

## **Surrey Environment Partnership performance – Q4 2020/21**

### **Introduction**

This report provides a summary of the latest waste management performance for the Surrey Environment Partnership (SEP).

Unless otherwise stated, this report looks at performance in the period up to and including Q4 2020/21 (i.e. up to and including the 3-month period Jan-Mar 2021). Note that where space is restricted, the tables in this report show only performance for the latest 8 quarters.

### **Headline results**

The headline results in Q4 are as follows:

- All the results in this report continue to be heavily influenced by the Covid-19 pandemic, with residents having spent more time at home over the last year. We now have a full year of results which show the long-term impact of the pandemic on waste volumes.
- The amount of dry mixed recycling collected at the kerbside has continued to increase.
- The proportion of this material which is then recycled has increased again this quarter, with overall contamination rates now being at their lowest level since pre-2018/19.
- The amount of food waste collected has also continued to increase. Over 10,000 tonnes have been collected again this quarter, and tonnages were once again at their highest ever level.
- Kerbside garden waste tonnages have also continued to increase this quarter, although tonnages at the CRCs have seen a slight downward trend.
- The amount of residual waste collected has shown a similar increase, both from kerbside collections and at the CRCs.
- The recycling rate increased this quarter, but only very marginally. A number of Districts & Boroughs did see an increase in their recycling rates, although overall this was balanced out by a comparable increase in residual waste, combined with lower recycling at the CRCs.
- The amount of waste going to landfill has fallen again, with greater capacity having been available at energy from waste facilities.
- The amount of material being sent for recycling overseas, outside the EU, has increased again, and this now represents 7% of total waste disposal.
- Close to 40,000 tonnes of material was sent to UK energy from waste plants in the latest quarter, the highest amount since at least the beginning of 2018/19. However, there was an equivalent decrease in the amount of material going to energy from waste plants overseas.
- A 2019/20 baseline for greenhouse gas emissions from waste management has now been established, with around 31,500 tonnes carbon dioxide equivalent attributable to waste operations in the county. Roughly a third of this is from waste collection, mainly collection vehicles, with the remainder being mostly related to waste disposal activities.

## **Tonnages collected**

Tonnages are reported here in terms of the amount of material collected from the kerbside for the four main waste streams; dry mixed recycling (DMR), food waste, garden waste and residual waste. For DMR, the report also shows the amount of this material which is actually recycled, allowing for material which is contaminated (i.e. which cannot be recycled). For garden waste and residual waste only, tonnages of material collected at the Community Recycling Centres (CRCs) are also reported, as these make up a significant proportion of the overall total tonnage.

The trend is presented here in terms of the *Moving Annual Average (MAA)*. The MAA for any given quarter is the rolling average of the most recent four quarters, including that quarter. This therefore removes any seasonality in the data, and enables us to track the trend in performance each quarter on a rolling basis.

Dry mixed recycling – kerbside collections

Table 1 below shows the quarterly tonnages from Q1 2019/20 to Q4 2020/21 for dry-mixed recycling, including the proportions of this which are recycled and not recycled.

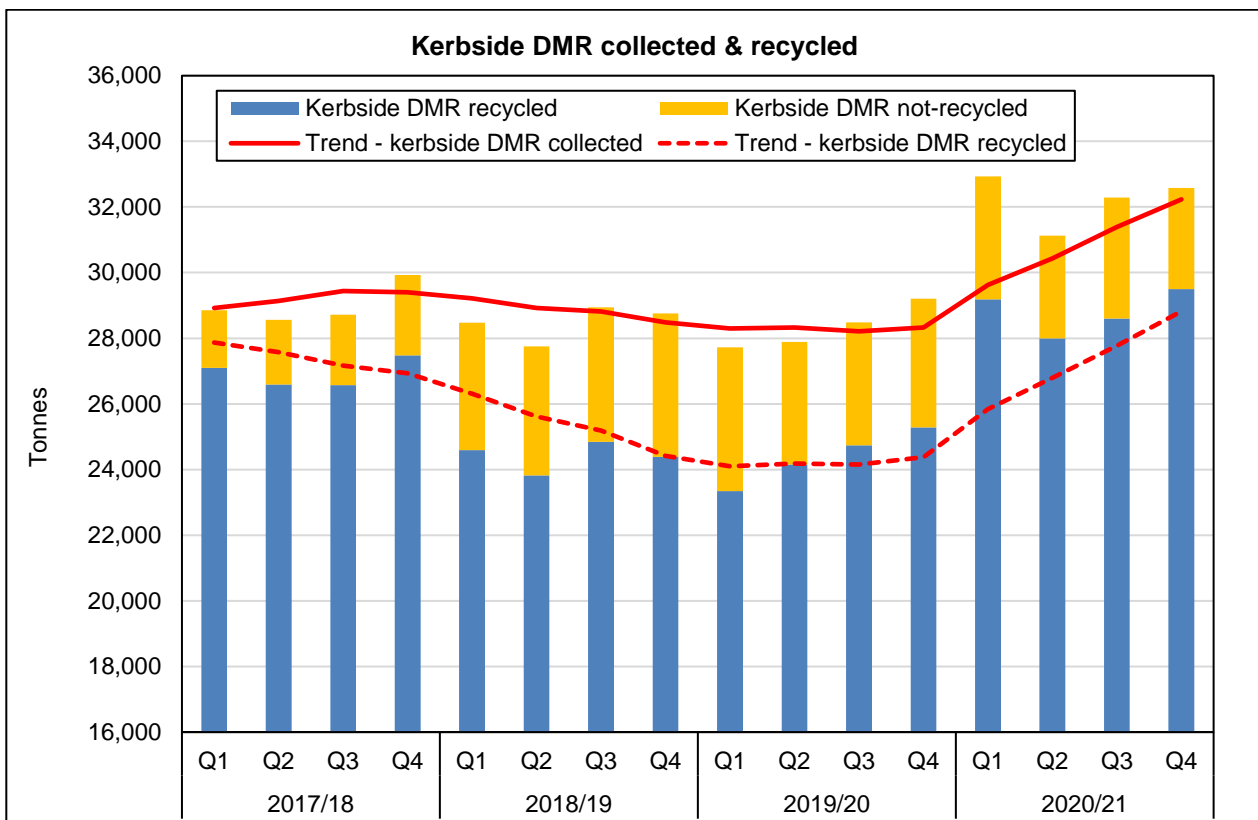
Table 1: DMR tonnages collected and recycled, Q1 2019/20 – Q4 2020/21

	2019/20				2020/21				Trend (MAA)	
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q3	Q4
<b>Dry-mixed recycling – kerbside collections</b>										
DMR collected	27,722	27,884	28,484	29,203	32,934	31,127	32,285	32,577	31,387	32,231
DMR recycled	23,340	24,154	24,736	25,283	29,187	27,991	28,604	29,499	27,766	28,820
% recycled	84.2%	86.6%	86.8%	86.6%	88.6%	89.9%	88.6%	90.6%	88.5%	89.4%
Not-recyclable	4,382	3,729	3,748	3,920	3,747	3,135	3,681	3,078	3,621	3,410
% not-recycled	15.8%	13.4%	13.2%	13.4%	11.4%	10.1%	11.4%	9.4%	11.5%	10.6%

“Trend” is the Moving Annual Average (i.e. the average of the most recent four quarters)

Chart 1 below shows kerbside dry mixed recycling (DMR) tonnages collected and recycled from Q1 2017/18 to Q4 2020/21.

Chart 1: DMR tonnages collected and recycled, Q1 2017/18 – Q4 2020/21



Note: Vertical axis is truncated.

Prior to Q4 2019/20, the long-term trend in DMR tonnages since 2016/17 has been generally downwards, although this trend did level out to some extent during 2019/20. This was in respect of both the amount collected at the kerbside and the amount of this material which is then actually recycled. The proportion of material which is considered to be non-recyclable is called the *contamination rate*.

Throughout 2020/21, the introduction of restrictions related to Covid-19 has meant that many residents have spent more time at home. Consequently, we have seen significant increases in tonnages compared to previous years.

As shown in Table 1 and Chart 1 above, the latest quarterly trend is therefore showing a substantial increase in the DMR tonnage both collected and recycled for the financial year 2020/21. SEP Officers have been monitoring the impact on services of having to manage higher tonnages across all main kerbside collections throughout the year.

All authorities have seen increases in tonnages collected this quarter, with Reigate & Banstead, Elmbridge, and Guildford having seen the largest increases in their trend.

As stated above, the overall contamination rate is defined here as the proportion of DMR that has been collected as DMR but has then not been recycled at a Material Recovery Facility (MRF). This includes both rejected loads (either full or partial loads which are rejected on arrival at the MRF) and MRF contaminants (material which is processed by the MRF but which is considered to be non-recyclable).

The *MRF contamination rate* represents the proportion of DMR material which has passed through the MRF but which has not been recycled. This takes into account material which is considered to be “non-target” but which is recycled nevertheless. “Target” materials are those materials collected by an authority for which the MRF tells the authority that material can be recycled. “Non-target” materials are materials which are not considered to be acceptable by the MRF, but which can still sometimes be recycled, for example, plastic bags or tetrapaks.

Different MRFs will have different criteria for which materials they consider to be “target” or “non-target”. It is also possible that a single MRF will apply different criteria for different authorities, depending on what has been agreed between the MRF and whoever is managing the material. This may be dependent on historical arrangements around which materials can and cannot be accepted from residents for recycling.

It should be noted that materials which are considered to be contaminants at the MRFs change over time, based on the current conditions of the material markets. Although contamination rates were already increasing prior to this time, since the beginning of 2018 more stringent criteria have been in place at the MRFs which have resulted in an increase in the overall contamination rate. This has at least partly been due to the status of the markets for the material, particularly overseas markets, which have dictated that the quality of material which could be accepted has needed to be of a higher grade. There is no evidence to suggest that any of the increase in contamination has been due to a change in resident behaviour, although this is of course possible.

As shown in Table 1 above, the overall contamination rate has decreased this quarter, with a reduction of around one percentage point in the trend between Q3 and Q4. The rate for Q4 alone, of 9.4%, represents the first time this rate has been below 10% since at least the beginning of 2018/19.

MRF contamination rates provide an indication of the contamination rates by MRF and the variation within that between different authorities. We would expect to see a variation in contamination rates by MRF, due to different constraints around the quality of material that is and is not deemed acceptable. For any given MRF however, it is reasonably likely that variations between authorities do represent real differences in the quality of material being collected at the kerbside.

Contamination levels are currently highest in Tandridge and Guildford. Surrey Heath also saw a high level of overall contamination, although this was partly due to a number of loads having been rejected on arrival at the MRF.

Food waste

Table 2 below shows the quarterly tonnages from Q1 2019/20 to Q4 2020/21 for food waste.

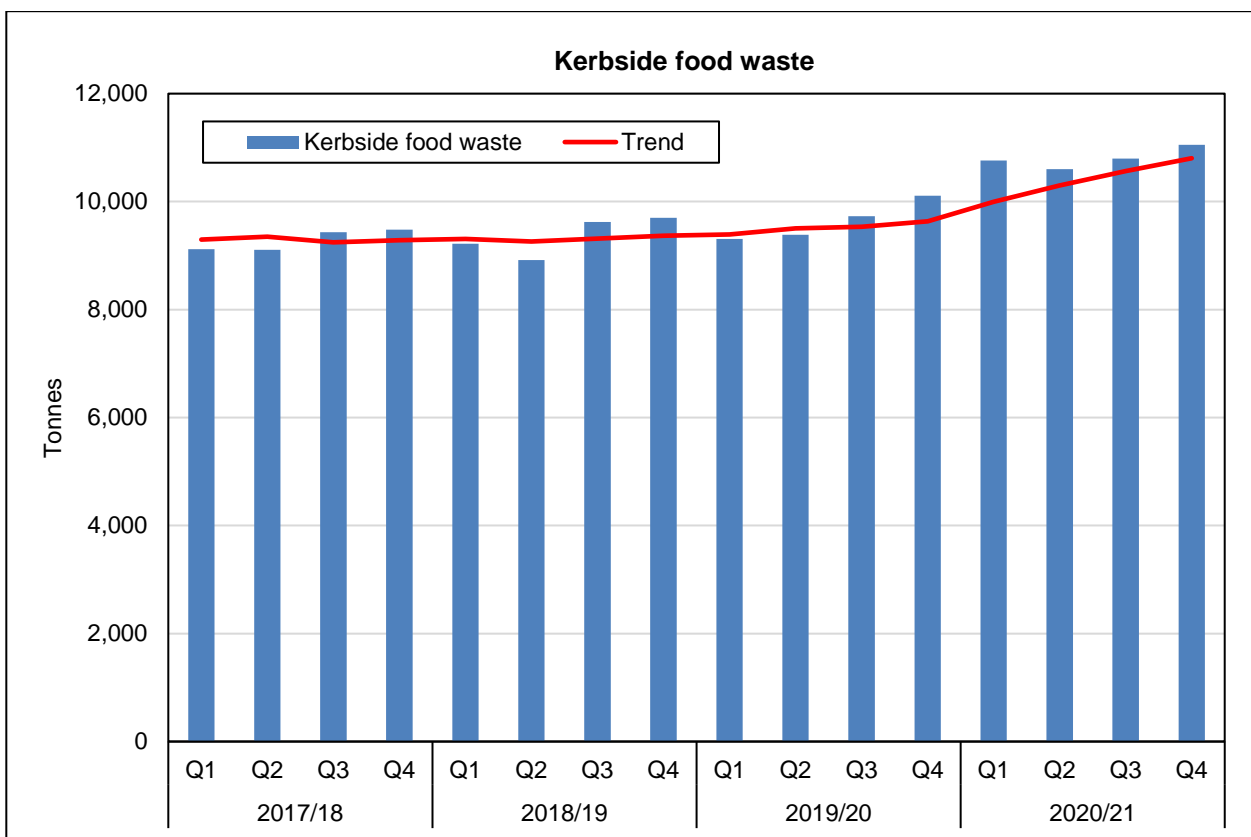
Table 2: Food waste tonnages collected, Q1 2019/20 – Q4 2020/21

	2019/20				2020/21				Trend (MAA)	
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q3	Q4
<b>Food waste</b>										
Total	9,311	9,385	9,727	10,108	10,762	10,600	10,800	11,053	10,567	10,804

“Trend” is the Moving Annual Average (i.e. the average of the most recent four quarters)

Chart 2 below shows total food waste tonnages from Q1 2017/18 to Q4 2020/21.

Chart 2: Food waste tonnages collected, Q1 2017/18 – Q4 2020/21



The long-term trend in food waste recycling, since 2016/17, has been gradually upwards.

For the fifth consecutive quarter, more than 10,000 tonnes of food waste have been collected at the kerbside. As with DMR, the noticeable increase in Q4 will most likely be related to Covid-19 restrictions, with many residents still spending most of their time at home. Tonnages in Q4 have been at their highest ever level, and are likely to have been heavily affected by the third national lockdown, which covered the whole 3-month period from January to March.

All authorities, except for Epsom & Ewell, have seen an increasing trend in their food waste this quarter, with Guildford having seen the largest increase.

## Garden waste

Table 3 below shows the quarterly tonnages from Q1 2019/20 to Q4 2020/21 for garden waste.

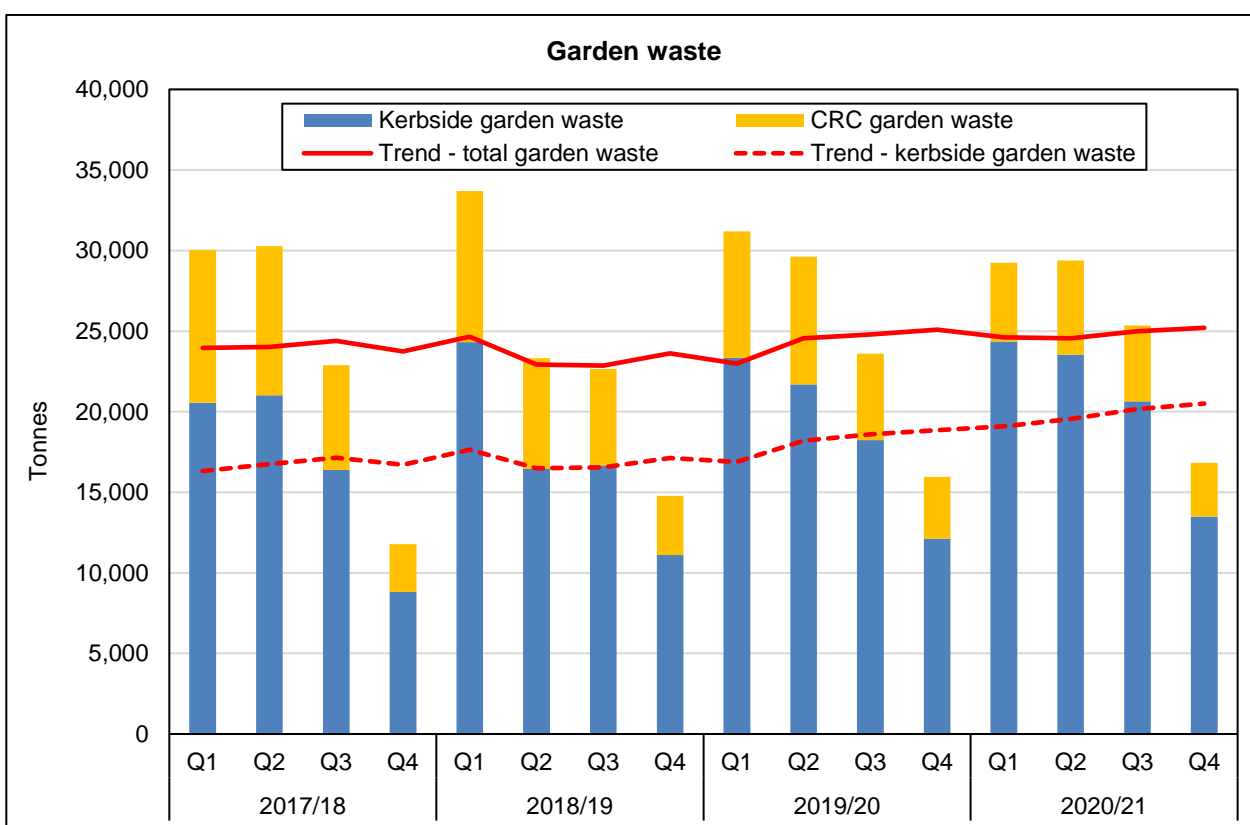
*Table 3: Garden waste tonnages collected, Q1 2019/20 – Q4 2020/21*

	2019/20				2020/21				Trend (MAA)	
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q3	Q4
<b>Garden waste</b>										
Kerbside	23,340	21,694	18,235	12,111	24,349	23,536	20,642	13,485	20,160	20,503
CRC	7,851	7,934	5,361	3,851	4,903	5,849	4,715	3,338	4,830	4,701
Total	31,191	29,628	23,596	15,962	29,252	29,385	25,357	16,823	24,989	25,204

“Trend” is the Moving Annual Average (i.e. the average of the most recent four quarters)

Chart 3 below shows garden waste tonnages collected, from both the kerbside and the CRCs, from Q1 2017/18 to Q4 2020/21.

*Chart 3: Garden waste tonnages collected, Q1 2017/18 – Q4 2020/21*



Although there are always seasonal variations in these tonnages, with tonnages tending to be higher in the spring, the long-term trend in garden waste recycling since 2016/17 has remained reasonably flat. Since the beginning of 2019/20 though, there has been a steady increase in tonnages collected at the kerbside, although this has been balanced out by a decrease in the amount of garden waste recycled at the CRCs. The overall historic trend in total tonnages over this period has only seen a slight increase.

In 2020/21, Covid-19 restrictions meant that many residents spent more time at home. As with other waste streams this has led to higher tonnages being collected. In Q4 we have seen the seasonal downturn in tonnages that is usually observed in this quarter. However, this still

represents the highest fourth-quarter tonnage we have observed for over five years. It is reasonable to assume that this was at least partly due to the third national lockdown which covered the whole 3-month period from January to March, during which time residents will have spent more time at home.

CRCs remained open in Q4, and there has been little impact on those tonnages. The volumes of waste collected at CRCs across the county have remained very stable in 2020/21, with approximately 3,500 tonnes collected across all sites in Q4.

Residual waste

Table 4 below shows the quarterly tonnages from Q1 2019/20 to Q4 2020/21 for residual waste.

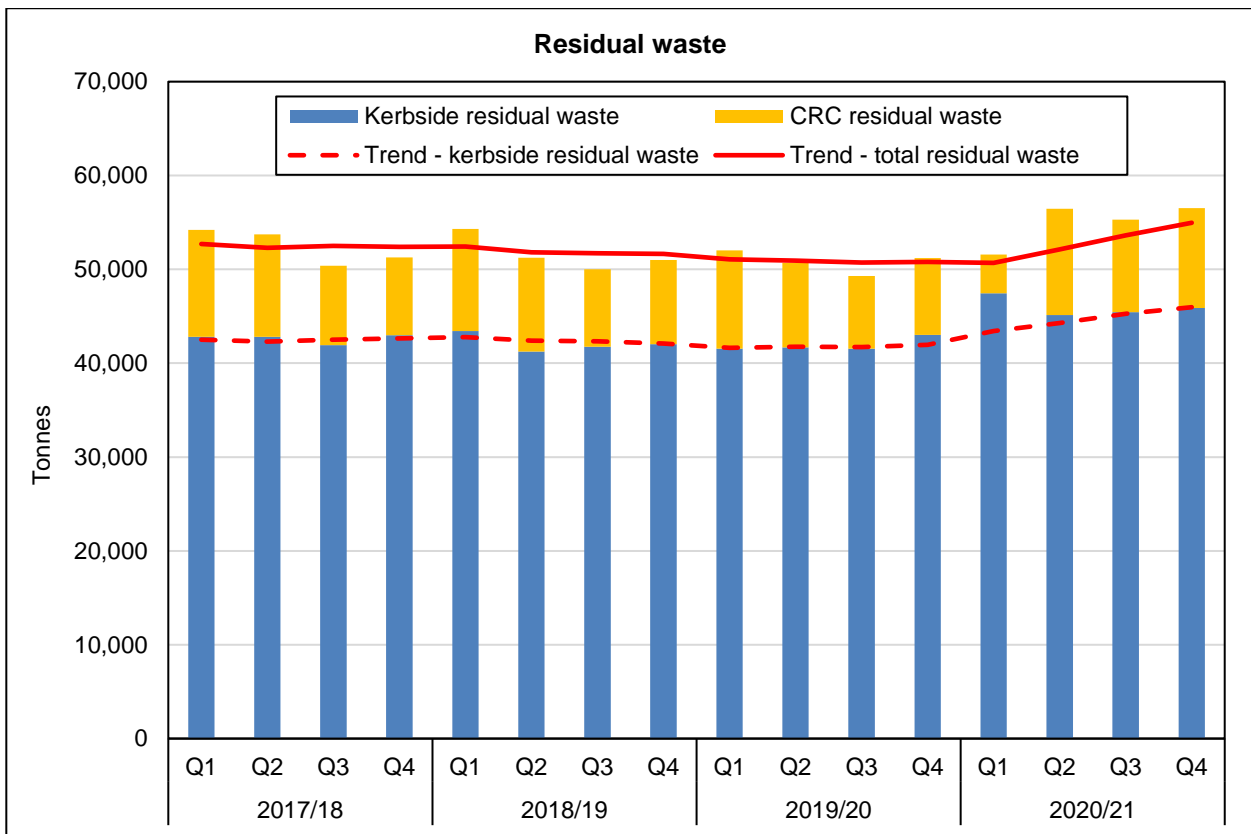
Table 4: Residual waste tonnages collected, Q1 2019/20 – Q4 2020/21

	2019/20				2020/21				Trend (MAA)	
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q3	Q4
<b>Residual waste</b>										
Kerbside	41,538	41,693	41,560	43,011	47,439	45,115	45,441	45,871	45,251	45,966
CRC	10,471	9,002	7,721	8,176	4,151	11,333	9,862	10,650	8,381	8,999
Total	52,009	50,695	49,281	51,187	51,590	56,448	55,303	56,521	53,632	54,965

“Trend” is the Moving Annual Average (i.e. the average of the most recent four quarters)

Chart 4 below shows kerbside residual waste tonnages from Q1 2017/18 to Q4 2020/21.

Chart 4: Residual waste tonnages collected, Q1 2017/18 – Q4 2020/21



The long-term trend in residual waste from 2016/17 to 2019/20 has shown a gradual decrease. Tonnages collected at the kerbside have seen very little change over this period; most of the overall decrease has resulted from a reduction in the amount of residual waste at the CRCs.

As with other waste streams, 2020/21 has seen an increase in the residual waste tonnage collected at the kerbside. The first half of the year saw a noticeably increasing trend, particularly Q1 when many residents were at home. With the temporary closure of the CRCs in Q1 however, those tonnages fell significantly, and as a result the overall trend remained relatively flat in that quarter. Q2 in particular but also Q3 then saw very high tonnages as CRCs reopened, after



restrictions were lifted towards the end of Q1, and the increased amounts of this material may have been due simply to a backlog of this waste being deposited.

Tonnages collected at the kerbside remained high in Q4, although lower than in the first quarter. With the CRCs remaining open during the third national lockdown, we have continued to see high tonnages this quarter, and these have increased again compared with the previous quarter.

Tonnages per household have increased in all authorities, except for Runnymede, with the most noticeable increases in Guildford and Woking.

## Statutory performance metrics

Under the 2015 *Joint Municipal Waste Strategy*, performance was reported against three of Defra’s statutory performance metrics. In order to provide continuity, and also because these particular metrics are likely to continue to be of interest to the wider public, performance against each of these metrics will continue to be included in this report each quarter.

Performance is reported here on a consistent basis across all SEP authorities, meaning that there may be some differences between the figures shown and those taken from any individual authority’s *Waste Data Flow* reports. As with tonnages, data for recent quarters may be subject to retrospective revisions, and should therefore be treated as provisional at this stage. Note that some of the figures which were included in the Q3 report have been updated for this reason. The trend is again presented in terms of the *Moving Annual Average (MAA)*. This is the rolling average of the most recent four quarters including that quarter, thereby removing any underlying seasonality in the data, and enabling us to track the trend in performance each quarter.

### Collected household waste and recycling per person

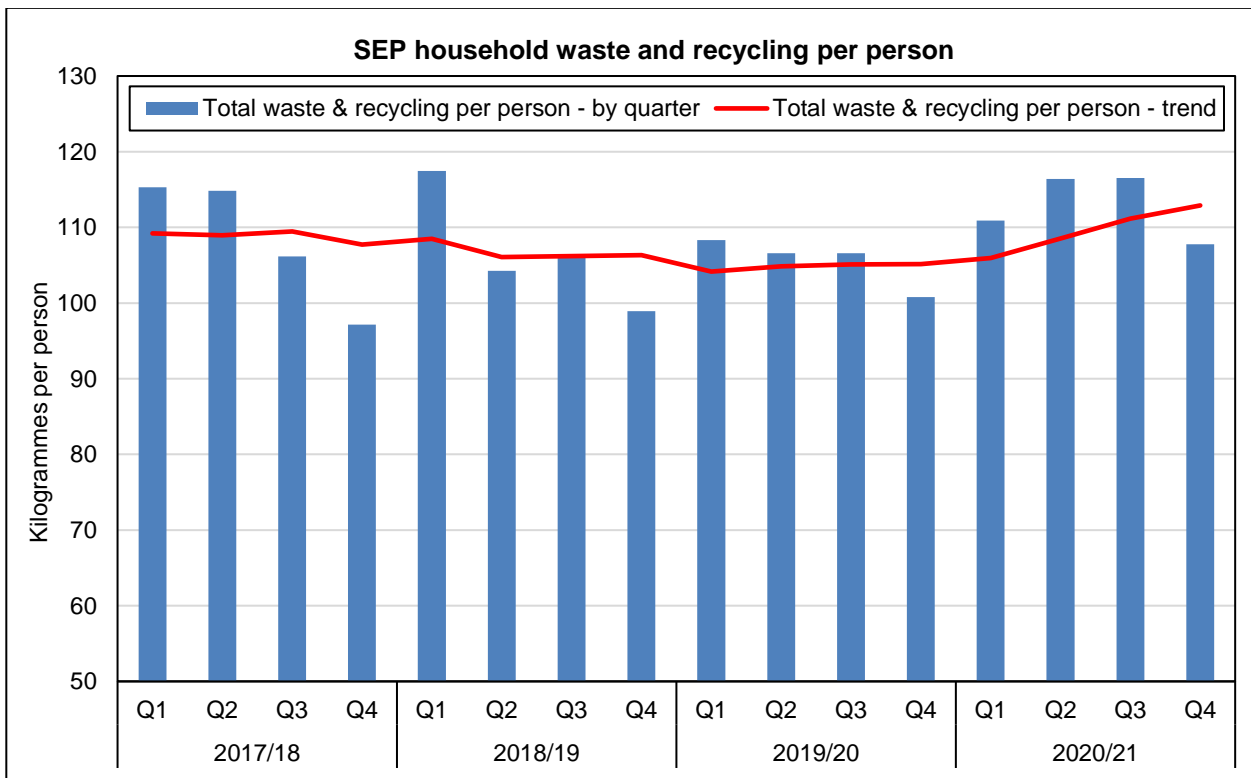
Table 5 below shows household waste and recycling per person from Q1 2019/20 to Q4 2020/21.

*Table 5: Household waste and recycling per person, Q1 2019/20 – Q4 2020/21*

	2019/20				2020/21				Trend (MAA)	
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q3 2020/21	Q4 2020/21
Waste & recycling per person (kg)	108.3	106.6	106.6	100.8	110.9	116.4	116.5	107.8	111.2	112.9

Chart 5 below show household waste and recycling per person from Q1 2017/18 to Q4 2020/21.

*Chart 5: Household waste and recycling per person, Q1 2017/18 – Q4 2020/21*



Note: Vertical axis is truncated.

The long-term trend for this measure indicates that household waste and recycling per person saw very little change throughout 2018/19 and 2019/20. Although the measure showed a decrease in Q4 compared with the first three quarters, this is the usual seasonal pattern, driven by lower garden waste tonnages in the quarter. The increasing trend which has been observed in recent quarters has continued this quarter. For the four quarters to Q4 2020/21, household waste and recycling per person stood at 112.9 kg on average per quarter, up from 111.2 kg per person in the year to Q3.

All Districts and Boroughs have seen an increase in waste and recycling per person since Q3. The figures shown for Surrey County Council represent waste and recycling at CRCs, and this also shows an increase in the year to Q4 since the previous quarter.

Percentage of household waste sent for reuse, recycling or composting (recycling rate)

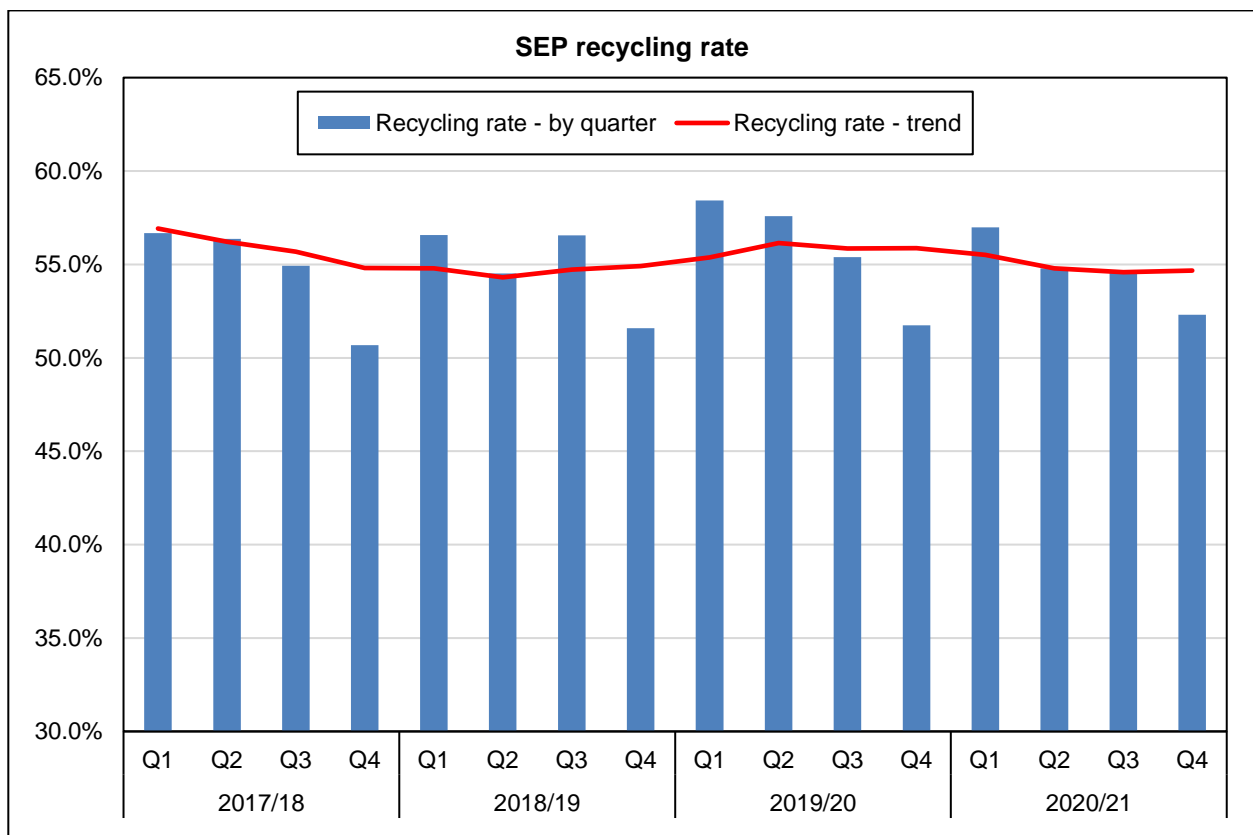
Table 6 below shows the recycling rate from Q1 2019/20 to Q4 2020/21.

Table 6: Recycling rate, Q1 2019/20 – Q4 2020/21

	2019/20				2020/21				Trend (MAA)	
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q3 2020/21	Q4 2020/21
Recycling rate	58.4%	57.6%	55.4%	51.7%	57.0%	54.8%	54.6%	52.3%	54.6%	54.7%

Chart 6 below shows the recycling rate from Q1 2017/18 to Q4 2020/21.

Chart 6: Recycling rate, Q1 2017/18 – Q4 2020/21



Note: Vertical axis is truncated.

The long-term trend for this measure indicates that there was an increase in the overall recycling rate in the first half of 2019/20. However, this trend then flattened out in the second quarter, before decreasing in the first two quarters of 2020/21. In both Q3 and Q4, the rate has remained very stable. The recycling rate for the year to Q4 2020/21 stood at 54.7%, which represents an increase of just 0.1 percentage point from the previous quarter. Although we have seen increased kerbside waste tonnages this year as a result of the Covid-19 pandemic, this has affected both recycling and residual waste. Consequently, there has been only a marginal effect on the overall recycling rate.

The majority of authorities are seeing an increasing trend in their recycling rate, with Runnymede, Mole Valley, Elmbridge and Reigate & Banstead seeing the largest increases. However, Tandridge, Surrey Heath and Waverley all saw a slight decrease in their rates.

Please note that that the overall SEP recycling rate incorporates an estimated tonnage for waste recovered by SCC from the residual waste stream at the disposal stage.

Percentage of municipal waste sent to landfill

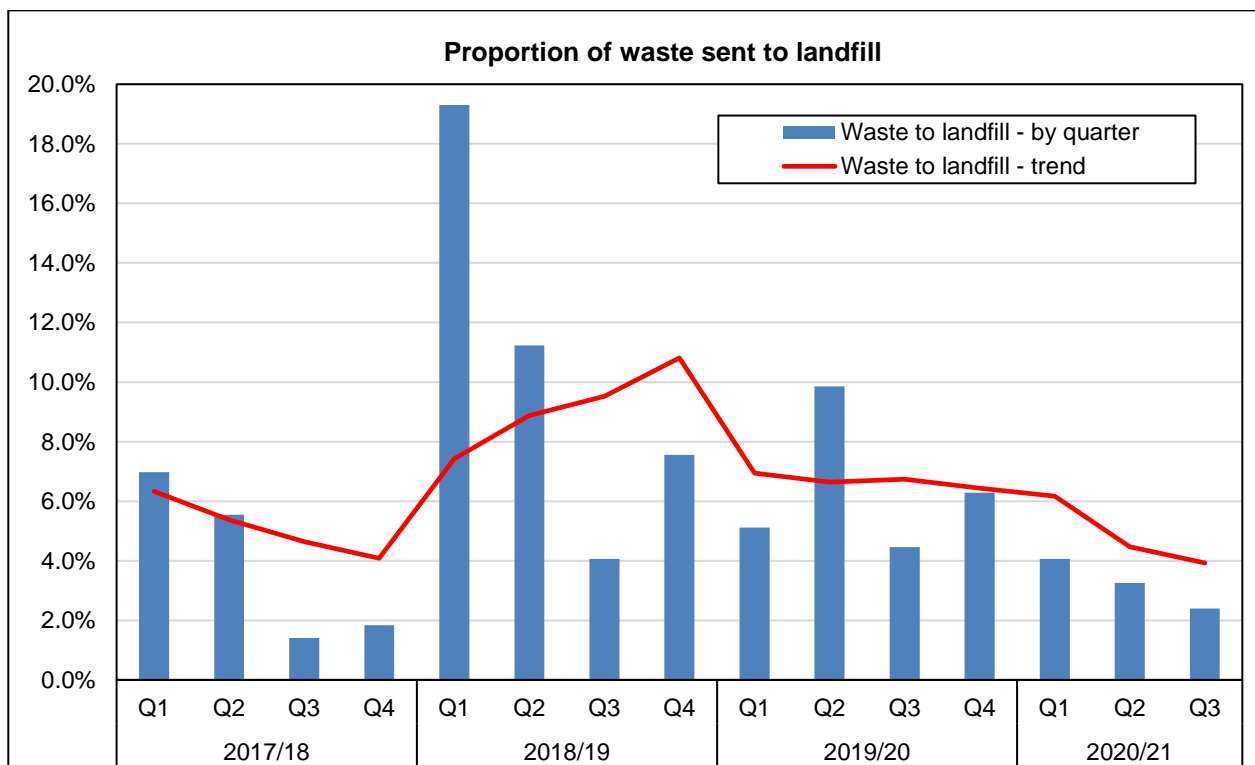
Table 7 below shows the percentage of municipal waste sent to landfill from Q4 2018/19 to Q3 2020/21. Data have been sourced from Defra’s *Waste Data Flow reports*, which do not yet hold data for the latest quarter.

Table 7: Percentage of municipal waste sent to landfill, Q4 2018/19 – Q3 2020/21

	2018/19	2019/20				2020/21			Trend (MAA)	
	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q2 2020/21	Q3 2020/21
Waste to landfill	7.6%	5.1%	9.9%	4.5%	6.3%	4.1%	3.3%	2.4%	4.5%	3.9%

Chart 7 below shows the percentage of municipal waste sent to landfill from Q1 2017/18 to Q3 2020/21.

Chart 7: Percentage of municipal waste sent to landfill, Q1 2017/18 – Q3 2020/21



The long-term trend in this measure has been fairly stable from Q1 2019/20 to Q1 2020/21. This was then followed in both Q2 and Q3 by a decrease in the tonnage of material being sent to landfill. In Q3, 2.4% of municipal waste was sent to landfill. In the year to Q3 2020/21, 3.9% of Surrey's waste was sent to landfill, down 0.5 percentage points from the previous quarter. A lower proportion of waste has been sent to landfill in recent quarters compared with the preceding year, largely due to SCC's waste disposal contractor, SUEZ, being able to source more capacity at energy from waste outlets compared to the previous year.

## Waste disposal

Table 8 and Chart 8 below show the tonnages disposed of via each of the main disposal routes (i.e. recycling, energy from waste, landfill) from Q4 2018/19 to Q3 2020/21. The data are sourced from Defra's *Waste Data Flow* reports. Note that re-use tonnages are not included in these figures.

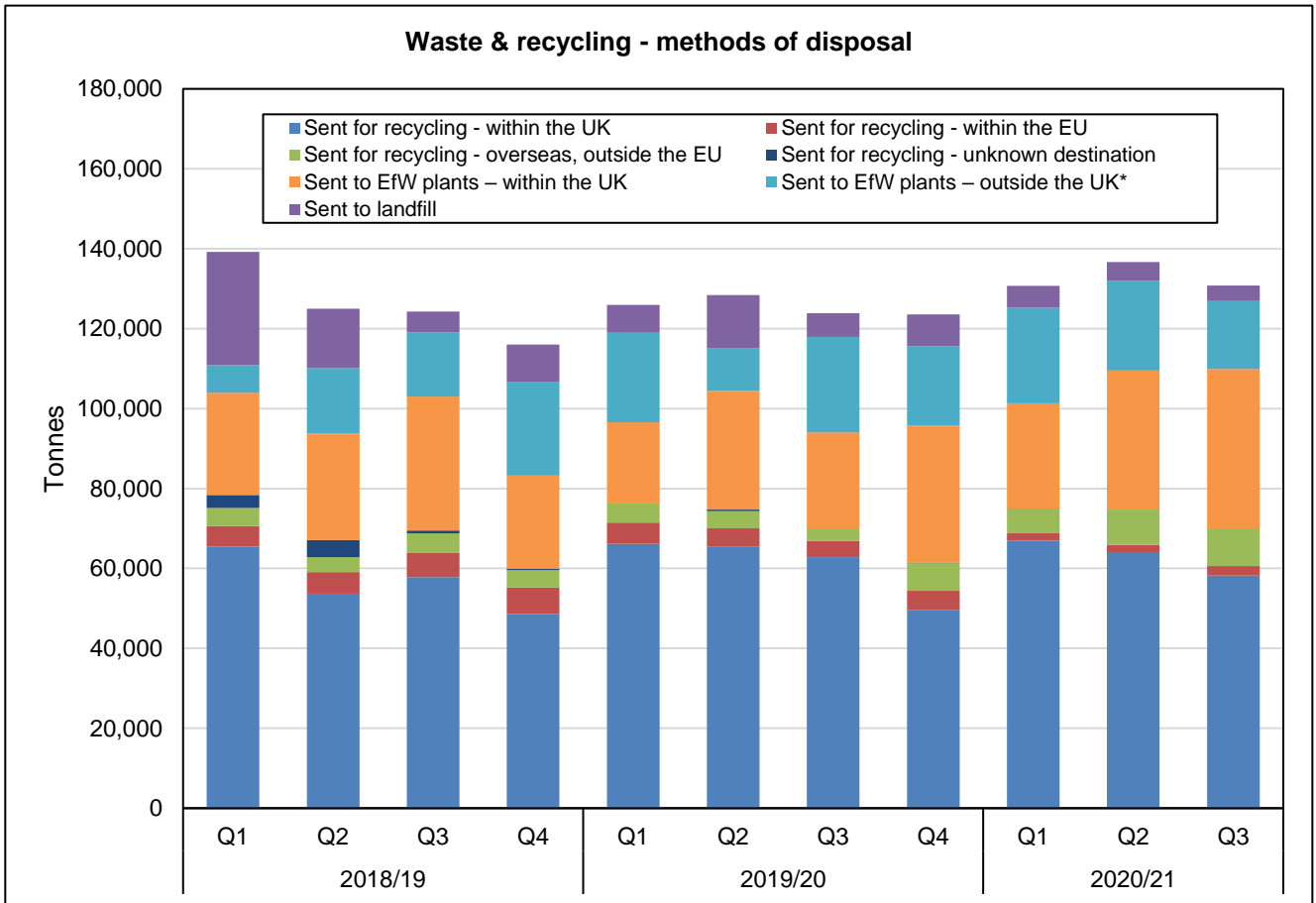
Table 8 also shows the amount of material that is recovered as recycling from residual waste by SCC each quarter. This could be a variety of materials, including DMR material separated from black-bag waste at the reprocessing stage, compost-like material that can be used for landfill cover, or mattresses for example.

*Table 8: Waste & recycling tonnages by method of disposal, Q4 2018/19 – Q3 2020/21*

	2018/19	2019/20				2020/21		
	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
<b>Collection</b>								
Collected as residual – recycled	5,217	6,488	5,379	7,359	4,681	3,697	2,550	6,178
<b>Disposal - tonnages</b>								
Sent for recycling - within the UK	48,609	66,158	65,479	62,834	49,664	66,957	63,860	63,508
Sent for recycling - within the EU	6,598	5,344	4,560	4,054	4,733	1,967	2,035	3,098
Sent for recycling - overseas, outside the EU	4,388	4,724	4,329	2,984	6,921	5,948	8,818	9,473
Sent for recycling - unknown destination	379	120	368	16	85	35	0	0
Sent to EfW plants – within the UK	23,255	20,243	29,696	24,121	34,335	26,393	34,780	39,900
Sent to EfW plants – outside the UK <sup>(1)</sup>	23,510	22,326	10,691	23,947	19,871	23,955	22,508	16,966
Sent to landfill	9,286	7,062	13,270	5,952	7,911	5,483	4,639	3,923
Total disposal	116,025	125,977	128,394	123,907	123,520	130,738	136,640	136,868
<b>Disposal - percentages</b>								
Sent for recycling - within the UK	42%	53%	51%	51%	40%	51%	47%	46%
Sent for recycling - within the EU	6%	4%	4%	3%	4%	2%	1%	2%
Sent for recycling - overseas, outside the EU	4%	4%	3%	2%	6%	5%	6%	7%
Sent for recycling - unknown destination	0%	0%	0%	0%	0%	0%	0%	0%
Sent to EfW plants – within the UK	20%	16%	23%	19%	28%	20%	25%	29%
Sent to EfW plants – outside the UK	20%	18%	8%	19%	16%	18%	16%	12%
Sent to landfill	8%	6%	10%	5%	6%	4%	3%	3%
Total disposal	100%	100%	100%	100%	100%	100%	100%	100%

(1) "Sent to EfW plants – outside the UK" includes some material with unknown destination.

Chart 8: Waste & recycling tonnages by method of disposal, Q1 2018/19 – Q3 2020/21



The use by SCC of different disposal routes - both methods of disposal and destination country - has fluctuated quite noticeably throughout the period since Q1 2018/19. The biggest fluctuations have been seen in the tonnages going to landfill and to EfW, both within the UK and overseas.

Recycling

Most recycling has continued to stay within the UK this quarter, with a smaller percentage being sent to facilities either within the EU or elsewhere overseas, outside the EU. However, in absolute terms the amount of recycling being sent overseas has increased this quarter. Recycling sent within the EU increased by 52% from 2,035 to 3,098 tonnes in Q3; this now represents 2% of total waste disposal. Recycling sent outside the EU has increased again in Q3, by 7% from 8,818 to 9,473 tonnes; this now represents 7% of total waste disposal. The amount of material being processed as recycling at UK facilities decreased slightly this quarter from 63,860 to 63,508 tonnes, and this now represents 46% of the total disposal tonnage, the lowest proportion since 2018/19.

Energy from Waste (EfW) and Landfill

Disposal tonnages sent to EfW plants or landfill have fluctuated significantly since 2018/19. The amount of material being sent to landfill has decreased, although this decrease has been accompanied by an increase in the amount of material being sent to EfW plants.

Tonnages sent to UK EfW plants increased in Q3 and are now higher than since at least the beginning of 2018/19. Around 40,000 tonnes were sent to UK EfW plants; this was 29% of total waste disposal, an increase from 25% in Q2. The amount of material being sent to EfW plants outside the UK decreased in Q3, to around 17,000 tonnes. This represented 12% of all disposal tonnages.

The amount of material sent to landfill is directly linked to EfW capacity. Where it is not possible to source this capacity within the UK, material will be sent either to EfW plants overseas or to landfill. Greater EfW capacity in Q3 meant that only 3,923 tonnes of waste (3% of the disposal total) was sent to landfill, a decrease in absolute terms from the second quarter.



## Greenhouse gas emissions

The methodology used for estimating greenhouse gas emissions from Surrey's waste management operations defines "emissions from waste management" as all greenhouse gas emissions associated with both the collection and disposal of Surrey's household waste. This could be waste and recycling collected either from the kerbside or at the Community Recycling Centres (CRCs). The definition also incorporates emissions arising as a result of all office and site-based activities associated with collection and disposal operations. Importantly, it also includes both emissions that occur within the geographical boundaries of the county and emissions which occur outside the county boundary, for example those associated with waste disposal at other locations. These emissions will not therefore be aligned with the Surrey net-zero target, which only relates to emissions occurring within the county.

The methodology is aligned with the principles underlying company reporting of greenhouse gas emissions, guidance on which is published by the Department for Business, Energy and Industrial Strategy (BEIS). It sets out which emissions sources are deemed to be within scope. The BEIS guidance then provides a set of emissions *conversion factors*, which allow us to estimate the emissions associated with any given source activity.

Table 9 below shows the SEP emissions baseline for 2019/20, broken down by the emissions source.

*Table 9: Greenhouse gas emissions from waste management, 2019/20 (kg CO<sub>2</sub> equivalent)*

<b>Emissions source</b>	<b>Premises energy consumption</b>	<b>Premises water consumption</b>	<b>Vehicle fuel consumption</b>	<b>Waste disposal</b>	<b>Total estimated emissions (kg CO<sub>2</sub>e)</b>
Waste collection	711,806	18,497	10,075,323		10,805,626
Waste disposal	0	13,303	1,761,410	18,864,227	20,638,940
Central office functions	12,340	88			12,429
<b>Total emissions</b>	<b>724,146</b>	<b>31,888</b>	<b>11,836,733</b>	<b>18,864,227</b>	<b>31,456,995</b>

### Waste collection

For waste collection, the underlying activity data has been provided by Districts & Boroughs and their contractors where relevant. Although the methodology used for collating the data was designed to ensure that a consistent approach was applied for all authorities, there is still a noticeable range in reported emissions.

Premises energy consumption primarily covers emissions from energy consumption at depots. For this source, although the emissions estimates are based on the actual meter data which was provided, some of the variance can be explained by the way in which the buildings in question are used by different council services. The methodology assumes that the energy consumption at a particular building which is attributable to waste is based on the proportion of staff working at that location who work in the waste service. For some authorities, waste staff are co-located with staff from other service areas, and the proportion of energy consumption attributable to waste can therefore vary considerably between authorities. Separately, authorities who use gas at their depots also generally have higher emissions than those who only use electricity, given that gas has a higher conversion factor than electricity.

For vehicle fuel consumption, we might expect the variance in the estimates to reflect the size of the area from which waste collections are made. In terms of the geographical area covered, Waverley is the largest authority and Epsom & Ewell the smallest, and the vehicle emissions do

roughly reflect that result. Within those two extremes however, some authorities' emissions do appear to be inconsistent with their size.

A number of authorities have been unable to provide premises water consumption data for inclusion in the baseline. This has particularly been an issue where that data has had to be requested from a waste contractor. The emissions occur in relation to water supply and wastewater handling, and for waste collection authorities we would expect to see a reasonable level of consumption due to the need for vehicle washing. The missing data have been requested, and the baseline will be updated as estimates become available.

### Waste disposal

Waste disposal activities are undertaken by SCC's waste disposal contractor, SUEZ.

For these emissions, the BEIS conversion factors only take into account the collection and transportation of waste and recycling to the disposal destination. The emissions from the process of energy from waste (EfW) or recycling are attributed to the organisation processing the waste, and the benefits of energy recovery and recycling are attributed to the organisation procuring the energy or the recycled materials. The only exception to this is waste that is sent to landfill, where the conversion factors do represent full cradle-to-grave emissions. This therefore means that the BEIS conversion factors do not distinguish between the different disposal methods (e.g. recycling versus EfW), apart from landfill. Separately, they do not take into account the additional emissions from transportation where this is to an overseas facility.

For SUEZ, premises energy consumption will include energy consumption at their offices and also at CRCs and waste transfer stations. As SUEZ procure 100% renewable electricity, these emissions will be zero in the baseline. However, there are emissions resulting from fuel consumption by stationary and mobile machinery at these sites, and for simplicity these have been included in the table under "vehicle fuel consumption".

As stated above, estimated emissions from waste disposal do not take into account the method of disposal, unless that is to landfill. We are currently unable to report more accurate estimates which also include emissions from either reprocessing (where the material is recycled) or incineration (where the material is sent for EfW). The figures included in the baseline in Table 9 are therefore provisional estimates based simply on the tonnages of material in question and the BEIS conversion factors.

Further work is in progress to develop a suitable methodology which will allow us to estimate and then monitor these emissions going forward, so that we can report emissions from both the transportation of material for disposal, including to overseas facilities, and the disposal process itself.

### Central office functions

The 2019/20 baseline also includes a relatively small proportion of emissions from energy and water consumption at premises used by Surrey County Council's Waste Operations team during the year, and similarly for Joint Waste Solutions, who provide support to the Surrey Environment Partnership and manage a joint waste collection contract in Elmbridge, Mole Valley, Surrey Heath and Woking.

The baseline in this report should be considered to be provisional at this stage. It will be retrospectively revised going forwards if either missing data or better data become available for the period in question, or if the emission conversion factors are revised, which we would expect to happen periodically. The waste disposal elements will be revised as our methodology for estimating these emissions improves.

As can be seen from Table 9, the most significant proportion of emissions are attributable to waste disposal as opposed to waste collection. This is due to the fact that waste disposal will generally involve more energy intensive processes than waste collection. Nevertheless, waste collection does also contribute a significant amount to the total, particularly from waste collection vehicles.