



Medway Local Plan - Waste Evidence Base

Medway Waste Needs Assessment 2024 Update

Report 1 - Management Requirements for Local
Authority Collected Waste in Medway to 2041

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Executive Summary

The Medway Waste Needs Assessment (WNA) 2024 Update consists of an overall main report, review of strategic waste flows and five waste stream specific supporting reports which refresh the evidence base relating to projected management requirements for waste arising in Medway in 2022. The reports help underpin the proposed planning policy on waste management included in the draft new Medway Local Plan.

This report uses the latest available data (2022) to update the baseline estimate for the quantity of Local Authority Collected Waste (LACW) arising in Medway and forecasts annual arisings and management capacity requirements to 2041. In 2022/23 c131,500 tonnes of LACW arose in Medway and this has been taken as the baseline against which arisings are forecast over the plan period to 2041 using a growth rate that has been estimated taking account of the following:

- National Planning Practice Guidance (PPG)
- National analysis of future household waste growth
- Historical pattern of LACW arisings in Medway
- Medway Council data (as Waste Collection & Disposal Authority).

The LACW management targets proposed based on national policy are shown in Table 1 below.

Table 1: Proposed Revised Targets for LACW Management for Medway

	Milestone Year			
	2023/24	2028/29	2035/36	2041/42
Recycling/composting	55%	60%	65%	70%
Other Recovery	40%	38%	34%	29%
<i>Overall diversion from landfill</i>	95%	98%	98%	99%
Remainder to Landfill¹	5%	2%	<1%	<1%

To achieve the targets, the forecasted management requirement for LACW are as follows:

- Peak recycling/composting requirement of c97,000 tonnes (in 2041/42);
- Cumulative non-inert landfill requirement of c49,500 tonnes over the Plan period to 2041/42; and,
- Peak ‘other recovery’ requirement c53,000 tonnes in 2023/24 falling to c40,000 tonnes in 2041/42.

¹ Progressive reduction towards more ambitious target due to predicted limited availability of proximate landfill capacity and ambition to drive waste up the hierarchy. This reflects landfill target included in Kent MWLP Early Partial Review adopted 2021.

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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
PPG	Planning Practice Guidance
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 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 in the Waste Hierarchy even though Energy from Waste.
Commercial Waste	Waste arising from premises used wholly or mainly for trade, business, sport, recreation or entertainment, excluding industrial waste.
Construction and Demolition Waste	Waste arising from construction and demolition activities, including excavation during construction, mainly consisting of inert materials such as soils, stone, concrete, and brick. This waste stream also contains non-inert elements such as wood, metals, plastics, cardboard and plasterboard.
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 Environmental Permits to control activities that handle or produce waste. It also provides information on waste management and deals with other matters 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.
Gross value added	Gross value added (GVA) measures the contribution made to an economy by one individual producer, industry, sector or region. The figure is used in the calculation of gross domestic product (GDP)
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 Recycling Centres	A facility that is available to the public to deposit waste not collected through kerbside collection (also known as a civic amenity site).
Incineration	The controlled combustion of waste. Energy may also be recovered in the form of heat (see Energy from Waste). If energy is not recovered it sits alongside landfill at the bottom of the waste hierarchy as 'disposal'.
Industrial Waste	Waste arising from premises occupied by industry (excl mines & quarries).
Kerbside Collection	The collection of recyclate and waste from households, or occasionally industrial and commercial premises.
Landfill	The permanent disposal of waste to land, by filling voids or similar features, or the

	construction of landforms above ground level (land-raising).
Landfill Directive	Retained European Union legislation that restricts the landfilling of biodegradable municipal waste and requiring pre treatment of waste to be landfilled and separate deposit of hazardous, non hazardous and inert waste to landfill.
Local Authority Collected Waste	Waste collected by, or on behalf of, local authorities. LACW includes waste produced by householders both collected from their homes (collected household waste), and deposited at Household Waste Recycling Centres (HWRCs), plus municipal parks and gardens waste and waste resulting from the clearance of fly-tipped material and street sweepings, litter and trade waste collected by or on behalf of councils.
Materials Recycling Facility	A facility for sorting recyclable materials from the incoming waste stream.
Medway Municipal Waste Management Strategy	A strategy developed by Medway Council as Waste Collection and Waste Disposal Authority that presents a fifteen year plan for the future of recycling and management of former municipal waste ie LACW, arising in Medway from 2005 to 2020
Municipal Solid Waste (from 2010)	Local Authority Collected Waste plus any wastes similar in nature and composition including that collected from businesses by private waste collection companies. (Term used for reporting against retained EU Directives only).
Open Windrow Composting	A process in which biodegradable waste (such as green waste) is broken 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 below recycling in the waste hierarchy, but above disposal.
Recovery	Subjecting waste to processes that recover value including recycling, composting or thermal treatment to recover energy.
Recycling	Extracting materials from the waste stream for reprocessing into products (the same e.g. glass bottles) or a different one e.g. aggregate).
The Plan Area	The area subject to the Local Plan to which this study relates i.e. Medway.
Residual Waste	Waste remaining after materials for re-use, recycling and composting/organic waste treatment e.g. anaerobic digestion, have been removed.
Waste Collection Authority (WCA)	A local authority that has a duty to collect household waste. WCAs also have a duty to collect commercial waste if requested to do so and may also collect industrial waste. In this case Medway Council.
Waste Disposal Authority (WDA)	A local authority responsible for managing the waste collected by waste collection authorities and the provision of household waste recycling centres. In this case Medway Council. In two tier areas the County Council is the WDA.
Waste Minimisation / Reduction	The most desirable way of managing waste according to the Waste Hierarchy, by avoiding the production of waste in the first place.
Waste Planning Authority (WPA)	The local authority responsible for waste planning and development control. In the case of Medway this is Medway Council. In two tier areas the County Council is the WPA.
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 The Medway Waste Needs Assessment (WNA) 2024 Update consists of an overall main report, a review of strategic waste flows and five waste stream specific supporting reports which refresh the evidence base relating to projected management requirements for waste arising in Medway. The five waste stream specific reports are:

1. Local Authority Collected Waste;
2. Commercial & Industrial Waste;
3. Construction, Demolition & Excavation Waste;
4. Hazardous Waste; and
5. Scoping Review of Other Waste.

1.2 This report uses the latest available data (2022) to update the baseline estimate for the quantity of Local Authority Collected Waste (LACW) arising in Medway and forecasts annual arisings and management capacity requirements to 2041. This report helps underpin the proposed planning policy on waste management included in the draft new Medway Local Plan.

Definitions

1.3 In the UK, until 2010, the term municipal waste aka 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 municipal waste included in the now retained EU Landfill Directive, in 2010, the UK expanded the definition to include not just waste from households but any wastes similar in nature and composition to that produced by households. So, for the first time, municipal waste included waste that was not just collected by, or on behalf of, local authorities.

1.4 In light of this, it was necessary to establish a separate term for waste for which local authorities have responsibility to collect/manage – 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 or on behalf of local authorities, street sweepings, litter and fly tipped materials. In general, the non-household waste fraction of LACW represents around 5% of total LACW arisings.

Medway Council

1.5 Since its formation as a unitary authority in 1999, Medway Council has had responsibilities both as the Waste Collection Authority (WCA) and the Waste Disposal Authority (WDA) for Medway.

1.6 Medway Council contracts out both collection and subsequent management of LACW. Contracts exist 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 Envar Composting and West London Composting; and
- Dry Mixed Recyclables (DMR) are managed by Veolia at its Materials Recycling Facility (MRF) in Southwark.
- Household waste delivered to HWRCs is managed under contract by Medway Norse.

Where is LACW arising in Medway managed?

1.7 The main components of the LACW stream currently follow management routes predominately located 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

- South East London Combined Heat and Power Plant (SELCHP) (London Borough of Lewisham)
- Kemsley EfW facility (Sittingbourne, Kent)
- Cory Environmental (Belvedere, London Borough of Bexley)

Pre-treatment prior to management at an Energy from Waste facility

- Street Fuel Refuse Derived Fuel (RDF) and Waste Transfer Station (WTS) (Chatham, Medway)

Landfill

- Kings Cliffe Landfill² (Northamptonshire)
- Rainham landfill (London Borough of Havering)
- **DMR:** Collected via kerbside schemes, bulked up at the Veolia WTS located in Rochester (Medway) and then delivered primarily to a MRF operated by Veolia in Southwark.
- **Separately collected paper and card:** Collected via kerbside schemes transferred via the Veolia WTS to Palm Paper, Paper Mill, Kings Lynn for reprocessing to newsprint and to the Kemsley Paper Mill in Kent operated by DS Smith and Mill Street operated by Smurfit Kappa UK.

² This is hazardous waste as reported in the WDF (248 tonnes).

- **Mixed green & food waste:** Delivered to two In-vessel composting (IVC) facilities, one in Cambridgeshire and one in London Borough of Uxbridge. This waste is transferred via the Veolia WTS in Rochester.
- **Rubble disposed of at HWRCs:** Delivered direct, or via the Veolia WTS in Rochester, to Hermitage Quarry (operated by Gallagher Aggregates) in Kent for recycling into an aggregate.
- **Wood segregated at HWRCs:** Sent to Countrystyle Recycling, Ridham, Kent for shredding into biomass which is used as a fuel.
- **Waste Electrical & Electronic Equipment (WEEE):**
 - Fridges and freezers are delivered to Greystone Quarry in East Sussex operated by M D J Light Bros.
 - WEEE as well as large and small domestic appliances collected at the Veolia WTS and HWRC's is delivered to the Sweep Kuusakoski facility in Sittingbourne, Kent for recycling.

2. Medway LACW Management Profile

2.1 The change in the way LACW arising in Medway has been managed between 2012/13 and 2022/23 is shown in Figure 1 below.

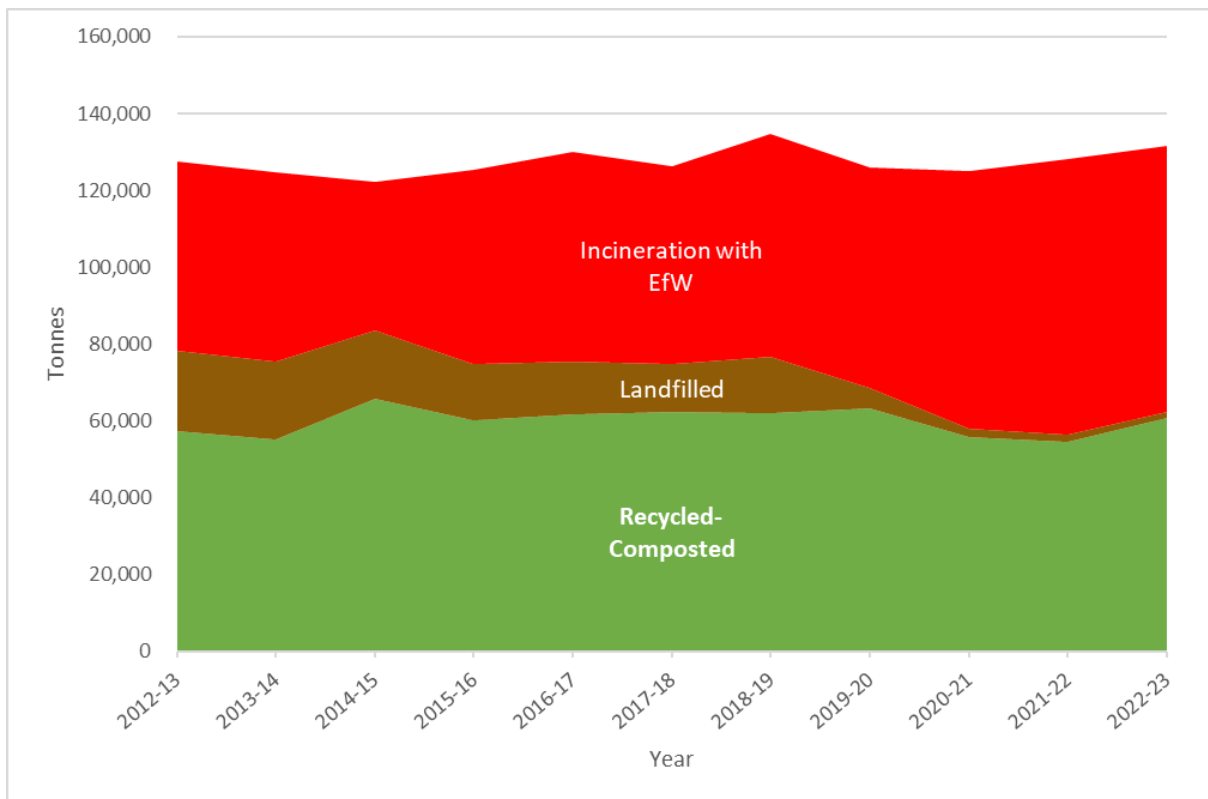


Figure 1: Management Profile for Medway LACW 2012/13-2022/23

2.2 Figure 1 shows that the LACW management profile between 2012/13 and 2022/23 includes significant levels of recycling and composting which peaked in 2014/15, stabilised from 2015/16 to 2019/20 (with an average rate of 47% (62,000tpa)) and then declined by 5% in 2020/21 to 56,000t. The profile also shows the transition in management method for residual waste (waste remaining after recycling/composting), away from landfill and towards Energy from Waste (EfW), with landfill reducing to 1% in 2022/23 (from 6% in 2012/13) and EfW increasing to 53% in 2022/23 from 39% in 2012/13.

3. Medway LACW Forecast

3.1 Projecting future LACW arisings in Medway over the Plan period has taken the following into account:

- National Planning Practice Guidance (PPG)
- National analysis of future household waste growth
- Historical pattern of LACW arisings in Medway
- Medway Council data (as Waste Collection & Disposal Authority).

Each of these are discussed below.

Planning Practice Guidance (2014)

3.2 The national Planning Practice Guidance (PPG)³ states the following in relation to forecasting future MSW arisings (now referred to as 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 The examples of growth scenarios given 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 in 2014 the Government did not consider that increasing growth in LACW was a scenario to be modelled.

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

National Analysis of Future LACW Growth

3.4 DEFRA published a study of Future Waste Arisings in England⁴ in 2021. This includes the most current national growth forecast published by Government for the LACW waste stream (amongst others). The method used to produce a forecast for LACW waste nationally involved the development of a model using external variables such as population growth and Regional Gross Disposable Household Income trends (GDHI) to project LACW growth. Three growth scenarios were developed (central, lower and upper), but for the purposes of this exercise the central forecast is referred to. The graph showing the central forecast is reproduced as Figure 2 below:

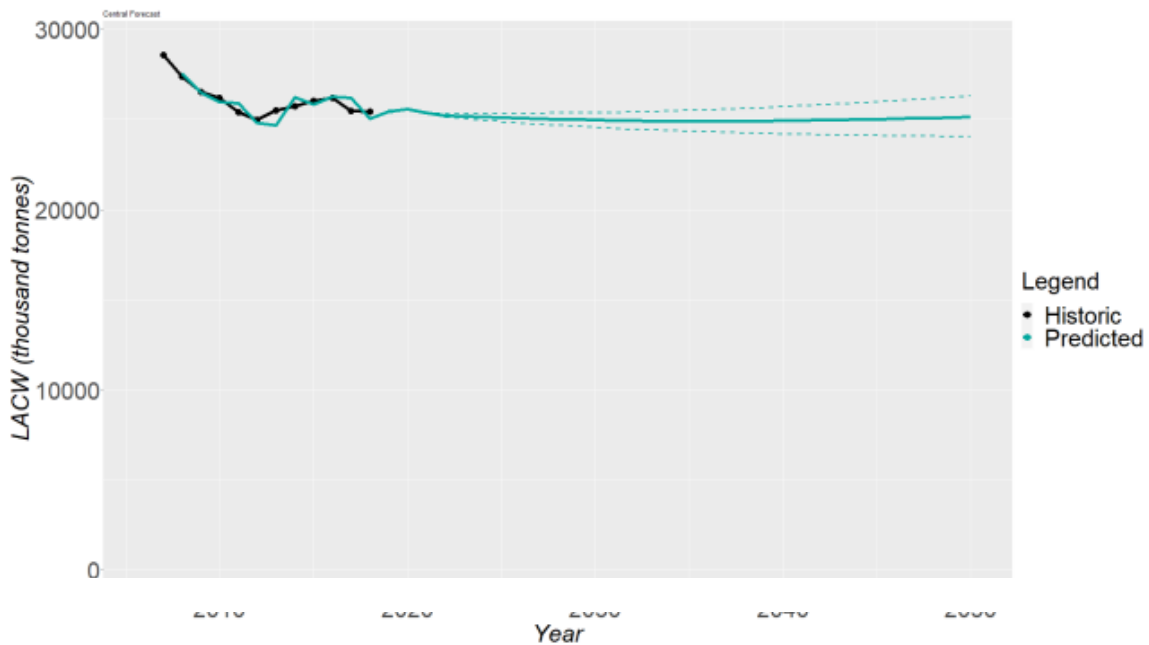


Figure 2: Central Local Authority Collected Waste Arisings Forecast for England (2020- 2050)

Source: Future Waste Arisings, for DEFRA (2021)

3.5 Figure 2 shows that nationally, LACW arisings are predicted to decrease marginally from 2022 to 2035, with a slight upswing from 2035 to 2050. The related growth rates, shown at 5-year intervals from 2020, are included in Table 2 below:

⁴ 'Future Waste Arisings' Eunomia, April 2021.

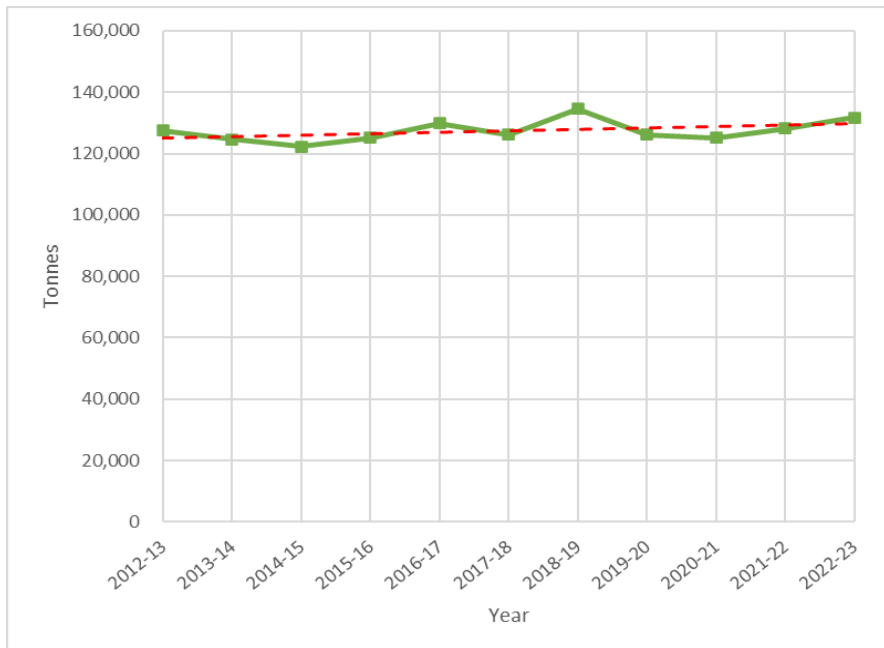
Table 2: DEFRA National LACW Forecast 5-year Growth Rates

	2020	2025	2030	2035	2040	2045
5-year growth rate	-	-2.12%	-0.18%	-0.54%	+0.37%	+0.18%

3.6 While the DEFRA 2021 report provides a national picture (presenting an average of what is predicted to happen across England - thus masking regional or local differences, such as varying levels of prosperity and associated consumption) it does provide a feel for the direction in which growth in LACW in Medway may be headed. It should be noted that the report's forecasts are used as the basis for modelling the achievement of targets related to the policy goals in the national Resources & Waste Strategy (2018⁵) and the Environment Act, and so is driving national policy that can reasonably be expected to impact local LACW arising in Medway.

Historical Pattern of LACW Arisings in Medway

3.7 The applicability of the conclusions of the 2021 DEFRA report on future LACW arisings to the situation in Medway, can be tested by considering the observed pattern of LACW arisings in Medway in the past decade, as shown in Figure 3 (and Table 3) below.


Figure 3: Trend in LACW Arisings in Medway 2012/13 to 2022/23

(Dashed red line is trend line that indicates an annual growth rate of 0.39% over the period).

⁵ Our Waste, Our Resources: A Strategy for England, Department for Environment, Food & Rural Affairs, December 2018.

Table 3: Medway LACW arisings between 2012/13 and 2022/23 including growth rates.

Year	Total	Annual growth rate	5-year average growth rate
2012/23	127,479		
2013/14	124,638	-2.23%	-0.16%
2014/15	122,226	-1.93%	
2015/16	125,209	2.44%	
2016/17	129,896	3.74%	
2017/18	126,229	-2.82%	
2018/19	134,636	6.66%	+0.94%
2019/20	126,091	-6.35%	
2020/21	125,161	-0.74%	
2021/22	128,104	2.35%	
2022/23	131,650	2.77%	
Average growth rate		0.39%	

3.8 Data for LACW arisings in Medway over the most recent decade (2012/13 to 2022/23) (shown in Figure 3 and Table 3) shows a declining trend in arisings from 2012/13 to 2017/18 (minus 0.16%), followed by a positive trend from 2018/19 to 2022/23 (0.94%), giving an overall growth rate of +0.39% over the period.

3.9 As shown in Figure 4 below, Medway’s population grew rapidly from 2009 to 2016 by an average of 0.42% per annum⁶; followed by a plateauing in more recent years. Over the same period household waste production increased by an average of 0.40% per annum (Table 2) suggesting a linear relationship between growth in population and growth in total LACW arisings. However, applying a LACW growth profile based on population growth would not be robust, given the multiple variables that can influence LACW arisings including local service changes and waste minimisation initiatives such as provision of home composting bins⁷.

⁶ <https://www.varbes.com/demographics/medway-demographics>

⁷ This results in the reduction in the quantity of waste set out for collection which would have been counted as LACW.

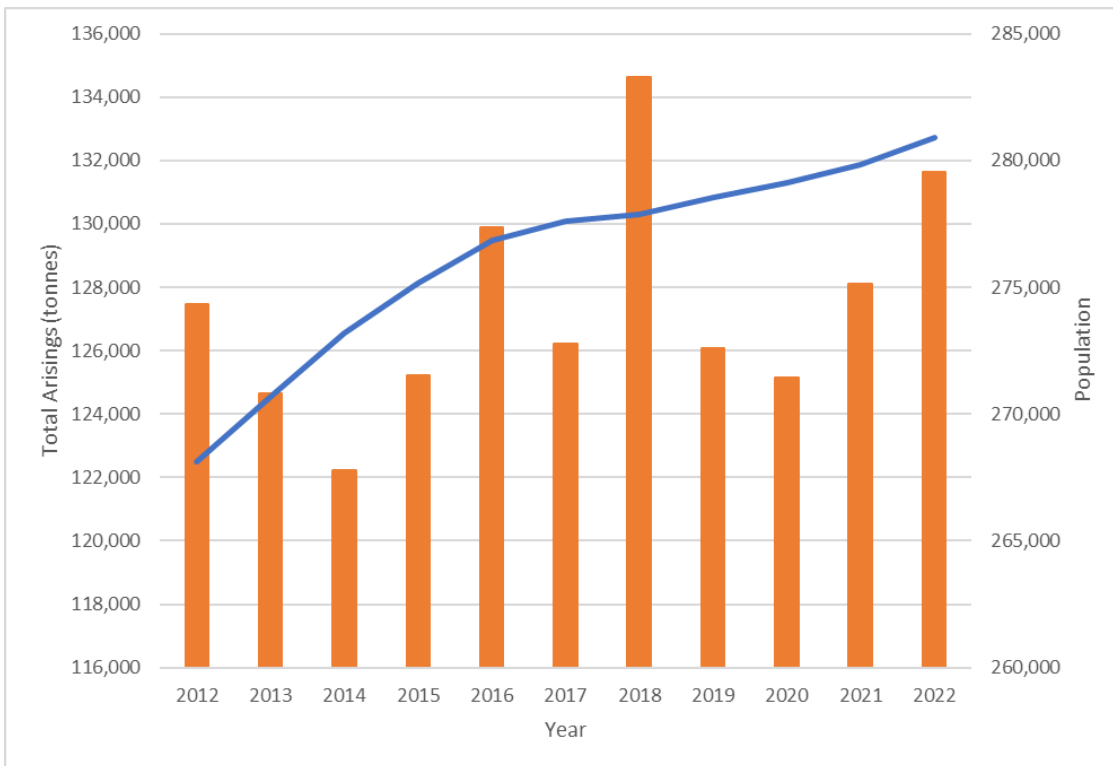


Figure 4: Total LACW arising (bar chart) vs population (blue line) 2012/13 to 2022/23
(y axis not set to zero)

Medway Municipal Waste Management Strategy 2005-2020

3.10 PPG identifies Municipal Waste Management Strategies as a source of LACW growth forecasts. However, as the period of the most recent Medway Municipal Waste Management Strategy 2005-2020 (adopted January 2006) only runs to 2020, it is not considered to be applicable.

Most Recent LACW Forecast

3.11 Medway Council, as Waste Collection & Disposal Authority, has generated a more recent forecast for Medway LACW arisings from 2019/20 to 2024/25 based on a service-by-service breakdown. The annual growth rates used are displayed in Table 4 below compared with actual LACW arisings as reported by DEFRA to 2022/23.

Table 4: Medway WDA Forecast Annual Growth Rates for Medway LACW Arisings against actual LACW arisings reported by DEFRA

Year	2018/19	2019/20	2020/21	2021/22	2022/23	Total growth to date	Average annual growth rate
WDA forecast (tonnes)	-	128,356	129,639	130,938	132,249		
Annual growth rate (from forecast values)	-	-4%	1%	1%	1%	-1%	-0.25%
<i>Actual LACW arising</i>	<i>134,636</i>	<i>126,091</i>	<i>125,161</i>	<i>128,104</i>	<i>131,650</i>		
<i>Actual growth rate</i>		<i>-6.35%</i>	<i>-0.74%</i>	<i>2.35%</i>	<i>2.77%</i>	<i>-1.97%</i>	<i>-0.49%</i>

3.12 Table 3 shows that LACW decreased as forecast by Medway WDA from 2018/19 to 2019/20, albeit at a greater rate (minus 6.35%). LACW arisings saw a further decrease from 2019/20 levels at minus 0.74% in 2020/21⁸, compared with the forecast growth of plus 1%. Since 2020/21, LACW has increased but at a greater rate than forecast at 2.35% and 2.77% respectively. Overall, both the WDA forecast and the actuals indicate a negative growth rate over the past 5 years, with an average annual growth rate of minus 0.25% and minus 0.49% respectively.

Generating a Forecast for LACW

3.13 The method proposed in the PPG suggests that a growth profile is based on a combination of household/population growth and waste arisings per household or per head of population, which can then be modelled with a range of different scenarios e.g. constant rate of growth, progressively lowering growth rates due to waste minimisation.

⁸ The Covid-19 lock down in 2020/21 would normally result in a rise in LACW, but LACW in Medway fell over the period.

Building a Growth Profile

3.14 A growth profile can be established by following the guidance in PPG 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

This is done (as indicated by the PPG) by dividing annual arisings by population data. Figure 5 below shows the results of this exercise by head of population⁹.

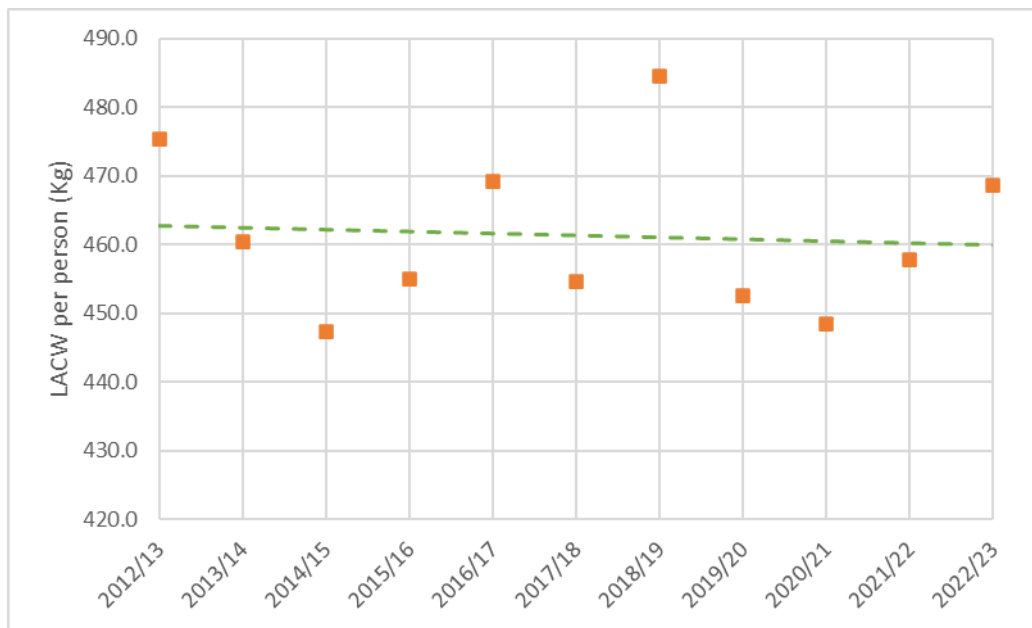


Figure 5: Collected LACW waste per head in Medway 2012/13 to 2022/23

(NB: y axis not at zero & green dashed line is a trendline)

3.15 The trendline in Figure 5 shows that LACW arisings per person have slightly decreased over the period 2012/13 to 2022/23. The data supporting Figure 5 indicates that:

- the average compound annual growth rate for arisings per person for the decade 2012/22 to 2022/23 is minus 0.75% (the long-term growth rate); and
- the average compound annual growth rate for arisings per person for the 5-year period 2017/18 to 2021/22 is minus 0.51% (the short-term growth rate).

3.16 The long- and short-term growth rates in LACW arisings per person identified above were then applied to the baseline LACW arisings value for 2022/23 to the end of the Plan period (2041). The next step is to add the compound average growth rates (for both the short and long-term) for LACW arisings per person per annum by the annual population growth forecast for Medway¹⁰.

⁹ <https://www.varbes.com/demographics/medway-demographics>

¹⁰ <https://www.varbes.com/population/medway-population>

3.17 To create a cone of possibilities for forecast LACW arisings, the output of the two PPG growth profiles is plotted along with three growth profiles generated using the following growth factors.

- Historical LACW Growth of 0.39% per annum (see Table 2);
- DEFRA National Forecast of LACW at 5-year intervals
- LACW Growth as projected by Medway WDA in most recent forecast at +1.0% per annum.

3.18 The predicted arisings applying the above growth rates to the most recent actual LACW arisings baseline value (2022/23) are plotted in Figure 6 below.

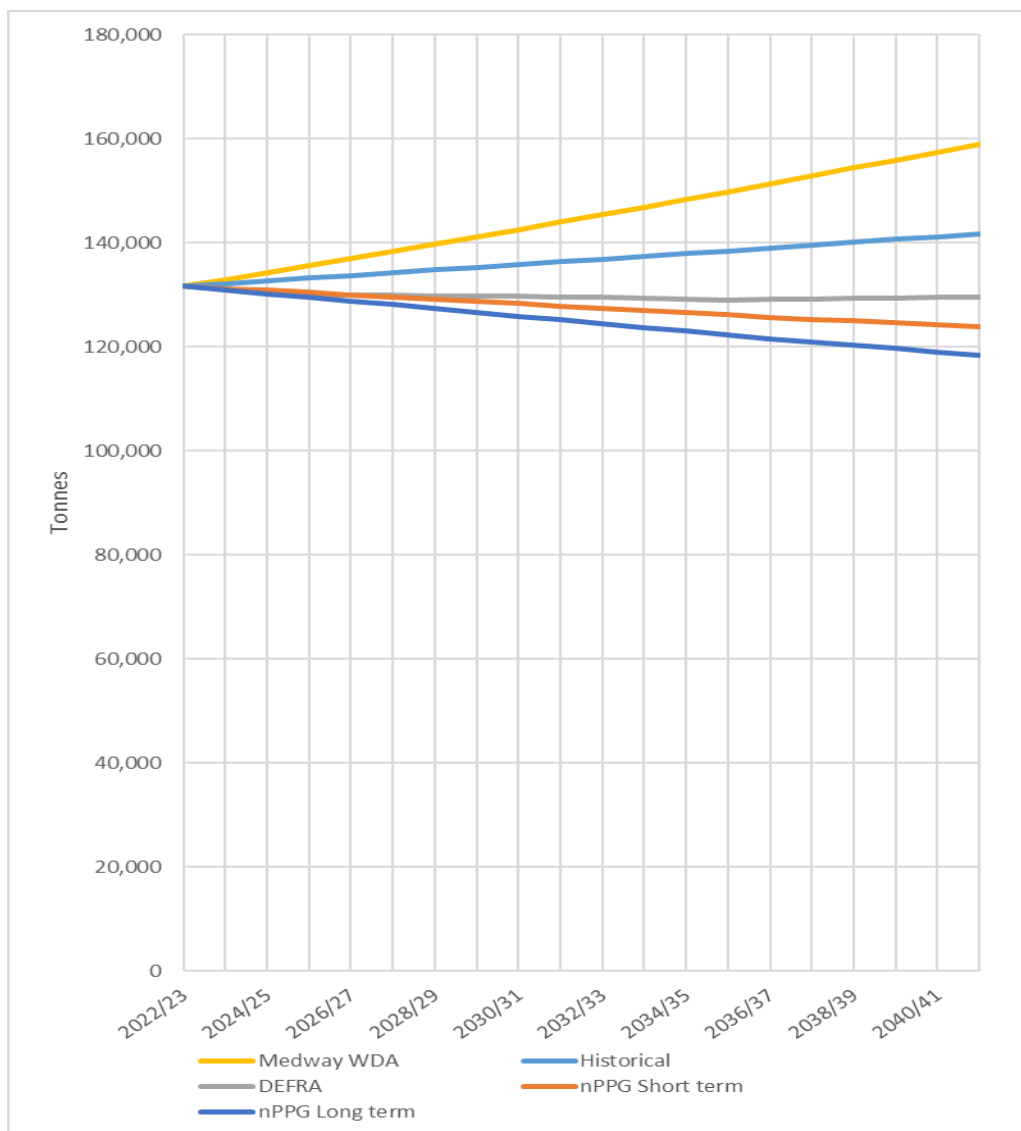


Figure 6: LACW Arisings Forecasts (updated using 2022/23 baseline)

3.19 The corresponding values are presented in Table 5 below.

Table 5: Initial Forecast Values for Medway LACW Arisings (Tonnes)

	PPG Long term	PPG Short term	DEFRA	Medway WDA	Historic (2012/13 – 2022/23)
2022/23	131,650	131,650	131,650	131,650	131,650
2023/24	130,896	131,208	131,092	132,967	132,162
2024/25	130,215	130,835	130,536	134,296	132,677
2025/26	129,508	130,435	129,983	135,639	133,193
2026/27	128,801	130,031	129,936	136,996	133,712
2027/28	128,086	129,618	129,889	138,365	134,232
2028/29	127,362	129,192	129,842	139,749	134,754
2029/30	126,630	128,754	129,795	141,147	135,279
2030/31	125,896	128,313	129,749	142,558	135,805
2031/32	125,158	127,864	129,609	143,984	136,334
2032/33	124,429	127,422	129,469	145,424	136,864
2033/34	123,707	126,984	129,329	146,878	137,397
2034/35	122,996	126,555	129,189	148,347	137,932
2035/36	122,291	126,129	129,050	149,830	138,469
2036/37	121,599	125,714	129,145	151,328	139,008
2037/38	120,935	125,325	129,241	152,842	139,549
2038/39	120,291	124,954	129,336	154,370	140,092
2039/40	119,663	124,597	129,432	155,914	140,637
2040/41	119,049	124,253	129,528	157,473	141,184
2041/42	118,449	123,921	129,574	159,048	141,734

3.20 Figure 6 suggests that the most likely zone within which the actual trajectory will fall would be bounded by the PPG long term growth rate (dark blue line) and the Medway WDA growth rate (yellow line). Taking the average of the projected LACW arisings at 2041 for the PPG long term growth rate and Medway WDA growth rates would equate to an increase in arisings of 5.39% between 2022/23 and 2041/42.

Relating forecasts to waste per household arisings

3.21 In order to gauge how realistic the proposed forecasts might be, the waste per person factors implied by each scenario in 2041 have been calculated and then compared against the actual waste per person factor in 2022 of 0.47 tonnes. This is shown in Table 5 below:

Table 6: Waste per person factors implied by the chosen scenarios at 2041 compared to 2022 actual and the percentage change year on year (kg)

Forecast	Waste arisings per person factor at 2041	Difference from actual in 2022 over 19 years	Percentage annual change
PPG Long term	410	-60	-0.33%
PPG Short term	430	-40	-0.23%
DEFRA	440	-20	-0.13%
Medway WDA	550	+80	+0.41%
Historic	490	+20	+0.09%
Central Value from cone of possibilities	480	+10	+0.04%

Relating forecasts to waste per household arisings - Findings

3.22 The findings from the comparison shown in Table 5 are as follows:

- The long-term growth scenario implies a reduction of 60kg per person over the period against a starting arising of 410kg. This equates to a 3.2kg fall per person per year;
- the short-term growth scenario implies a reduction of 40kg per person over the period against a starting arising of 410kg. This equates to a 2.1kg fall per person year on year;
- the national DEFRA central forecast implies a reduction of 20kg per person over the period against a starting arising of 410kg. This equates to a 1.1kg fall per person year on year;
- the Medway WDA forecast implies an increase of 80kg per person over the period against a starting arising of 410kg. This equates to a 4.2kg increase per person year on year;
- the historic data scenario implies an increase of 20kg per person over the period against a starting arising of 410kg. This equates to a 1.1kg increase per person year on year;
- the central value from the cone of possibilities forecast implies an increase of 10kg per person over the period against a starting arising of 410kg. This equates to a 0.5kg increase per person year on year.

3.23 The above analysis suggests growth in waste arisings per person year on year could vary between a reduction of 3.2kg and increase of 4.2kg. The cone of possibilities central forecast predicts an increase in waste per person per year of 0.5kg giving an overall increase of c5.39%

of total LACW arisings over the period (or 0.28% per annum to 2041) and is considered to be the most realistic scenario. This yields the preferred scenario (Central Scenario – green) shown in Figure 7.

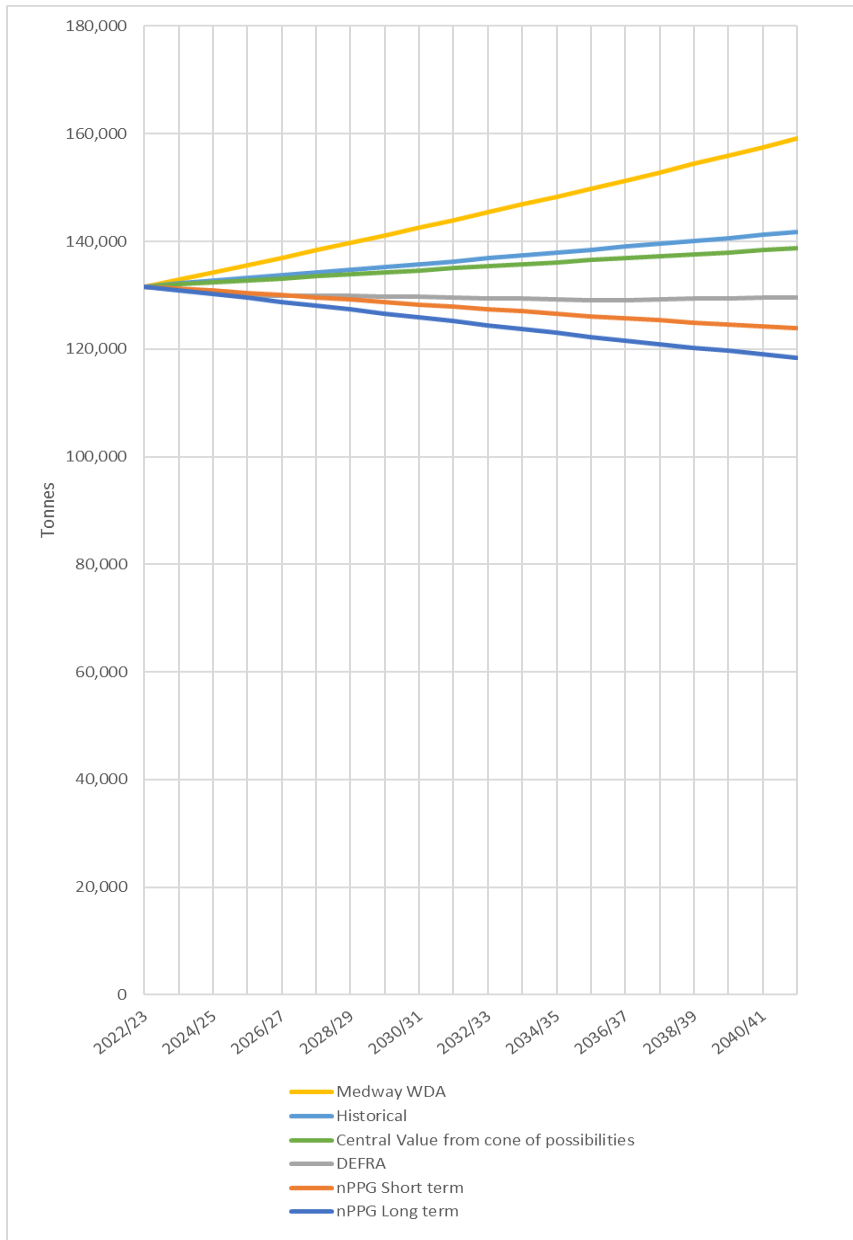


Figure 7: 'Cone of Possibilities' for Forecast Plan Area LACW Arisings Including Central Scenario Forecast (tonnes per annum) (applying 2022/23 baseline).

LACW Forecast Conclusion

- 3.24 Taking the baseline arising value for 2022/23, together with the ‘cone of possibilities’ central waste growth scenario, generates a trajectory that tracks a path between the PPG long term growth rate forecast (blue line) and Medway WDA growth forecast (yellow line). It is recommended to apply this 0.28% per annum growth rate when considering future LACW management capacity needs.
- 3.25 Applying this scenario results in a projected value for LACW arisings in 2041 of c138,500 tonnes, an increase of c7,000 tonnes on the 2022/23 baseline value. The forecast arisings each year are shown in Table 6 below.

Table 7: Forecast LACW arisings each year using the preferred Central Scenario (tonnes)

Year	Forecast LACW arisings
2022/23	131,650 (baseline)
2023/24	132,024
2024/25	132,397
2025/26	132,771
2026/27	133,144
2027/28	133,518
2028/29	133,892
2029/30	134,265
2030/31	134,639
2031/32	135,012
2032/33	135,386
2033/34	135,760
2034/35	136,133
2035/36	136,507
2036/37	136,880
2037/38	137,254
2038/39	137,628
2039/40	138,001
2040/41	138,375
2041/42	138,748

4. Medway LACW Future Management Capacity Needs

4.1 Having identified a preferred forecast, the next step is to establish the current LACW management profile. This may then be used to establish realistic future management targets which then informs identification of any future capacity requirements.

Existing LACW Management Profile

4.2 Table 8 below shows the management profile for LACW in 2022/23 derived from DEFRA data.

Table 8: LACW Management Profile in Medway 2022/23

(Source: DEFRA LACW – annual results 2022/23)

Management Route	Tonnes	%
<i>Total Arisings</i>	<i>131,650</i>	<i>100%</i>
Recycling/ Composting	60,681	46%
Energy from Waste	69,284	53%
Landfill	1,685	1%

4.3 Table 8 shows that in 2022/23 the percentage of LACW recycled/ composted stood at 46%, while the proportion sent to EfW stood at 53% and landfill stood at 1%.

LACW 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 UK government has confirmed its commitment to the following EU Circular Economy Plan targets for municipal waste:

- 55% recycling floor by 2025; and
- 60% recycling floor by 2030; and
- 65% recycling floor by 2035; plus
- 10% ceiling limit on landfilling by 2035.

4.6 As all LACW is classed as municipal waste (along with waste of a similar nature from commercial sources) these targets can therefore, reasonably be applied.

4.7 The recently adopted Environment Act target of 50% reduction in residual waste per person by 2042, with an interim target of 21% reduction by tonnage by January 2028, would require going beyond the above national recycling target reaching c72% at 2042. In addition, the Government has stated a desire to eliminate the landfilling of biodegradable municipal waste by 2028.

Current Targets

- 4.8 The management targets for LACW proposed in the Medway WNA 2020 (arrived at by combining the targets set in the Medway MWMS with those in the national Resource & Waste Strategy) are shown in Table 9 alongside the actual values reported for 2022/23.

Table 9: WNA 2020 Targets for LACW Management for Medway
italicised entries are actual values

	Actual	Milestone Year		
	<i>2022/23</i>	2023/24	2028/29	2035/36
Recycling/composting	<i>46%</i>	55%	60%	65%
Other Recovery¹¹	<i>53%</i>	37%	35%	33%
<i>Overall diversion from landfill</i>	99%	92%	95%	98%
Remainder to Landfill	<i>1%</i>	8%	5%	2%

- 4.9 Table 9 suggests that the proposed LACW landfill targets set in the WNA 2020 could have been more ambitious given that the target of 2% LACW to landfill by 2036 was achieved in 2022/23. It is therefore proposed that the ceiling target proposed in the WNA 2020 be brought forward i.e., 5% of waste diverted from landfill in 2028/29 by 2023/24 and then decreasing to 2% by 2028, and held at <1% to the end of the Plan period.
- 4.10 Given a 46% recycling rate was achieved in 2022/23, it is assumed that while the 65% target for recycling/ composting by 2035 will be achieved it will not occur before 2035. Therefore, what might have been landfilled (under the WNA 2020 targets) has been reallocated to Other Recovery in the earlier milestone years. This still ensures the national recycling target of 65% by 2035 is set to be achieved. The proposed revised targets are set out in Table 10 below¹².

¹¹ This identifies the consequential predicted remaining management requirement assuming the recycling/composting and landfill diversion targets are met and is not a target as such.

¹² It should be noted that, if the achievement of 65% recycling is hit before 2035 then the 'other recovery' requirement would reduce accordingly. In this context the Government's latest thinking on environmental targets for the reduction of residual waste assumes a floor of 72% recycling at 2042.

Table 10: Proposed Revised Targets for LACW Management for Medway

	Milestone Year			
	2023/24	2028/29	2035/36	2041/42
Recycling/composting	55%	60%	65%	70%
Other Recovery	40%	38%	34%	29%
<i>Overall diversion from landfill</i>	95%	98%	98%	99%
Remainder to Landfill¹³	5%	2%	<1%	<1%

¹³ Progressive reduction towards more ambitious target due to predicted limited availability of proximate landfill capacity and ambition to drive waste up the hierarchy. This reflects landfill target included in Kent MWLP Early Partial Review adopted 2021.

5. LACW Management Capacity Requirements

5.1 Applying the proposed targets to the preferred forecast of LACW arisings between 2022/23 and 2041/42 (shown in Table 8) results in the LACW management capacity requirement presented in Table 11 below:

Table 11: Future Management Profile for Forecast Medway LACW Arisings applying revised forecast and updated targets (Tonnes)

	Milestone Year				Plan Period Peak/Cumulative Capacity Requirement
	2023/24	2028/29	2035/36	2041/42	
Recycling/Composting Target (Floor)	72,613	80,335	88,729	97,124	97,124 (peak)
Remainder to Landfill Target (Ceiling)	6,601	2,678	1,365	1,387	49,600 (cumulative) (see Table 12)
Other Recovery Remainder	52,809	50,879	46,412	40,237	52,809 (peak)

5.2 Table 11 shows the forecast management requirements for LACW as follows:

- Peak recycling/ composting of c97,000 tonnes (in 2041/42);
- Cumulative Non-Inert Landfill of c49,600 tonnes over the plan period to 2041/42 as shown in Table 11 below.
- Peak ‘Other Recovery’ c53,000 tonnes in 2023/24 falling to c40,000 tonnes in 2041/42.

Table 12: Cumulative LACW Landfill Requirement in Medway to 2041/42

	Landfill Requirement pa	Cumulative Landfill Requirement
2023/24	6,601	6,601
2024/25	5,817	12,418
2025/26	5,032	17,450
2026/27	4,247	21,697
2027/28	3,463	25,159
2028/29	2,678	27,837
2029/30	2,490	30,327
2030/31	2,303	32,630
2031/32	2,115	34,745
2032/33	1,928	36,673
2033/34	1,740	38,413
2034/35	1,553	39,966
2035/36	1,365	41,331
2036/37	1,369	42,700
2037/38	1,373	44,072
2038/39	1,376	45,448
2039/40	1,380	46,828
2040/41	1,384	48,212
2041/42	1,387	49,600