Appendix 4 - Data used to support the environmental and climate impacts and the impacts on the current waste collection streams

Concerns raised, Lack of evidence available to Overview and Scrutiny Panel Members regarding full data, assumptions and calculations supporting the financial and environmental claims.

Environmental Claim

When assessing the environmental impacts, a number of factors were identified that would be affected by the proposed change in service. Of the range of environmental factors considered eg: air quality, water quality, biodiversity, noise, land usage, the factor with the most impact in terms of severity, duration and likelihood was identified as air quality.

As previously presented to Overview and Scrutiny on the 6 July 2023

The process used to estimate the potential carbon savings from the introduction of a fully subscription garden collection service was based on the following rational, data and carbon modelling system.

To calculate the savings, we used the Carbon Waste and Resources Metric (Carbon Warm), to estimate a potential reduction in CO2e of 369.16 tonnes through the entire lifecycle of collection and processing.

The Carbon Waste and Resources Metric (Carbon WARM) has been developed by the Waste and Resources Action Programme (WRAP) on request by DEFRA to allow monitoring and evaluation of the impacts of the Resources and Waste Strategy in terms of its Greenhouse Gas emissions impact, measured as carbon dioxide equivalent (CO2e).

Carbon WARM is also suitable for use by local authorities, waste management companies and other organisations looking to understand the Greenhouse Gas impacts of their waste management decisions.

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1123468/Statistics_on_carbon_emmisions_Waste_Households_England_v8_2018.pdf

table 1-Tonnage data used to estimate carbon savings.

	Baseline garden waste yield pre-service changes (3 yrs. average)	Total tonnage captured post service change (including through refuse waste)	Potential garden yield post service change, (excluding through refuse waste) (based on 60-65% capture rate)	Potential garden waste diverted to residual in tonnes	Potential garden waste removed from the waste stream through either behaviour or change of home composting
Tonnage Estimates	21,703	14,866.59	14,106.95	759.64	6836.41
Carbon metric applied	54kg per/ton	54kg/ton	54kg/ton	54kg/ton	54kg/ton
t.co2e values	1171.69	802.79	761.77	41.02	

Potential t.co2e reduction after service changes					369.16

Rational

Table 1 shows the estimated tonnages of garden waste captured through the garden waste stream currently and what the impact on tonnages may look like after implementing the service changes. It also shows the Carbon Warm metric that has been applied to calculate the emissions values through the life cycle of collecting and onward processing using tables from the carbon modelling data set.

The factors shown in this table have been updated to include some revised data and so may not match those in the original Carbon WARM report.

kg.CO_2e / tonne

	Closed loop recycling	Open Loop recycling	Anaerobic digestion	Composting	Energy from Waste	Landfill
Food	0	0	-78	6	-37	627
Garden	0	0	-78	72	-77	579
Food and garden	0	0	-78	54	-70	592
Paper	-129	0	0	0	-214	1,042
Cardboard	-96	0	0	0	-219	1,042
Paper and board	-104	0	0	0	-218	1,042
Steel	-1,062	0	0	0	19	9
Aluminium	-7,469	0	0	0	24	9
Mixed (cans)	-3,368	0	0	0	21	9
Glass	-326	33	0	0	8	9
Textiles	-14,315	0	0	0	438	445
PET	-654	205	0	0	1,579	9
HDPE	-485	205	0	0	2,241	9
Dense plastics	-590	205	0	0	1,691	9
Film	-532	205	0	0	1,475	9
Wood	-477	0	0	0	-268	828
Copper	-6,022	0	0	0	19	9
OTHER Waste & Recycling	-512	33	0	0	229	419

(Extract from Carbon Warm modelling)

It is worth noting that the garden waste collection tonnages are linked to the climate and growing season and are prone to fluctuations from year to year, current baseline tonnages have been calculated using a three-year average of current known tonnage data. Estimated capture rates are based on learning from Local Authorities that have implemented garden collection charges, and also

from a high-level waste collection modelling report conducted by Local Partnerships as part of a wider piece of work that was conducted in 2020, which looked at a variety of waste collections models and disposal routes. It is estimated that approx. 60%-65% of current garden waste tonnage could continue to be captured through the new scheme, with potentially up to 10% entering the residual waste stream, and the remaining material being removed from the waste stream all together through home composting and behaviour change.

To help gauge the validity of the assumptions on capture rates, behaviour change etc., data was also used from a neighbouring authority showing the impact before and after they introduced a garden waste subscription service in 2016, although it should be noted that localised differences may impact estimates.

Data summary of neighbouring authority

- Reduction of 5,261 tonnes of green waste from kerbside collections (capture rate of 56%)
- an increase of 502 tonnes of green waste at HRCs (no available data to directly attribute to charging for garden waste collections)
- an increase of 2,098 tonnes of residual waste from kerbside
- with the remaining 2,661 tonnes of waste disappearing from the system (e.g., home composting, behaviour change etc) (22%)

(Figures provided by Cambridgeshire County Council)

Concerns raised Impacts on the grey bin waste; and impacts on additional use of recycling centres.

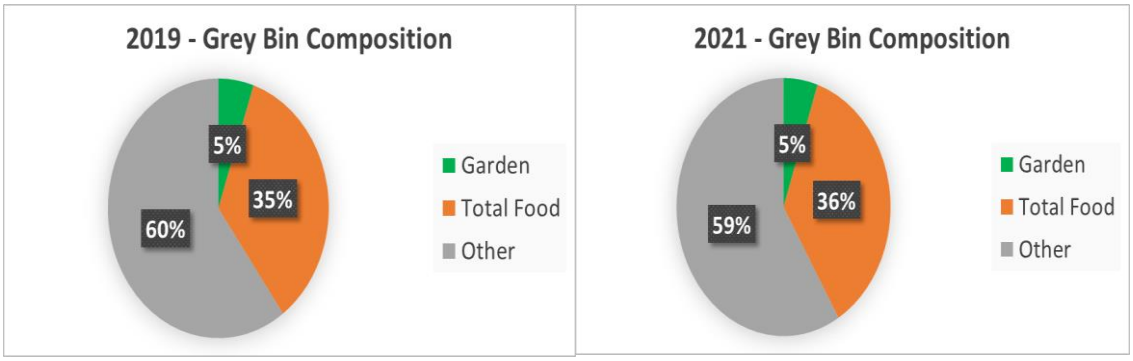
Impacts on grey bin waste.

In 2019, and 2021 (2020 was excluded due to covid lockdown restrictions) the Cambridgeshire Waste Partnership (Recap) commission an independent specialist company to conduct a waste analysis on the composition of the waste materials entering the kerbside collection system. The purpose of this analysis is to help shape the future waste collection services and waste minimisation strategies.

Analysis of the grey bin (refuse)

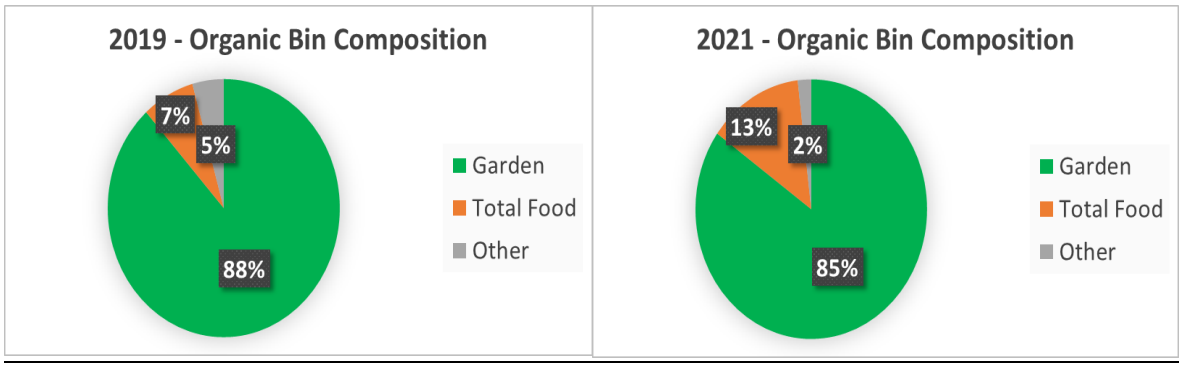
In 2019, around 40% of the grey bin was organic waste that should have been collected through the currently free garden waste collection service, of this, 35% was food waste.

In 2021, around 41% of the grey bin was organic material that should have been collected through the currently free garden waste collection service, of this, 36% was food waste.

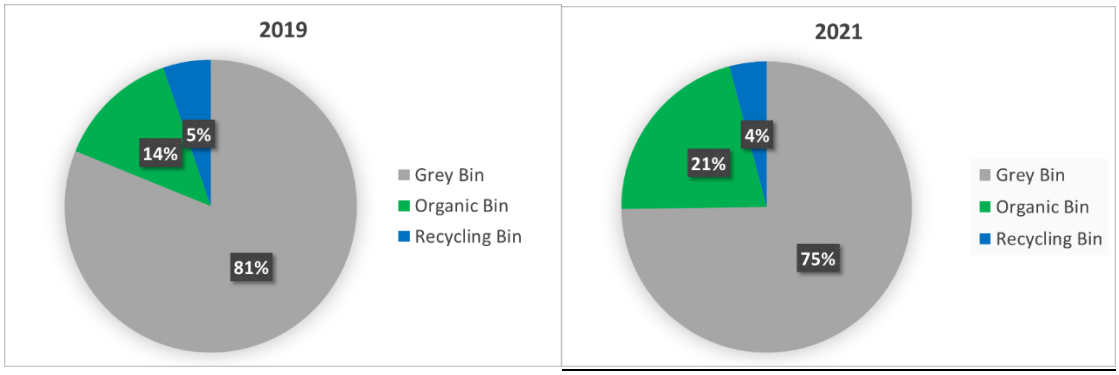


Analysis of the Organic bin (Garden and Food)

In 2019, around 6% of the organic waste bin was food waste, and in 2021, around 13% of the organic waste bin was food waste.



Waste Analysis in 2019 & 2021 showed the total food waste tonnage we collected through all waste streams was captured predominantly through the grey bin and not the organic bin provided to residents.



The data also showed that the food waste being collected, around 70% was deemed avoidable and could/should have been eaten. This is also supported by WRAP, https://wrap.org.uk/taking-action/citizen-behaviour-change/love-food-hate-waste

Currently, 70% of the food that is wasted in the UK is wasted by citizens in their own homes. That's 4.5 million tonnes of food being thrown away every year that could have been eaten.

The data shows the predominant disposal route of food waste is through the grey bin collections and not the free organic waste collection currently operating, which equates to around 41% of the grey bin composition. Interestingly, the waste composition analysis also shows that two neighbouring authorities, both of which charge for garden waste, with one also offering a separate food waste collection, have a grey bin organic composition of 46%, around 5% higher than HDCs. The data suggests that charging for garden waste will not drastically increase food waste or garden waste being diverted into the residual waste stream.

Recycling centre Impacts

There are three Household Recycling Centres in Huntingdonshire, locations are Alconbury, St Neots, and Bluntisham. Concerns have been raised that the service changes will increase costs and operational pressure on Cambridgeshire County Council (CCC) who are responsible for the operation

of these sites. Considerations have been given and the data gathered suggest there is significant capacity in the current infrastructure to accommodate an increases in footfall and additional material as garden tonnages are down by around 4,000 tonnes against 2019 figures, however, it is extremely difficult to predict uplift in footfall at any one specific site, and we will continue to work closely with CCC to monitor the sites within Huntingdonshire.

Table 2. Showing tonnages being collected and processed by all site

HRC Green	19/20	20/21	21/22	22/23
April	909	0	414	523
May	1,051	517	379	610
June	1,161	581	564	597
July	1,165	584	697	485
August	1,263	510	672	518
September	1,061	640	613	614
October	676	456	549	561
November	529	433	391	397
December	306	145	226	153
January	306	243	251	227
February	296	201	273	358
March	657	491	505	365
Total tonnage	9,379	4,801	5,534	5,408

Fly Tipping

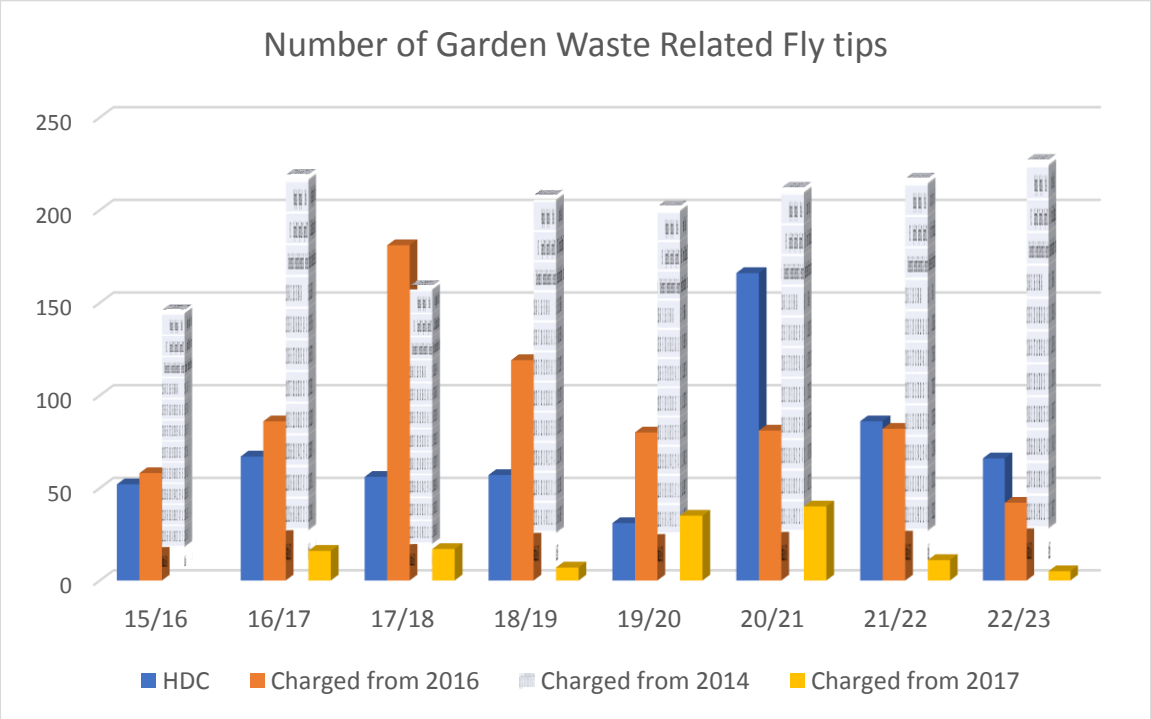
Fly tipping is complex with many contributing factors. We have conducted benchmarking with other councils who charge for the collection of garden waste. This has shown that there is not a significant increase in fly-tipping when charges are introduced.

For the 2021/22 year, local authorities in England dealt with 1.09 million fly-tipping incidents, a decrease of 4% from the 1.14 million reported in 2020/21. The percentage of fly-tips involving household waste has fallen from 65% to 61% in 2021/22

https://www.gov.uk/government/statistics/fly-tipping-in-england/fly-tipping-statistics-for-england-2021-to-2022#:~:text=For%20the%202021%2F22%20year,61%25%20in%202021%2F22

			Neighbouring LA		Neighbouring LA		Other LA	
	HDC		Charged from 2016		Charged from 2014		Charged from 2017	
	Total	Green Incidents	Total	Green Incidents	Total	Green Incidents	Total	Green Incidents
15/16	634	52	1166	58	6984	146		
16/17	692	67	1428	86	8186	219	624	16
17/18	683	56	1775	181	7198	159	461	17
18/19	1072	57	1829	119	7282	208	323	7
19/20	542	31	1522	80	6820	202	567	35
20/21	2350	166	1300	81	9744	212	679	40
21/22	1247	86	1062	82	8981	217	417	11
22/23	1152	66	608	42	9943	227	122	5

WasteDataFlow - DEFRA



WRAP's study around Fly tipping and HWRC's charging suggests that

• Residual waste collection frequency does not have a significant association with increased fly tipping

• The only variables that do have a significant association with fly tipping are:
    - Deprivation – fly tipping rates increase with deprivation levels
    - Urban-Rural Classification – Major Conurbation have higher fly tipping rates than others

The research found no evidence of an association between fly tipping and charging at HWRC's

WRAP - The relationship between fly-tipping rates and HWRC charging – June 2021