



Surrey Waste Capacity Needs Assessment 2022

Management Requirements for Local Authority Collected Waste in Surrey to 2042

Report: Final Issue

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Abbreviations

Abbreviations	Definition
AD	Anaerobic Digestion
C & I	Commercial & Industrial Waste
C, D & E / CDEW	Construction, Demolition & Excavation Waste
DEFRA	Department for Environment, Food and Rural Affairs
DMR	Dry mixed recyclables
EA	Environment Agency
EfW	Energy from Waste
EWC	European Waste Catalogue
JMWMS	Joint Municipal Waste Management Strategy
HWRCs	Household Waste Recycling Centres
LACW	Local Authority Collected Waste
MBT	Mechanical Biological Treatment
MRS	Metal Recycling Site
MRF	Material Recycling Facility
MWMS	Municipal Waste Management Strategy
PPG	Planning Practice Guidance
RDF	Refuse Derived Fuel
SEP	Surrey Environment Partnership
WCA	Waste Collection Authority
WDA	Waste Disposal Authority
WDF	WasteDataFlow
WDI	Waste Data Interrogator
WIR	Waste Incinerator Returns
WCNA	Waste Capacity Needs Assessment
WPA	Waste Planning Authority
WTS	Waste Transfer Station

Glossary of Terms

Term	Definition
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 gas (biogas) and nutrient rich solid or liquid (digestate). The biogas can be used to generate energy either in a furnace, gas engine, turbine or to power vehicles, and digestate can be applied to land as a fertiliser.
Biodegradable waste	Waste that can break down over time due to natural biological action/processes, such as food, garden waste and paper.
Commercial Waste	Waste from factories or premises used for the purpose of trade or business, sport, recreation or entertainment
Construction, Demolition & Excavation Waste	Waste arising from the building process comprising demolition and site clearance waste and builders' waste from the construction/demolition of buildings and infrastructure. Includes masonry, rubble and timber.
Defra	The UK Government department responsible for developing 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.
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 such as water issues including flood protection.
European Waste Catalogue (EWC)	Comprehensive listing of wastes divided into 20 chapters, most of which are industry-based, although some are based on materials and processes. Each waste type is assigned a unique six-digit code. Otherwise referred to as List of Waste (LoW).
Green waste	Biodegradable plant waste from gardens and parks such as grass 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 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 characteristics of the waste.
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.
Incineration	The controlled combustion of waste. Energy may also be recovered in the form of heat (see Energy from Waste).
Industrial Waste	Waste arising from any factory and from any premises occupied by an industry (excluding mines and quarries).
Kerbside Collection	The collection of recyclate and waste from households, or occasionally industrial and commercial premises.
Landfill (including land raising)	The permanent disposal of waste to land, by the filling of voids or similar features, or the construction of landforms above ground level (land-raising).
Local Authority Collected Waste	Waste collected by or on behalf of a local authority. Includes household waste and business waste where collected by a local authority and non-municipal fractions such as construction and demolition waste delivered to HWRCs. LACW is the definition used in statistical publications, which previously referred to municipal (solid) waste (MSW).
Materials Recycling Facility (MRF)	A facility for sorting recyclable materials from the incoming waste stream.

Term	Definition
Mechanical Biological Treatment (MBT)	A waste facility that combines a sorting facility with a form of biological treatment such as composting or anaerobic digestion.
Municipal Solid Waste (MSW) (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).
Non-Hazardous Waste Landfill	A landfill permitted to accept non-inert (biodegradable) wastes e.g. municipal and commercial and industrial waste and other non-hazardous (including inert) wastes. May only accept hazardous waste if a special cell is constructed.
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	The reprocessing of materials extracted from the waste stream either into the same product or a different one.
Refuse Derived Fuel	A fuel produced to a contract specification by processing the combustible fraction of waste.
Residual Waste	Waste remaining after materials for re-use, recycling and composting/organic waste treatment e.g. anaerobic digestion have been removed.
The Plan area	The area subject to the Waste Local Plan to which this study relates. In this case the county of Surrey.
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 Surrey Council. In two tier areas the District or Borough Council is the WCA.
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 Surrey 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	The authority responsible for planning for waste within a specific administrative area. In this case Surrey County Council.
Waste Transfer Station	A site to which waste is delivered for sorting or baling prior to transfer to another place for recycling, treatment or disposal.

1. Introduction

Surrey County Council has contracted BPP Consulting to produce an update to the Surrey Waste Capacity Needs Assessment (WCNA) to underpin the preparation of its Minerals and Waste Local Plan.

The WCNA consists of the following documents:

1. Review of Management Requirements for Local Authority Collected Waste;
2. Review of Management Requirements for Commercial & Industrial Waste;
3. Review of Management Requirements for Construction, Demolition & Excavation Waste;
4. Review of Management Requirements for Hazardous Waste;
5. Scoping Review of Management Requirements for Other Waste;
6. Review of Waste Flows;
7. Overview of Capacity Requirements.

This report is concerned with updating the Local Authority Collected Waste (LACW) baseline for 2021 and assessing its projected management requirements to 2042.

1.1 Advice on Data

The principal source of advice with respect to the use of data to inform production of a Plan evidence base is the national Planning Practice Guidance (PPG) available at <https://www.gov.uk/guidance/waste>. This states that:

"Assessing waste management needs for Local Plan making is likely to involve:

- *understanding waste arisings from within the planning authority area, including imports and exports*
- *identifying the waste management capacity gaps in total and by particular waste streams*
- *forecasting the waste arisings both at the end of the period that is being planned for and interim dates*
- *assessing the waste management capacity required to deal with forecast arisings at the interim dates and end of the plan period."*

Paragraph: 022 Reference ID: 28-022-20141016

It includes a section entitled "Using data to monitor and forecast waste needs", which articulates the following principles, should waste planning authorities adopt, when using data to plan for the management of waste arising in their respective administrative i.e. Plan area:

- *Make clear assumptions on how data were handled, as well as their impact (including on forecasting)*
- *Provide data to an appropriate level of significance, based on their explicit assumptions. In practice, data quoted to more than 2 or 3 significant figures will not be helpful and spurious accuracy stemming from precise figures should be avoided*
- *Plan for a range of each type of waste rather than a specific single figure."*

Paragraph: 036 Reference ID: 28-036-20141016 Revision date: 16 10 2014

1.2 Principal Data Sources

The principal data sources used to generate this report are as follows:

Waste Data Interrogator

Operators of sites permitted to manage waste, submit returns on the quantities, types and origin of waste received and, where applicable, destination of waste removed from their sites to the Environment Agency. These returns are collated by the Environment Agency into a national dataset known as the Waste Data Interrogator (WDI). This is released approximately nine months after the end of the calendar year to which the data relates. The 2021 WDI (version 2 released Nov 2022) consisting of data for the calendar year 2021 is the most current version available at the time of writing¹.

¹ Note that version 3 has since been released in January 2023.

Wastedataflow

Wastedataflow (WDF) is a web based data entry portal for local authorities to report on local authority waste management arrangements to central Government on a quarterly basis. The data input is used to report on national recycling and landfill diversion performance as well as local authority league tables on recycling rates etc following independent quality checking. While Councils normally report in financial years, as the EA WDI reports for calendar year the data for Surrey covering the four quarters of 2021 has been used to ensure comparability between datasets.

1.3 Data Presentation

In order to respect the need to avoid "spurious accuracy", the following approach has been taken:

1. Where actual tonnage data has been accessed, this has been used in the computations.
2. Where data has been subject to computation, this has been rounded to the nearest 500.
3. Where percentages have been used to generate data, the percentages are presented as whole numbers, however the computations actually use the full value. This means that values presented may not always precisely correspond to the values computed when applying the percentage value presented in this report.
4. A threshold of >500 tonnes has been applied to certain computations.

2. Assessing LACW Arisings

2.1 Introduction

This section of the report is concerned with assessing arisings of Local Authority Collected Waste (LACW) in Surrey in 2021. From this, future arisings can be forecast for which appropriate targets can be proposed. This is then assessed against current LACW management capacity, with a view to identifying potential future capacity needs for which the forthcoming Surrey Minerals and Waste Local Plan may need to provide.

2.2 Definition

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 municipal waste, in 2010, the UK expanded the definition to include not just waste from households but any wastes similar in nature and composition and so now the term 'municipal waste' includes wastes (of a similar type) collected from businesses by private waste collection companies as well as waste formerly referred to as MSW.

In light of this, a new term to only cover waste for which local authorities have responsibility to collect/manage was adopted. This term is “Local Authority Collected Waste” (LACW). LACW includes ‘household waste’ (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 total LACW arisings.

2.3 Surrey waste management arrangements

Surrey County Council has responsibility as the Waste Disposal Authority (WDA) for the final management of LACW arising in Surrey. The County Council awarded SUEZ Recycling and Recovery a 25-year management contract in 1999 for the management of Surrey's residual waste including the operation of 15 household waste recycling centres (HWRC's) (aka Community Recycling Centres (CRC). As this contract was due to expire in 2024 the County Council recently agreed a 5-year contract extension with SUEZ to 2029.

2.4 Surrey Environment Partnership

The Surrey Environment Partnership (SEP) is composed of the 11 District and Borough Councils as statutory Waste Collection Authorities (WCAs) as well as Surrey County Council, as WDA. The SEP aims to manage Surrey's waste in the most effective and sustainable way. SEP's Joint Municipal Waste Management Strategy (JMWMS) sets targets for recycling, reducing and managing waste in the most sustainable and cost-effective way. The strategy was first published in 2006, revised in 2010 and then in 2015. The 2015 strategy being the most current statement of position by SEP. A refreshed version of the strategy was adopted by the SEP in April 2023.

3. Surrey LACW Management Profile

The management profile of LACW arising in Surrey over the last decade is shown in Figure 1 below.

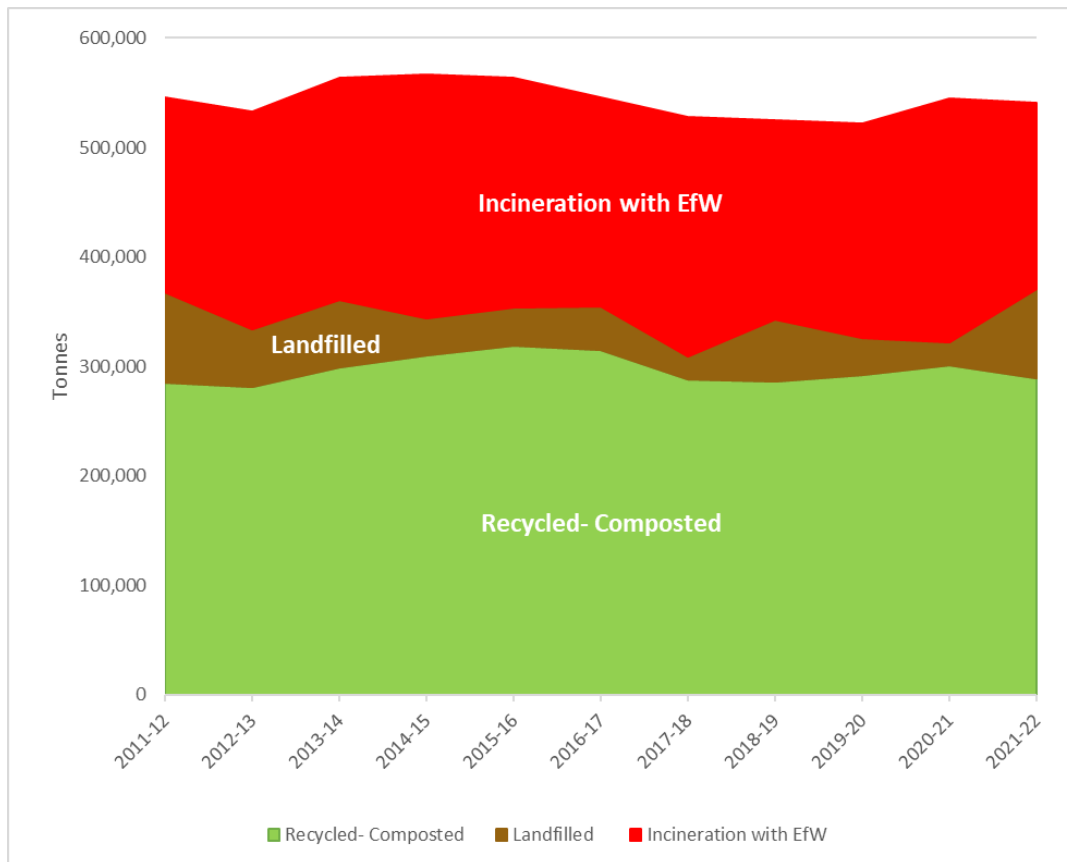


Figure 1: Management Profile for Surrey LACW 2011/12 – 2021/22 (tonnes)

Source: DEFRA

Figure 1 shows that the LACW management profile was underpinned by recycling and composting which peaked in 2015/16 and stabilised from 2016/17 onwards with an average rate of c55% (c295,500 tpa). A 4% decrease in recycling and composting from 2020/21 levels was reported in 2021/22. LACW to landfill has fallen from c82,000 tonnes in 2011/12 to c21,000 tonnes in 2020/21, although the 2021/22 value saw a return back to 2011/12 levels with c81,500 tonnes of LACW sent to landfill in that year with a corresponding decrease in waste sent to Energy from Waste (EfW). This is understood to be a result of contracted facilities not being available in 2021. Landfill/EfW levels are expected to return to those reported for 2020/21 in subsequent years. LACW managed through EfW facilities has fluctuated over the decade with an average of 37% managed in this way.

4. Surrey LACW forecast

The following have been taken into account in projecting future LACW arisings in Surrey over the Plan period:

- National Planning Practice Guidance (nPPG)
- National forecast of LACW growth in England
- Historical pattern of LACW arisings in Surrey

These are discussed below.

4.1 Planning Practice Guidance

The national Planning Practice Guidance (nPPG)² 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."

It is notable that the examples of growth scenarios given in nPPG 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.

² Ref.: Revision date: 16 10 2014 Paragraph: 029 & 30 Reference ID: 28-029-20141016

4.2 Context in Surrey

While a Joint Municipal Waste Management Strategy (JMWMS) does exist for Surrey, the JMWMS does not include any local forecast of LACW. Therefore, the following have been considered in projecting future LACW arisings in Surrey over the Plan period:

- Historical LACW arisings in Surrey;
- National DEFRA forecast of LACW in England;
- nPPG advice on estimating LACW growth.

4.3 Historical Pattern of LACW Arising in Surrey

The observed pattern of LACW arisings in Surrey over the past decade is shown in Figure 2 and Table 1 below.

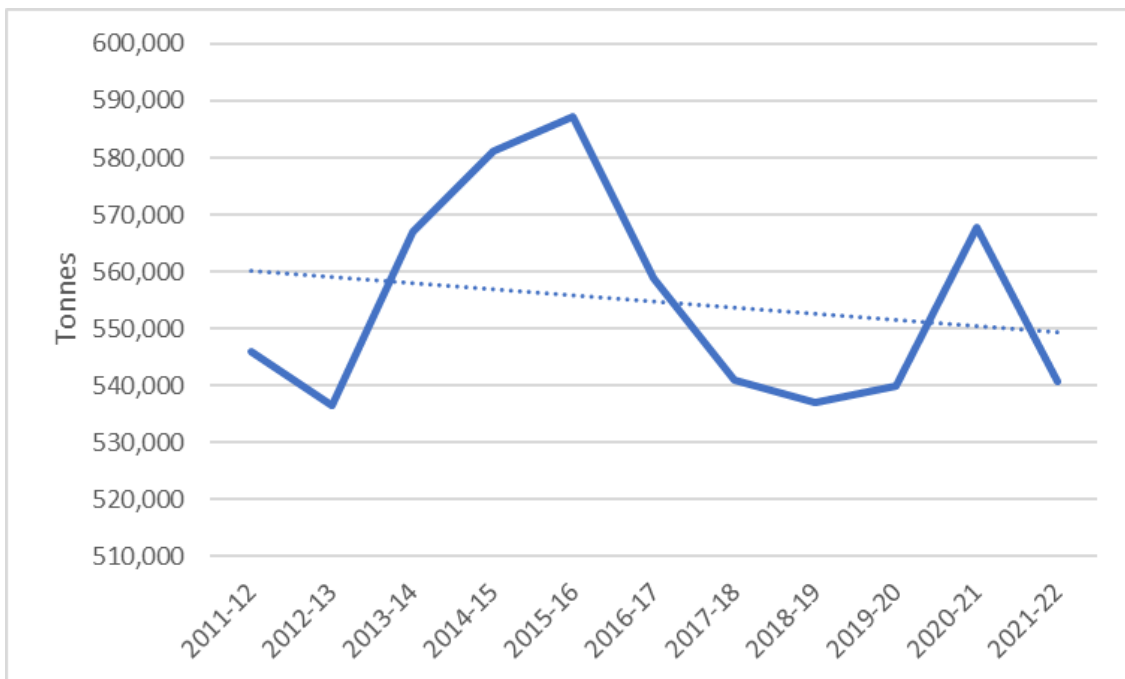


Figure 2: Trend in LACW Arisings in Surrey 2011/12 to 2021/22
 (y axis not set to zero, blue dotted line is trend line)

Table 1: Surrey LACW arisings between 2011/12 and 2021/22 including 5yr growth rates

Year	Total	Annual growth rate	5-year growth rate
2011-12	545,892		
2012-13	536,647	-1.69%	
2013-14	566,910	5.64%	
2014-15	581,128	2.51%	
2015-16	587,299	1.06%	
2016-17	558,908	-4.83%	
2012-17			+0.54%
2017-18	540,955	-3.21%	
2018-19	536,986	-0.73%	
2019-20	539,959	0.55%	
2020-21	567,655	5.13% ³	
2021-22	540,684	-4.75%	
2017-22			-0.60%
	Average annual growth rate over decade	-0.03%	

Historical data for LACW arisings (Figure 2 and Table 1) shows an overall declining trend in arisings from 2011/12 to 2021/22 with an average annual growth rate over the decade of minus 0.03%. However, over the decade LACW arisings have fluctuated significantly, with a period of positive growth at the start of the decade to the peak in 2015/16, followed by a period of decline to a secondary peak in arisings in 2020/21. Given the 2020/21 value coincides with the Covid-19 pandemic lock down it has been excluded as anomalous. Its exclusion produces a revised growth rate of minus 2.04% (as compared with minus 0.60% shown in Table 1 above) over the 4-year period.

As shown in Figure 3 (overleaf), Surrey's total population has increased steadily between 2011/12 and 2021/22 by an average of +0.58% per annum. This is converse to the trend in LACW arisings which has decreased over the decade by an average of minus 0.61% per annum (adjusted). This indicates that there is no apparent correlation between population growth and LACW arisings from 2015/16 to 2018/19. At the very least this suggests that, a growth profile based on the assumption that the relationship between growth in population and growth in LACW is linear would not be robust, given the multiple variables at play.

³ considered to be an anomalous value due to Covid-19 lockdown.

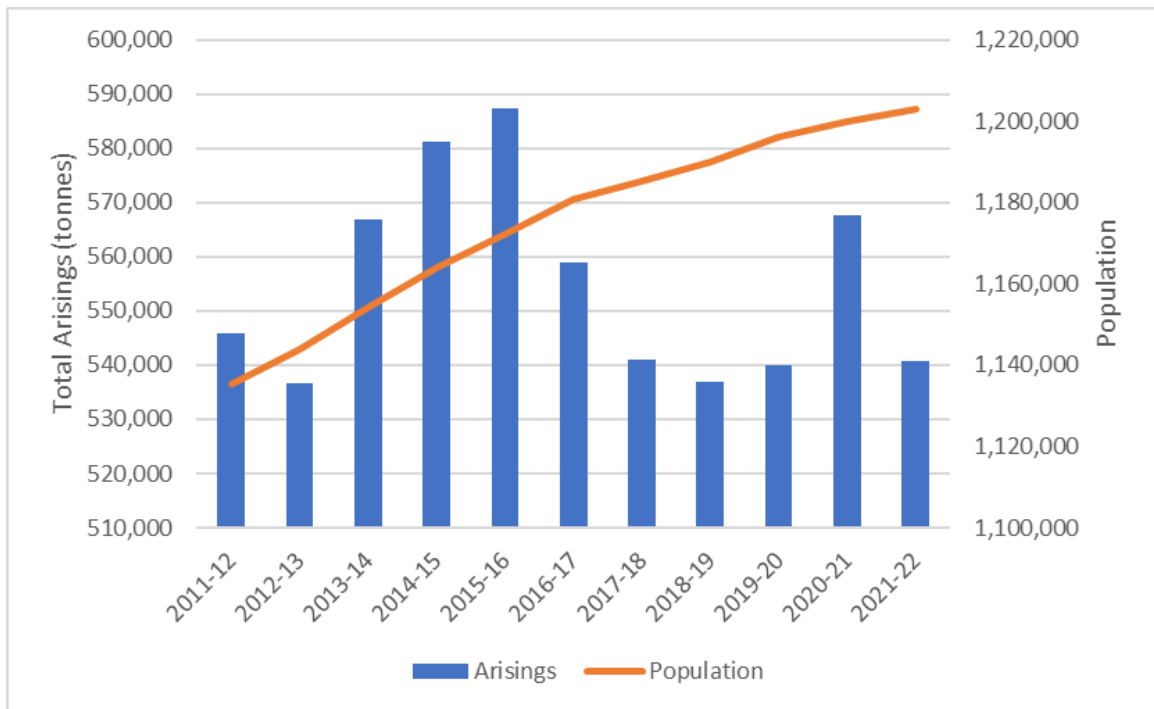


Figure 3: Total LACW arising (bar chart) vs population (orange line) 2011/12 to 2021/12
(y axis not set to zero)

4.4 National forecast of LACW growth in England

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 model⁵ using external variables such as population growth and Regional Gross Disposable Household Income trends (GDHI) to project LACW growth. Three scenarios were constructed (central, lower and upper) but for the purposes of this exercise the central forecast is referred to. The graph resulting from the forecast produced is reproduced as Figure 4 below.

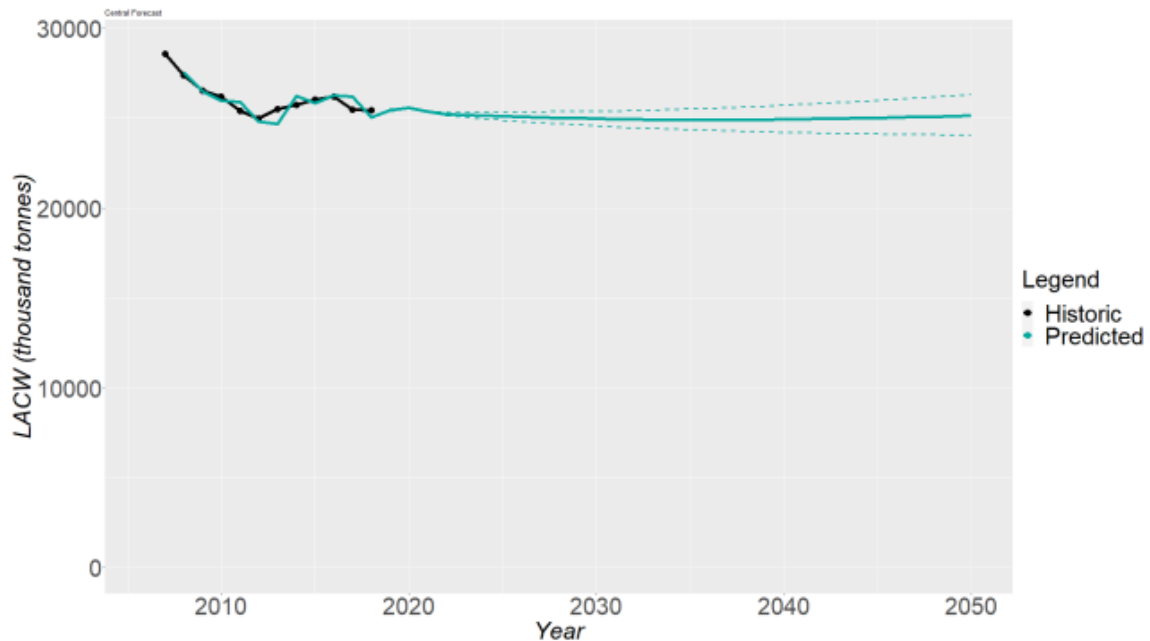


Figure 4: Central Local Authority Collected Waste Arisings Forecast for England (2020-2050)
Source: Reproduced from Future Waste Arisings, for DEFRA (2021)

Figure 4 shows that nationally, LACW arisings were predicted to increase slightly in 2020 and then decrease marginally from 2022 to 2035, with a slight upswing from 2035 to 2050⁶. The growth rate indicated at 5-year intervals from 2020 is shown in Table 2 below.

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

	2020	2025	2030	2035	2040	2045	2050
5-year growth rate	-	-2.12%	-0.18%	-0.54%	+0.37%	+0.18%	+0.54%

The DEFRA 2021 report provides a feel for the direction in which growth in LACW in Surrey may be headed, but it should of course be noted that the report is intended to provide a national picture, and so

⁴ 'Future Waste Arisings' Eunomia, April 2021

⁵ This is different to a standard time-series forecast as it includes lagged dependent variables

⁶ It is noted this appears to be contrary to nPPG advice published in 2016 cited above

presents an average of what is predicted to happen across England. Thus, it masks any regional or local differences, such as varying levels of prosperity and associated consumption. It should be noted that the forecasts presented in the DEFRA 2021 report are being used as the basis for modelling of the achievement of targets related to the policy goals of national Resources & Waste Strategy published in 2018⁷ and the Environment Act, and so represents the forecast of LACW that is driving national policy that can reasonably be expected to impact LACW arising in Surrey locally.

⁷ Our Waste, Our Resources: A Strategy for England, Department for Environment, Food & Rural Affairs, December 2018.

5. Generating a Forecast for LACW

The method set out in the nPPG to generate a Plan area level LACW forecast proposes that a growth profile be based on household growth and waste arisings per household and/or population growth and waste arisings per capita. This can then be modelled with a range of different scenarios e.g. constant rate of growth and progressively lowering growth rates due to factors such as waste minimisation/dematerialisation.

5.1 Building a Growth Profile

Following the guidance in nPPG on a step-by-step basis a growth profile can be established by:

- Step 1 – Establish short-term average annual growth rates per household/population
- Step 2 – Establish long-term average annual growth rates per household/population

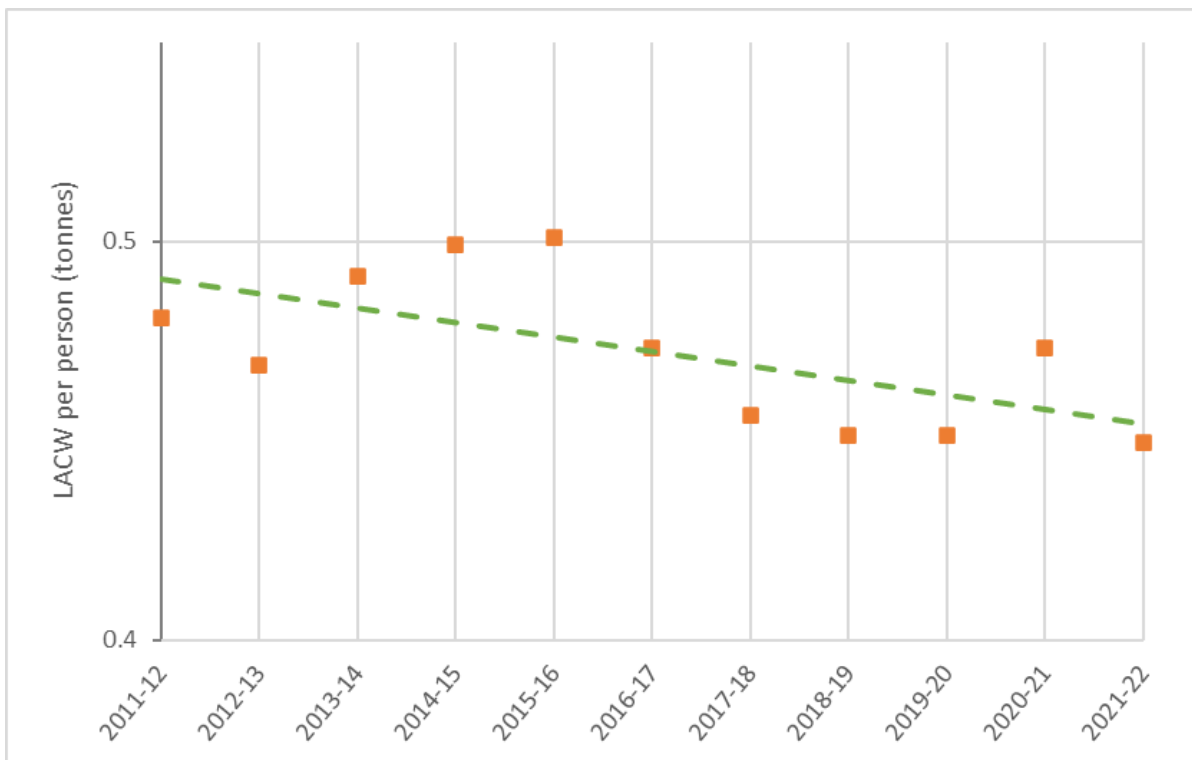


Figure 58: LACW per person in Surrey 2011/12 to 2021/22

Green dashed line is a trendline NB: y axis not at zero.

This is done (as indicated by nPPG) by dividing annual LACW arisings by population or household numbers data. Figure 5 below plots the output of this exercise by population for Surrey.

Figure 5 yields the following:

- the average compound annual growth rate for LACW arisings per person for the period 2011/12 to 2021/22 is minus 0.61% (the long-term growth rate);
- the average compound annual growth rate for LACW arisings per person for the 5-year period 2016/17 to 2021/22 is minus 0.97% (short-term growth rate).

The long- and short-term growth rates in LACW arisings per person arrived at were then applied to the baseline LACW arisings value for 2021/22 to the end of the Plan period. 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 Surrey, as forecast by ONS data⁸.

The outcome is plotted along with the following set of growth factors to create a cone of possibilities:

- DEFRA National Forecast of LACW at 5-year intervals;
- Historical LACW Growth of minus 0.61% per annum (see commentary under Table 1). The predicted arisings applying the above growth rates to the most recent LACW arisings value for 2021/22 i.e. baseline, are plotted in Figure 6 below.

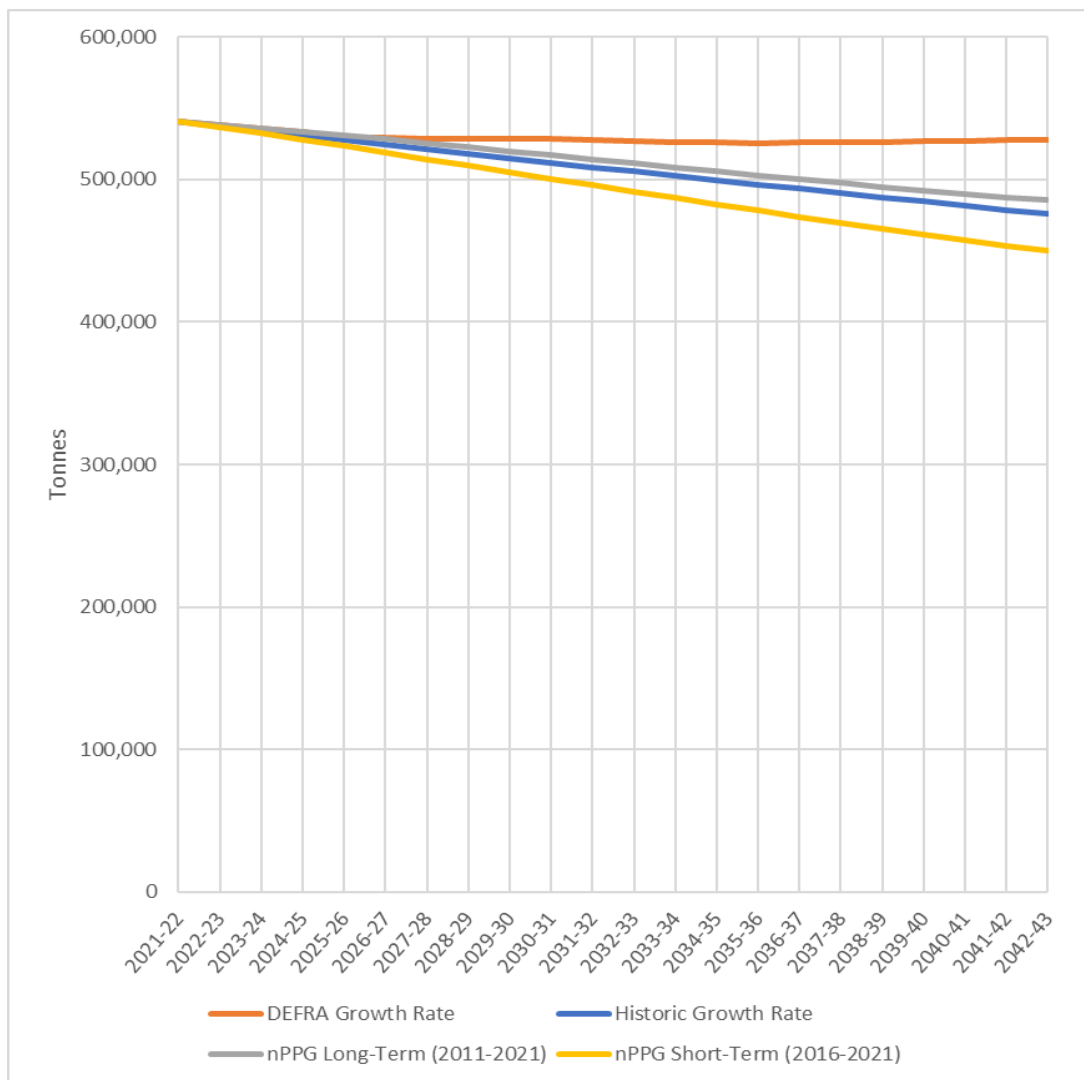


Figure 6: Surrey LACW arisings forecasts (using 2021/22 baseline)

⁸ Population projections 2018 to 2043 (population & household level) (Office for National Statistics.
<https://www.surreyi.gov.uk/dataset/2r1zw/population-projections-2018-to-2043-population-and-household-level>

Three out of the four scenarios are showing a falling LACW arisings trajectory. This includes the short- and long-term forecasts which even though population is forecast to increase in Surrey over the Plan period the forecast fall in waste arisings per person more than counteracts this growth in population. The DEFRA growth forecasts an initial fall in LACW arisings before a slight upswing in the final years of the Plan period. The corresponding values are presented in Table 3.

Table 3: Forecast values for Surrey LACW arisings (Tonnes)

	Historic Growth Rate projection	DEFRA Growth Rate	nPPG Long-Term arisings forecast	nPPG Short-Term arisings forecast
2021/22	540,684	540,684	540,684	540,684
2022/23	537,403	538,391	538,551	536,610
2023/24	534,141	536,099	536,247	532,389
2024/25	530,899	533,806	533,776	528,025
2025/26	527,677	529,221	531,158	523,539
2026/27	524,475	529,031	528,460	519,001
2027/28	521,292	528,840	525,702	514,430
2028/29	518,128	528,650	522,936	509,876
2029/30	514,984	528,459	520,076	505,258
2030/31	511,858	528,269	517,182	500,633
2031/32	508,752	527,698	514,267	496,014
2032/33	505,664	527,128	511,427	491,494
2033/34	502,596	526,557	508,618	487,032
2034/35	499,545	525,987	505,796	482,581
2035/36	496,514	525,416	502,980	478,162
2036/37	493,500	525,805	500,217	473,819
2037/38	490,505	526,194	497,524	469,567

	Historic Growth Rate projection	DEFRA Growth Rate	nPPG Long-Term arisings forecast	nPPG Short-Term arisings forecast
2038/39	487,528	526,583	494,945	465,449
2039/40	484,570	526,971	492,441	461,423
2040/41	481,629	527,360	490,008	457,487
2041/42	478,706	527,550	487,654	453,647
2042/43	475,801	527,740	485,390	449,913

Figure 6 suggests that the most likely zone within which the actual trajectory will fall will be bounded by the DEFRA Growth Rate (orange line) and nPPG short-term growth (yellow line). Taking the average of the projected LACW arisings at 2042 for the DEFRA and nPPG short-term growth rates, would equate to a fall in arisings of 9.59% over the Plan period.

5.2 Relating forecasts to waste per person arisings

In order to gauge how realistic the proposed forecasts might be, the waste per person factors implied by each scenario at 2042 have been calculated and then compared against the actual waste per person factor in 2021 of 450kg per person. This is shown in Table 4 below.

Table 4: Waste per person factors implied by the chosen scenarios at 2042 compared to 2021 actual and the percentage change year on year implied (tonnes)

Forecast	Waste arisings per person factor at 2042 (t/pp)	Difference from actual in 2021 over 21 years (t/pp)	Percentage annual change
Historic	0.39	-0.06	-0.57%
DEFRA	0.43	-0.02	-0.11%
Long-Term Growth⁹	0.396	-0.053	-0.49%
Short-Term Growth	0.37	-0.08	-0.80%
Central value from¹⁰ cone of possibilities	0.399	-0.051	-0.46%

5.3 Findings

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

- The historic data scenario implies a reduction of 60kg per person over the Plan period against a starting arising of 450kg. This equates to a 2.86kg fall per person year on year;
- the national DEFRA central forecast implies a reduction of 20kg per person over the Plan period against a starting arising of 450kg. This equates to a 0.95kg fall per person year on year;
- the long-term growth scenario implies a reduction of 53kg per person over the Plan period against a starting arising of 450kg. This equates to a 2.52kg fall per person per year;
- the short-term growth scenario implies a reduction of 80kg per person over the Plan period against a starting arising of 450kg. This equates to a 3.81kg fall per person year on year;
- the central value from the cone of possibilities forecast implies a reduction of 51kg per person over the Plan period against a starting arising of 450kg. This equates to a 2.43kg fall per person year on year.

The above analysis suggests falls in waste arisings per person year on year could vary between 0.95-3.81kg. The cone of possibilities central forecast predicts a fall in waste per person per year of 2.43kg giving an overall fall of c9.6% of total LACW arisings over the Plan period is considered to be the most realistic scenario¹¹. This yields the preferred scenario (Central Scenario – green) shown in Figure 7.

⁹ Long-Term and Central value from cone of possibilities values rounded to 3 decimal places for clarity as rounding to 2 decimal places means there is no difference between them as both round to -0.05.

¹⁰ As in footnote 9.

¹¹ Note the residual waste long-term target in the Environment Act is that by the end of 2042 the total mass of residual waste per person does not exceed 280kg – a reduction from the 2019 level of 560kg per person, i.e. a residual waste reduction per capita by 50%.

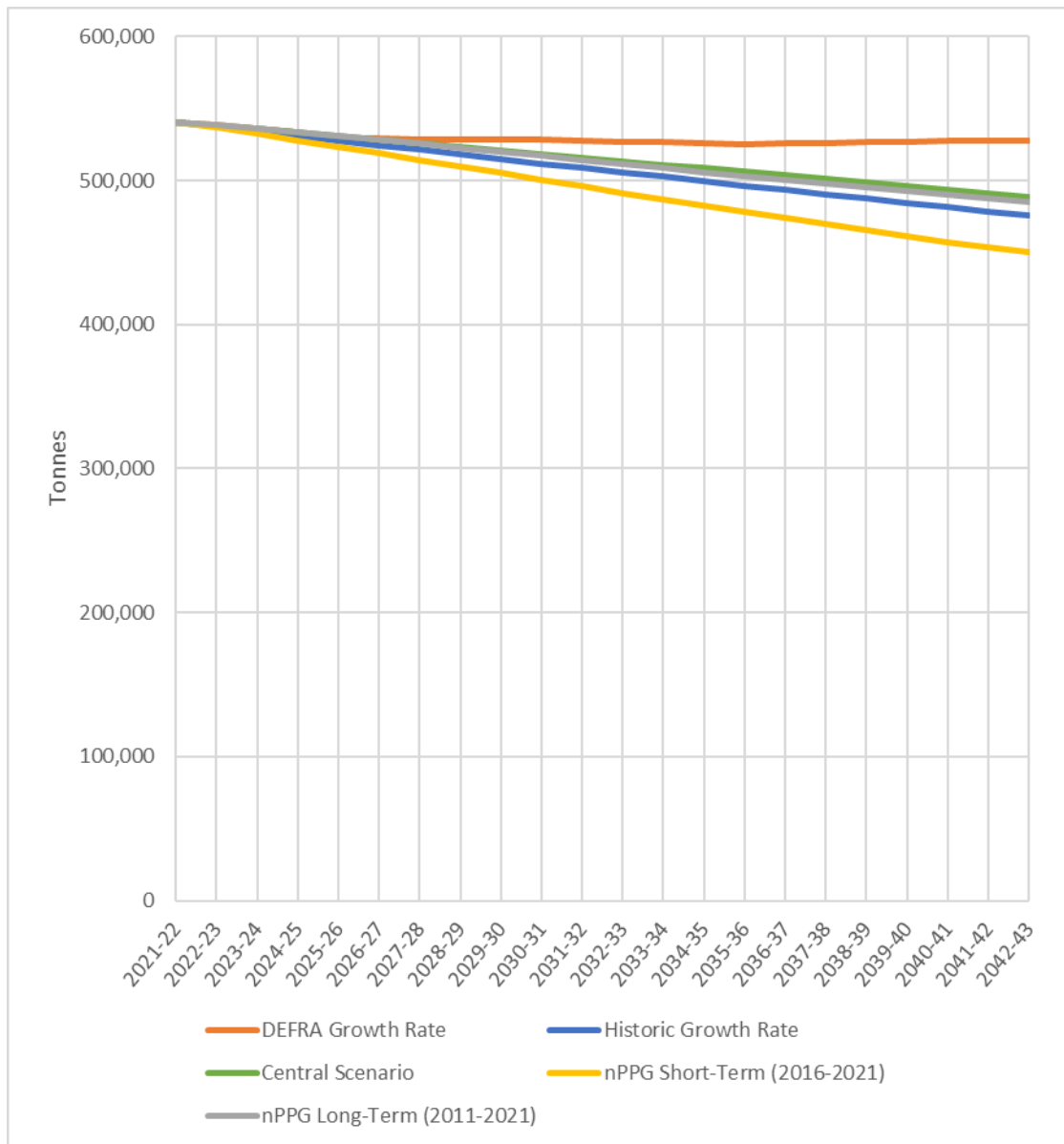


Figure 7: ‘Cone of Possibilities’ for LACW forecast with Central Scenario (tonnes per annum)

5.4 Forecast Conclusion

Using the baseline arising value for 2021/22 and a ‘cone of possibilities’ central waste growth scenario generates a trajectory that tracks a path between the historic growth rate forecast (blue line) and nPPG short-term trends in arisings forecast (yellow line). It is recommended to apply this -0.46% per annum growth rate when considering future LACW capacity needs.

Using this scenario results in projected LACW arisings in 2042 of c489,000 tonnes, a decrease of c52,000 tonnes on the 2021/22 value. This compares with a range of 500,000 tonnes and 566,000 tonnes by 2035 projected in the Surrey WNA 2019. The forecast arisings each year are shown in Table 5 below.

Table 5: Forecast LACW arisings each year using the preferred Central Scenario (tonnes)

	Preferred Central Scenario
2021/22	540,684
2022/23	538,215
2023/24	535,745
2024/25	533,276
2025/26	530,806
2026/27	528,337
2027/28	525,868
2028/29	523,398
2029/30	520,929
2030/31	518,459
2031/32	515,990
2032/33	513,520
2033/34	511,051
2034/35	508,582
2035/36	506,112
2036/37	503,643
2037/38	501,173
2038/39	498,704
2039/40	496,235
2040/41	493,765
2041/42	491,296
2042/43	488,826

6. Surrey LACW Future Management Capacity Needs

Having identified a preferred forecast, the next step is to establish the current LACW management profile and management arrangements for Surrey LACW. This may then be used to establish realistic future management targets which then informs identification of any future capacity requirements to ensure net self-sufficiency is met.

6.1 Existing LACW Management Profile

Given the 2021 LACW management profile was an exceptional year that saw a significant increase in LACW sent to landfill and so as to moderate the potential impact of the Covid-19 pandemic, the average LACW management profile over 3 years (2019, 2020 and 2021) has been used from which forecast management needs are projected.

Table 6 below shows the average management profile from 2019-2021.

Table 6: LACW Management Profile in Surrey (2019-2021)

Source: Surrey CC + DEFRA

Route	Tonnes	%
Total Arisings	535,756	
Recycling/ Composting	294,143	55%
Energy from Waste	196,094	37%
Landfill	45,519	8%

Table 6 shows that over the three-year period 2019-2021 the average percentage of LACW recycled/composted stood at 55%, while the proportion sent to EfW stood at 37% and landfill stood at 8%.

6.2 Management Arrangements for Surrey LACW

Examination of LACW management data reported in the WDF 2021¹² indicates Surrey LACW was managed as shown in Table 7.

¹² Although an average across three years has been taken to arrive at a representative management profile, entries from the WDF 2021 have been used to identify specific destination sites

Table 7: Final Fate Destinations and tonnages for Surrey LACW arisings 2021 (500t+)

	Final Fate Destination Site + operator	In Surrey	Out Surrey	Note
Residual Waste	Kemsley EfW, 4 Evergreen Technologies Ltd		72,751	EfW
Residual Waste	Lakeside EfW, Grundon Waste Management Ltd		2,247	EfW
Residual Waste	Lakeside Clinical Waste Incinerator, Grundon Waste Management Ltd		763	EfW
Residual Waste	Allington Quarry, Kent Enviropower Ltd		42,827	EfW
Residual Waste	Norman Road, Riverside Resource Recovery Ltd		2,997	EfW
Residual Waste	Charlton Lane, SUEZ Surrey Ltd	17,791		EfW
Residual Waste	Green Lane, Veolia E S (UK) Ltd		5,503	EfW
Residual Waste	Newhaven Energy Recovery Facility, Veolia ES South Downs Ltd		643	EfW
Residual Waste	Deptford Recycling Centre, SSSI Ltd		7,029	RDF
Residual Waste	Fort Road Biomass Processing Plant, Stobart Energy Ltd		12,518	Biomass Plant
Residual Waste	Redhill Landfill, Biffa Waste Services Ltd	27,938		Landfill
Residual Waste	East Northants Resource Management Facility, Augean South Ltd		1,047 ¹³	Landfill
Residual Waste	The Midlands Urban Mine, Johnsons Aggregates and Recycling Ltd		1,118	Landfill
Residual Waste	Ockendon Landfill, Veolia ES Landfill		23,309	Landfill
Residual Waste	Rainham Landfill, Veolia ES Landfill		2,826	Landfill
Residual Waste	Springfield Farm Landfill, Veolia ES Landfill		17,006	Landfill
Residual Waste	Frog Island, Shanks Waste Management Ltd		16,137	MBT
Source Segregated Recycling	Griffin Lane, A S M Metal Recycling Ltd		691	Metal Recycling
Source Segregated Recycling	Nevill's Dock, AMG Resources		563	Metal Recycling
Source Segregated Recycling	Unit 4 Trafalgar Park, Biffa Waste Services Ltd		551	Metal Recycling
Source Segregated Recycling	Adversane Lane, Charles Muddle Ltd		2,085	Metal Recycling
Source Segregated Recycling	Greystone Quarry, MDJ Light Bros (Scrap Processors) Ltd		5,503	Metal Recycling

¹³ WDI 2021 reports c1,000 tonnes of hazardous waste which has been deducted.

	Final Fate Destination Site + operator	In Surrey	Out Surrey	Note
Source Segregated Recycling	Monoworld Rushden, Monoworld Recycling Ltd		2,895	Metal Recycling
Source Segregated Recycling	Port of Tilbury, Berrymans		3,866	Glass Recycling
Source Segregated Recycling	Murphy's Wharf, Day Group Ltd		806	Glass Recycling
Source Segregated Recycling	418 Carlton Road, Glass Recycling (U K) Ltd		4,947	Glass Recycling
Source Segregated Recycling	Meriden Quarry Landfill Site Area G, N R S Waste Management Services Ltd		2,043	Glass Recycling
Source Segregated Recycling	Ryder Point Works, Stacey Processing Ltd		1,873	Glass Recycling
Source Segregated Recycling	Shed 46, URM (UK) Ltd		1,913	Glass Recycling
Source Segregated Recycling	49 Lidgate Crescent, URM (UK) Ltd		628	Glass Recycling
Source Segregated Recycling	Plastics Road, Biffa Polymers Ltd		995	Plastic Recycling
Source Segregated Recycling	Seaham Plastics Recycling Facility, Biffa Waste Services Lt		583	Plastic Recycling
Source Segregated Recycling	Pelican Reach, Viridor Plastic Recycling		686	Plastic Recycling
Source Segregated Recycling	Gerrard Place, Viridor Polymer Recycling Ltd		2,179	Plastic Recycling
Source Segregated Recycling	Severn Road Resource Recovery Centre, Viridor Waste Management Ltd		9,453	Plastic Recycling
Source Segregated Recycling	Kemsley Paper Mill, DS Smith Paper		19,537	Paper Recycling
Source Segregated Recycling	Atlas At Aztec 406, Greenstar Environmental Ltd		27,705	Paper Recycling
Source Segregated Recycling	Benedict Wharf, Sita Waste Handling Ltd		2,022	Paper Recycling
Source Segregated Recycling	Mill Street, Smurfit Kappa UK Ltd		2,447	Paper Recycling
Mixed Green Waste	Unit 25, Agriorganics Ltd		1,208	Composting & open windrow
Mixed Green Waste	Trumps Farm. Agrivert West London Ltd		2,584	Composting & open windrow

	Final Fate Destination Site + operator	In Surrey	Out Surrey	Note
Mixed Green Waste	Boathouse Farm, K P S Composting Services Ltd		14,909	Composting & open windrow
Mixed Green Waste	Trumps Farm, Collier Environmental Services Ltd	18,084		Composting & open windrow
Mixed Green Waste	Walnut Tree Farm, Langmead Farms Ltd		6,711	Composting & open windrow
Mixed Green Waste	Southley Farm, Laverstoke Park Produce LLP		14,793	Composting & open windrow
Mixed Green Waste	Tangmere Airfields, Pitts Andrew John		6,459	Composting & open windrow
Mixed Green Waste	Boathouse Farm, K P S Composting Services Ltd		871	Composting & open windrow
Mixed Green and Food Waste	Trumps Farm, Collier Environmental Services Ltd	3,782		IVC & AD
Mixed Green and Food Waste	Twinwoods A D Plant, Biogen (U K) Ltd		1,346	IVC & AD
Mixed Green and Food Waste	Hoddesdon AD Facility, Tamar Renewable Power (Hoddesdon) Ltd		1,371	IVC & AD
Mixed Green and Food Waste	North London AD Facility, Severn Trent Green Power		826	IVC & AD
Mixed Green and Food Waste	Charlton Lane, SUEZ Surrey Ltd	21,572		IVC & AD
Mixed Green and Food Waste	Bygrave Lodge., Biogen (UK) Ltd)		3,926	IVC & AD
Mixed Green and Food Waste	Bedford Road., Biogen (UK) Ltd		2,692	IVC & AD
Dry Mixed Recyclables	Aldridge WTS, Biffa G S Environmental Ltd		1,819	MRF
Dry Mixed Recyclables	Westgate, Greenstar Environmental Ltd		6,639	MRF
Dry Mixed Recyclables	Tanhouse Farm, Grundon Waste Management Ltd		18,254	MRF
Dry Mixed Recyclables	Randalls Road, Grundon Waste Management Ltd	24,572		MRF
Dry Mixed Recyclables	Century Wharf, Viridor Waste Management Ltd		43,177	MRF
Dry Mixed Recyclables	Atlas At Aztec., Greenstar Environmental Ltd		23,081	MRF
WEEE	Unit B Whitewall Road, European Metal Recycling		792	WEEE Processing
WEEE	Sittingbourne WEEE Recycling Facility, Sweep Kuusakoski Ltd		4,918	WEEE Processing
Rubble	Brentford Aggregate Materials Recycling Facility, Day Group Ltd		794	Aggregate Recycling

	Final Fate Destination Site + operator	In Surrey	Out Surrey	Note
Rubble	Shoreham Road, Sweeptech Environmental Services Ltd		32,805 ¹⁴	Aggregate Recycling
Rubble	Hythe End Farm, Fowles Crushed Concrete,		3,228	Aggregate Recycling
Batteries	Crescent Works, H J Enthoven Ltd		532	Battery Recycling

¹⁴ Sweeptech is a treatment facility for road sweepings classed as LACW. A proportion of this tonnage will be waste suitable for the conversion to recycled aggregate.

7. Waste Management Targets

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. LACW is all classed as municipal waste (along with waste of a similar nature from commercial sources) and therefore, the municipal waste targets discussed below relate to LACW. Although the term municipal waste also captures an element of commercial waste.

7.1 Current Targets

The refreshed JMWMS (2015) includes the following municipal waste management targets by 2019/20:

- 70% recycling and recovery
- 0% to landfill

The adopted Surrey Waste Local Plan includes the following management targets for LACW as shown in Table 8.

Table 8: Current LACW targets in Surrey

Source: Table 3 Surrey Waste Local Plan

Milestone Year	2020	2025	2030	2035
Recycling Target	60%	65%	70%	75%
Landfill	2%	1%	1%	1%

The recently adopted EU Circular Economy Plan¹⁵, to which the UK government has confirmed its commitment¹⁶, includes the following 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.

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, i.e. more in alignment with the current WLP targets set out in Table 8. In addition, the Government has stated a desire to eliminate the landfilling of biodegradable municipal waste by 2028.

Considering the above targets, the targets set out in Table 9 below are proposed.

¹⁵ New Circular Economy Action Plan The European Green Deal adopted in March 2020

¹⁶ <https://www.gov.uk/government/publications/circular-economy-package-policy-statement/circular-economy-package-policy-statement>

Table 9: Proposed Targets for LACW Management in Surrey
Italicised entries are actual values

Milestone Year	2021	2026	2031	2036	2042
Recycling/composting (floor)	55%	≥65%	≥70%	≥75%	≥75%
Other Recovery inc EfW	37%	34%	28%	24%	24%
Landfill (ceiling)	8%	≤5%	≤2%	≤1%	≤1%

Applying the proposed targets to the preferred forecast gives the capacity requirements set out in Table 10 below.

Table 10: Future Management Profile for Forecast Surrey LACW Arisings (tonnes)

	Milestone Year				Plan Period Peak/Cumulative Capacity Requirement
	2026	2031	2036	2042	
Recycling/Composting Target (Floor)	343,419	361,193	377,732	366,620	377,732 (peak)
Remainder to Landfill Target (Ceiling)	26,417	10,320	5,036	4,888	277,832 (cumulative)
Other Recovery Remainder	179,635	144,477	120,874	117,318	179,635 (peak)

This results in a cumulative non-inert landfill requirement for residual waste of c278,000 tonnes over the Plan period (to 2042) as shown in Table 11 below.

Table 11: Cumulative Landfill Requirement in Surrey to 2042

	Landfill Requirement pa	Cumulative Landfill Requirement
2023/24	37,878	37,878
2024/25	34,058	71,936
2025/26	30,237	102,173
2026/27	26,417	128,590
2027/28	23,197	151,787
2028/29	19,978	171,765
2029/30	16,759	188,524
2030/31	13,539	202,063
2031/32	10,320	212,383
2032/33	9,263	221,646
2033/34	8,206	229,852
2034/35	7,150	237,002
2035/36	6,093	243,095
2036/37	5,036	248,132
2037/38	5,012	253,143
2038/39	4,987	258,130
2039/40	4,962	263,093
2040/41	4,938	268,030
2041/42	4,913	272,943
2042/43	4,888	277,832

The implications of these requirements are considered further in the Capacity Assessment Overview Report.