waste processing facilities are capital intensive so are influenced by economies of scale in construction and operation. This results in fewer, larger, more sophisticated facilities being developed that may service larger than local i.e. sub-regional (or regional) markets. Therefore, plans to maintain or increase recycling (including composting) rates may not necessarily involve provision of specific additional recycling separation or food waste processing capacity within Medway. Rather, provision of sites with bulking space, from which materials can be bulked up for onward transport to out of Plan area facilities, may be more deliverable. These may occupy a smaller footprint than a treatment facility and may be accommodated on existing waste transfer/depot type sites if space is available.



- 4.11 It is notable in this regard that the recent assessment of Non Hazardous Waste Recycling/Composting Capacity Requirement for Kent¹³ produced to support the Early Partial Review of the Kent Minerals and Waste Local Plan (MWLP) found that there was ample capacity for recycling and composting within Kent to the end of the MWLP period (2030). It may well be that this surplus could meet Medway's management need for this type of capacity.
- 4.12 That would then leave the management requirement for residual waste as follows:
 - Peak Other Recovery requirement c56,500 tpa reducing to c47,500tpa; and
 - Cumulative Non-Inert Landfill requirement of 160,000 tonnes over the Plan period (to 2037) with a peak annual demand of 14,100 tpa reducing to 2,800 tpa.

Provision for this need is considered in the combined report Non Hazardous Residual Waste Management Requirement for Medway which brings together the identified need from the C&I waste stream, with that of the LACW stream.

¹³ Non Hazardous Waste Recycling/Composting Capacity Requirement September 2018 Update BPP Consulting for Kent County Council.