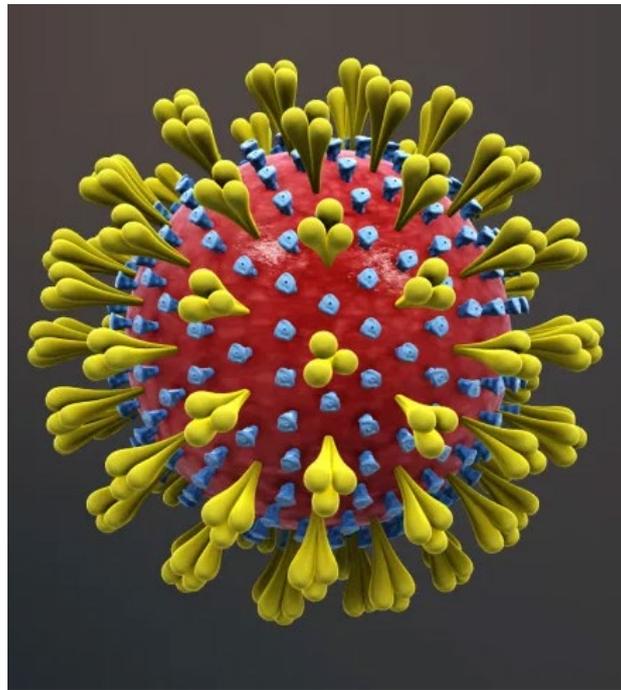


# Briefing: COVID-19 and UK Waste Sector



**EXECUTIVE SUMMARY**

- ◆ This Briefing Report considers the potential impact of COVID-19 on the UK waste sector, with a particular focus on Residual Waste.
- ◆ This is the third version of the report, following the 15<sup>th</sup> April release, and in the five weeks since this last report, whilst the short term impacts are now becoming clearer the potential range of the medium to long term impacts of the recession feel as if they are widening.
- ◆ With respect to the collection of Household Waste, the weekly ADEPT<sup>(1)</sup> survey points to services moving steadily back to normality.

**Collection Services**



Figure E1: Trends in Household Waste Collection Source: ADEPT

- ◆ Similarly Household Waste Recycling Centres (HWRCs) are slowly but steadily re-opening across the country with all but the smallest or otherwise constrained sites expected to re-open (with restrictions) within the next month – effectively pointing to a 3 month period of disruption.
- ◆ Not unsurprising there are signs that the tonnages of Residual Household Waste collected at the kerbside are starting to fall; at their peak the ADEPT survey indicated they were around 24% higher, figures for the last week suggest that they are 18% higher. These tonnages will continue to fall as HWRCs re-open. In time we would expect them to fall back to pre COVID-19 levels or potentially slightly higher if there is a systemic shift to increased working from home.

- ◆ At the peak of the lockdown we estimated that **the fall in Residual C&I Waste to be 46%** - with waste collections from national retail accounts hardest hit – with activity down by as much as 60%.
- ◆ Most of the reduction in Residual Waste tonnages has been felt by UK landfills.
- ◆ Anecdotally there has been a relatively modest recovery in tonnages over the last few weeks. This is as expected as Government restrictions progressively reduce – although there is always the possibility of restrictions being re-introduced if the virus breaks out again. Such scenarios have not been modelled in this Briefing Report.
- ◆ Longer term there is an increasing consensus amongst economists that the impact of COVID-19 on the economy will be greater than initially estimated. The Treasury’s latest monthly assessment of independent forecasts<sup>(2)</sup> shows a decline in the average of 2020 GDP projections from -4.7% in April to -7.9% in May. Whilst all projections show a recovery in 2021, on average the expectation is that the economy will be around 4% to 4.5% smaller by the end of 2021 than would have been the case without COVID-19.
- ◆ Analysis suggests that the impact of COVID-19 on Residual C&I Waste tonnages will be greater than the decline in GDP – as those sectors of the economy (retail, hospitality etc) which generate the most Residual Waste have been hardest hit.
- ◆ Modelling based on PwC GVA projections<sup>(3)</sup> suggests that the impact on Residual Waste tonnages will be 3-4% greater than GDP; so whilst PwC’s “bumpy” exit scenario from COVID-19 points to a 7% decline in GDP by the end of 2021, the corresponding decline in Residual C&I Waste tonnages is estimated to be around 11%.
- ◆ For the UK as a whole, Tolvik expects Residual Waste tonnages to be down by the end of 2021 by between 1.0 and 1.6Mt – a reduction in the total tonnage of Residual Waste of circa 3.5% to 5.8%.

## BACKGROUND

We released our first Briefing Report on 27<sup>th</sup> March on the potential impacts of the COVID-19 pandemic on the UK waste sector just as the UK was entering COVID-19 lockdown.

This was subsequently updated on 15<sup>th</sup> April 2020 to reflect further information available in the market.

This third version reflects subsequent developments in the market. **We now have a reasonable understanding on the short term impacts of the lockdown** and the key issues relating to the rate at which  **tonnages will recover as lockdown measures are eased** and, increasingly significantly, the **longer term impact** of the certain recession on Residual Waste tonnages.

The availability of data means that whilst much of the modelling in this Briefing Report is focussed on England the conclusions have been extended where possible to the UK as a whole.

As previously in our reports, Residual Waste is defined as non-hazardous, solid, combustible mixed waste which remains after recycling activities and is capable of being processed alongside Residual Household Waste.

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Please note, tables may not total due to rounding.

## 1. THE SHORT TERM IMPACT

### 1.1. Baseline Waste Generation

According to the UK Statistics on Waste<sup>(4)</sup>, the tonnage of Household Waste generated in England was 22.0 Million tonnes (“Mt”), whilst the total tonnage of Commercial and Industrial (“C&I”) Waste was estimated to be 37.2Mt. Figure 1 also provides Tolvik’s estimate of the tonnages of Residual Waste in 2018 based on our own analysis from a range of data sources.

England, 2018 Mt	Arisings	Residual Waste
Industrial Waste	10.1	1.8
Commercial Waste	27.1	9.3
Household Waste	23.0	13.0
<b>Total</b>	<b>60.2</b>	<b>24.0</b>

Figure 1: Total Waste Arisings – England – 2018 Source: UK Statistics on Waste, Tolvik

### 1.2. Industrial Waste

As Figure 1 shows, only a relatively small proportion of Industrial Waste is managed and treated alongside Household Waste and Commercial Waste as Residual Waste. As previously, given that recycling of Industrial Waste is at source, it is assumed that recycling activities at industrial sites have not changed as a result of the virus.

SIC Sector, Mt	SIC	% of Residual Waste	2018 Residual Waste	Maximum COVID-19 Impact	Revised Residual Waste
Food & Beverage	C10-C12	30.0%	0.5	90%	0.5
Chemical & Pharmaceutical	C20-C22	29.9%	0.5	50%	0.3
Metal Product Fabrication etc	C24-C25	20.0%	0.4	25%	0.1
Computing, Electronic, Cars	C26-C30	10.0%	0.2	25%	0.0
Paper & Card Products etc	C17-C18	10.0%	0.2	50%	0.1
Other	-	0.1%	0.0	25%	0.0
<b>Total</b>		<b>100.0%</b>	<b>1.8</b>		<b>1.0</b>

Figure 2: Residual Industrial Waste in England Source: UK Statistics on Waste, Tolvik

Figure 2 shows the breakdown in Residual Waste generated by industry by SIC code and the estimated annualised maximum impact of COVID-19 on Residual Waste tonnages (as more fully described in Version 2). This analysis suggests that, at the point when the lockdown was greatest, Residual Waste tonnages from the Industrial sector were down by 46% - consistent with the OBR Report<sup>(5)</sup> estimate of a 45% decline in manufacturing activity.

We have continued to focus on “annualised impact” in order to remove any judgements in this section of the Briefing Report with regards to the longevity of COVID-19 impacts. These are considered in Section 3.

### 1.3. Commercial Waste

Figure 3 shows the breakdown in Residual Commercial Waste generated by SIC code and the estimated impact of COVID-19 on Residual Waste tonnages when lockdown measures were at their

tightest (as more fully described in Version 2). These figures were informed by a variety of sources – including PwC and OBR.

It has been similarly assumed in the analysis that Commercial Waste recycling rates have not changed as a result of COVID-19.

SIC Sector, Mt	% of Residual Waste	2018 Residual Waste	Maximum COVID-19 Impact	Revised Residual Waste
Wholesale/Retail	22.3%	2.1	59%	1.2
Health & Social Care	18.4%	1.7	107%	1.8
Professional/Scientific/Technical	13.1%	1.2	40%	0.5
Education	13.0%	1.2	15%	0.2
Food, Tourism and Hospitality	10.7%	1.0	10%	0.1
Logistics	7.2%	0.7	65%	0.4
Public/Defence	5.7%	0.5	50%	0.3
Admin	2.7%	0.2	50%	0.1
Property	2.5%	0.2	50%	0.1
IT/Communications	1.3%	0.1	50%	0.1
Finance	1.0%	0.1	50%	0.0
Arts	0.7%	0.1	0%	0.0
Other	1.3%	0.1	50%	0.1
<b>Total</b>	<b>100.0%</b>	<b>9.3</b>	<b>53%</b>	<b>4.9</b>

Figure 3: Residual Commercial Waste Source: Tolvik

The net effect, is that the maximum reduction in Residual Waste tonnages from the Commercial sector as a result of COVID-19 is estimated to have been 53% - although there were significant variations between sectors.

#### 1.4. Household Waste

Waste type, Mt	2018 Arisings	2018 Residual Waste	Recycling Rate
Kerbside Collected	18.9	11.3	39%
HWRCs	4.2	1.7	59%
<b>Total</b>	<b>23.0</b>	<b>13.0</b>	<b>44%</b>

Figure 4: Household Waste Arisings Source: Tolvik based on WRAP adjusted

Modelling in Version 2 of the Briefing Report suggested that, as a result of the lockdown, kerbside Household Waste in England could increase by 13.8% to 21.5Mt.

It was further estimated in Version 2 that, as a result of disruption to certain kerbside recyclable collection services, kerbside collected Residual Waste could increase by 29.2% to 14.6Mt.

In practice, because the disruption to local authority recycling services has been less significant than modelled, kerbside Residual Waste tonnage increased by a maximum of 24% and have since fallen (Figure 5) to 18% as recycling services have started to return to near normality.

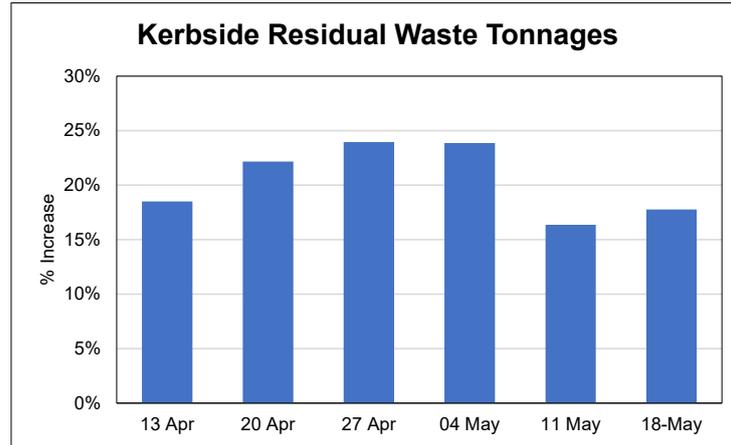


Figure 5: Kerbside collected Residual Waste streams Source: Tolvik based on ADEPT survey

Once kerbside recycling services are back to pre COVID-19 levels in theory kerbside Residual Waste tonnages should increase in line with arisings – i.e. by 13.8%.

However, going forward this will be an over-estimate as the previous estimate of tonnage of Residual Waste collected at the kerbside also included 3.2% rise due to householders presenting waste which would have normally been taken to a HWRC for collection at the kerbside. As HWRCs start to reopen so it is reasonable to assume that these tonnages will reduce and as a result we would expect kerbside Residual Waste tonnages over time will fall further and (in theory) should be no more than 10.6% higher.

As people return to work there will be further declines in the tonnages of kerbside Household Residual Waste as fewer meals are eaten at home etc. This is modelled in Section 3.

### 1.5. Overall Impact – Household, Commercial and Industrial

It is therefore possible to estimate the annualised **maximum impact of COVID-19 on Residual Waste in England**. As can be seen, the actual annualised impact, of a **decline of 17%** to 19.9Mt, was significantly greater than modelled in the “central” scenarios in Versions 1 and 2 of the Briefing Report simply because Household Waste recycling services proved to be far more resilient than expected.

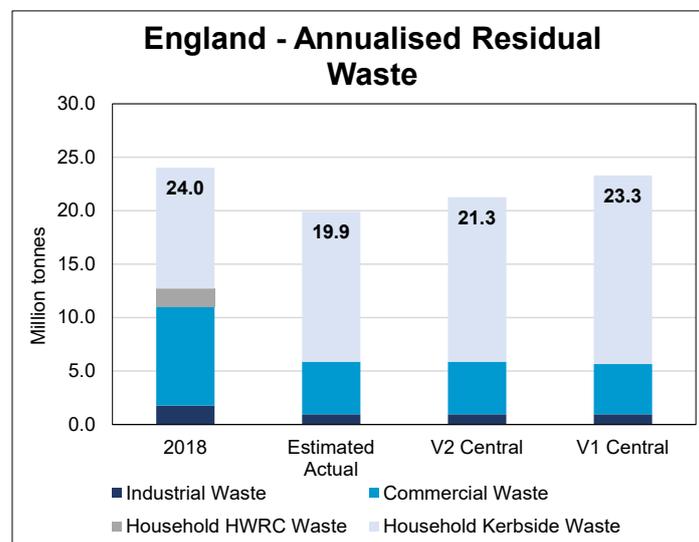


Figure 6: Annualised Impact of COVID-19 on Residual Waste in England Source: Tolvik

England, Mt	2018	Max Impact of COVID-19		
		Estimated Actual	V2 Central	V1 Central
Industrial Waste	1.8	1.0	1.0	1.0
Commercial Waste	9.3	4.9	4.9	4.7
Household Kerbside Waste	11.3	14.0	15.4	17.7
HWRC Waste	1.7	-	-	-
<b>Total Residual Waste</b>	<b>24.0</b>	<b>19.9</b>	<b>21.3</b>	<b>23.3</b>

Figure 7: Annualised Impact of COVID-19 on Residual Waste in England Source: Tolvik

### 1.6. Impact on Residual Waste Flows

This section of the Briefing Report focusses on the UK as a whole.

Figure 8 estimates that at the time of maximum COVID-19 lockdown, landfill inputs of Residual Waste were 33% lower. This is not the same as total inputs, as landfills accept significant tonnages of other waste streams – including both active and inert wastes from construction and demolition activity, which the OBR estimated to be down 70% at the peak of lockdown measures. We understand that, anecdotally, overall tonnages to landfill have been around 50% lower.

Mt	Est 2019 Residual Waste	Max COVID-19 Impact	Comment
UK Residual Waste	27.8	23.2	Assume 17% decline as for England – Figure 7
RDF Export	2.8	1.8	35% reduction as estimated from England data
EfW	12.6	13.0	2019 figure from UK EfW Statistics
MBT	0.4	0.4	Per ADEPT survey – no material change
Co-Incineration	0.4	0.3	Reduced Activity
Landfill	11.6	7.6	Back solved estimate
<b>UK Residual Waste</b>	<b>27.8</b>	<b>23.2</b>	Per above

Figure 8: Annualised Impact of COVID-19 on Residual Waste in UK Source: Tolvik

## 2. LONGER TERM PROJECTIONS

### 2.1. GDP Projections

For some years now, in the absence of forecasts of Gross Value Added forecasts, Tolvik has used GDP Growth for Services as the principle driver for C&I Waste arisings.

Two months into the pandemic, judging just how far GDP (hence C&I Waste arisings) will fall in the long term as a result of the virus remains subject to significant uncertainty – although an increasing number of economic projections for the UK are being developed by a range of institutions.

These projections vary greatly and reflect differing interpretations of the effectiveness and duration of virus containment efforts, the impact of various Government stimulus packages and post COVID-19 behavioural changes by consumers and businesses.

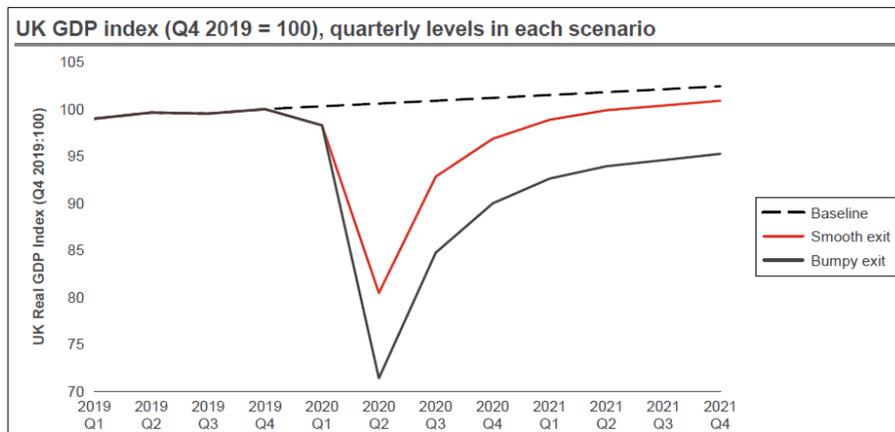


Figure 9: Quarterly GDP Index Source: PwC

Over the course of the lockdown, we have been following analysis by PwC. Their latest analysis suggests that GDP in 2020 could fall by between 7% (in a “smooth” exit scenario) and 13% (in a “bumpy” exit”). They also project that, following a recovery in 2021, by the end of 2021 GDP could be back to around 1.5% to 7% below where the economy may have expected to be pre COVID-19 (the so-called “scarring effect” of COVID-19).

Consistent with other forecasts (Treasury monitoring shows a decline in average independent GDP forecasts for 2020 from -4.7% in April to -7.9% in May), the latest PwC projections represent a downward revision to their previous estimate of a scarring of 1.5% to 4% by the end of 2021.

Overall, on average independent forecasts point to a scarring of around 4% to 4.5% by the end of 2021. Note that forecasts prepared by OBR and the Bank of England continue to effectively assume a full recovery by the end of 2021.

### 2.2. Impact on Residual C&I Waste in the UK

Whilst GDP is a driver for the generation of C&I Waste, the relationship between the two is complex and has never been fully modelled. When GDP is operating within a “normal” range, the year-on-year impact of GDP on C&I Waste tonnages is generally relatively modest.

However, the scale of the swings in Figure 9 and the disproportional impact of COVID-19 on specific sectors of the economy (including some of those which generate the greatest proportion of waste) means that the impact of COVID-19 on C&I Waste tonnages will not necessarily mirror GDP trends.

SIC Sector, Mt	2018 Residual Waste	Smooth Exit		Bumpy Exit	
		2020 GVA Impact	Revised Residual Waste	2020 GVA Impact	Revised Residual Waste
Wholesale/Retail	2.1	85%	1.8	74%	1.5
Health & Social Care	1.7	95%	1.6	92%	1.5
Prof/Scientific/Technical	1.2	93%	1.1	89%	1.0
Education	1.2	87%	1.0	77%	0.8
Food, Tourism and Hospitality	1.0	76%	0.8	57%	0.4
Logistics	0.7	83%	0.6	71%	0.4
Public/Defence	0.5	102%	0.5	103%	0.6
Admin	0.2	91%	0.2	85%	0.2
Property	0.2	94%	0.2	90%	0.2
IT/Communications	0.1	95%	0.1	92%	0.1
Finance	0.1	95%	0.1	92%	0.1
Arts	0.1	85%	0.1	75%	0.0
Other	0.1	89%	0.1	81%	0.1
<b>Total Commercial</b>	<b>9.3</b>	<b>89%</b>	<b>8.2</b>	<b>72%</b>	<b>6.7</b>
<b>Total Industrial</b>	<b>1.8</b>	<b>90%</b>	<b>1.6</b>	<b>83%</b>	<b>1.5</b>
<b>Total C&amp;I Waste</b>	<b>11.1</b>	<b>89%</b>	<b>9.8</b>	<b>74%</b>	<b>8.1</b>

Figure 10: Impact of 2020 GVA on Residual C&I Waste Source: Tolvik analysis of PwC data

As Figure 10 shows, the projected impact of a “smooth” exit in 2020 is modelled to be a decline in Residual C&I Waste of around 11% (i.e. much lower than the corresponding GDP reduction of 7%) and for a “bumpy” exit the fall is estimated to be around 16% (compared with a GDP reduction of 13%) i.e. the effect on Residual C&I Waste is 3-4% greater.

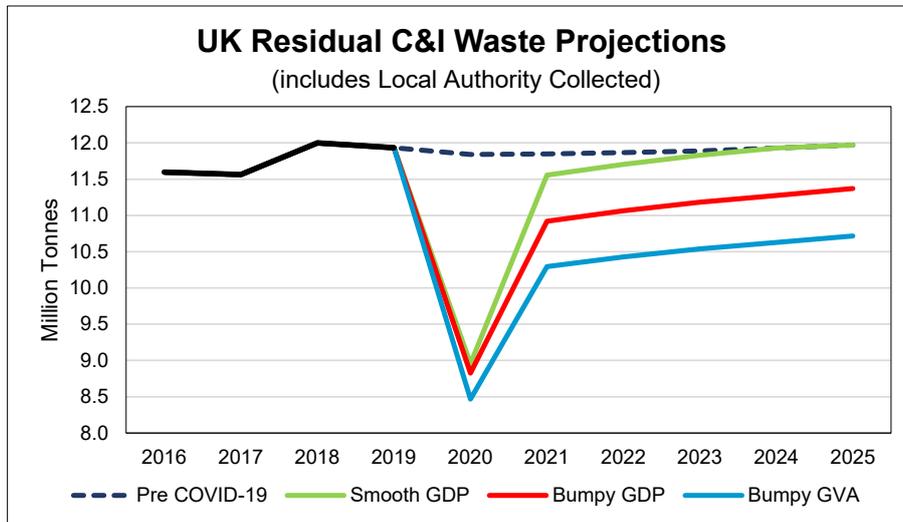
In projecting the potential impact of COVID-19 on longer term Residual C&I Waste tonnages this Briefing Report therefore models three scenarios:

- ◆ **Smooth GDP Exit** - Residual C&I Waste tonnages are 1.5% lower by the end of 2021 than expected pre COVID-19;
- ◆ **Bumpy GDP Exit** - Residual C&I Waste tonnages are 7% lower by the end of 2021 than expected pre COVID-19;
- ◆ **Bumpy GVA Exit** - Residual C&I Waste tonnages reflect projected GVA trends and are 11% lower by the end of 2021 than expected pre COVID-19.

Figure 11 shows the impact these forecasts on the projected tonnages of Residual C&I Waste in the UK (including, unlike previous versions of this Briefing Report, Local Authority collected C&I Waste). For the period post 2021, the GDP projections prepared by the EY Item Club<sup>(6)</sup> have been used to project continued recovery in tonnages.

These forecasts have been compared against Tolvik’s median projection immediately prior to the COVID-19 outbreak.

This modelling assumes that recycling rates will not be affected by COVID-19 and the subsequent recession – although there is the potential that recycling could become more difficult where demand for various material streams is low.



Mt	2019	2021	2023	2025
Tolvik Median Projection (pre COVID-19)	11.93	11.85	11.89	11.97
Smooth GDP		11.56	11.83	11.97
Bumpy GDP		10.92	11.18	11.37
Bumpy GVA		10.29	10.54	10.72

Figure 11: UK Residual C&I Waste Projections

In our view the Smooth GDP scenario is unlikely to reflect trends in Residual C&I Waste tonnages and it is more likely that for 2021 Residual C&I Waste in the UK will be between 7% and 11% (1.0-1.6Mt) lower than expected pre COVID-19.

Ultimately though, the impact on Residual C&I Waste tonnages will be determined by the longevity of the Government restrictions, the rate at which they are unwound and the ability of businesses to remobilise their activities once restrictions have been lifted.

### 2.3. Residual Household Waste

In general it seems reasonable to assume that a recession would impact on Household Waste generation, however there is little evidence to suggest that the 2008 recession had a material impact Household Waste trends.

With increased working from home (some of which is now expected to be a permanent development) and increased internet purchases, the medium term pressure on Household Waste is, if anything, likely to be upward. It therefore seems reasonably prudent to assume that once the lockdowns are eased, irrespective of the recession, Household Waste will return to its pre COVID-19 levels.

### 3. QUARTERLY PROJECTIONS

#### 3.1. Context

This section of the Briefing Report considers the potential impact of COVID-19 on Residual Waste in England on a quarter-by-quarter basis under the three scenarios. In each case it is assumed that, as seems likely, current restrictions or something similar, remain in place for the second quarter of 2020 (“Q2 2020”) and that, consistent with Figure 9, there are ongoing impacts. For simplicity, the analysis excludes the usual modest seasonal variations in Residual Waste and instead focusses on the COVID-19 impacts.

#### 3.2. Residual Waste Projections

Figure 12 shows the projected quarterly tonnage of Residual Waste in England under the three scenarios. This is compared with Version 2.

The revised modelling points to a much steeper, sharper fall in Residual Waste tonnages in Q2 2020 than previously modelled (reflecting the much greater resilience in Household Waste collection services) but a somewhat more rapid recovery as lockdown measures are progressively eased – including the earlier operation of HWRCs. Clearly, re-imposition of lockdown (whether wholly or partially) could push this recovery back.

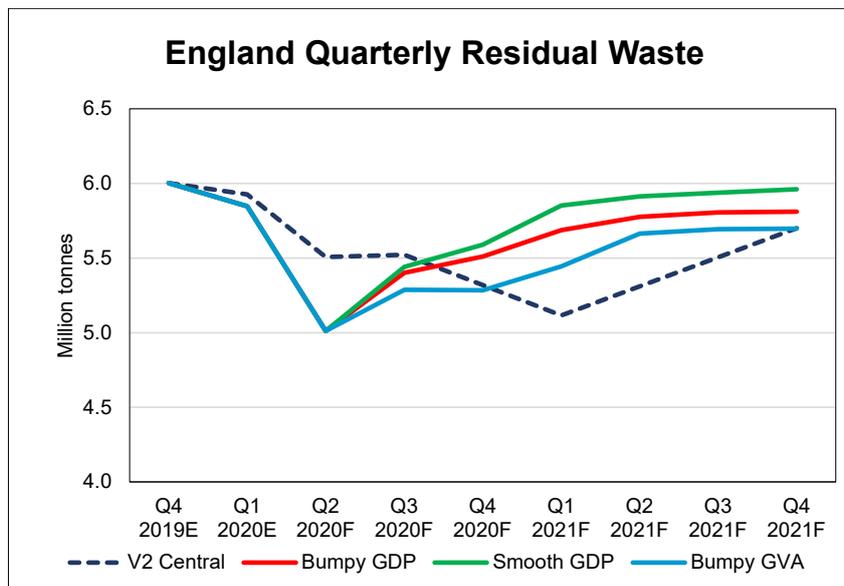


Figure 12: Projected Quarterly Residual Waste Source: Tolvik analysis

Scenario, Mt	Q4 2019E	Q2 2020F	Q4 2020F	Q2 2021F	Q4 2021F
Smooth GDP	6.00	5.01	5.59	5.91	5.96
Bumpy GDP			5.51	5.78	5.81
Bumpy GVA			5.28	5.66	5.70

Figure 13: Projected Quarterly Residual Waste Source: Tolvik analysis

The modelling suggests that in 2021, as a result of the expected post COVID-19 recession, Residual Waste tonnages in England will be between 0.8Mtpa and 1.4Mtpa lower.

## SOURCES

- (1) <https://www.adeptnet.org.uk/groups/waste-group>
- (2) <https://www.gov.uk/government/statistics/forecasts-for-the-uk-economy-may-2020>
- (3) <https://www.pwc.co.uk/services/economics-policy/insights/uk-economic-update-covid-19.html>
- (4) <https://www.gov.uk/government/statistics/uk-waste-data>
- (5) <https://obr.uk/coronavirus-analysis/>
- (6) [https://www.ey.com/en\\_uk/growth/ey-item-club/uk-economy-headed-for-record-contraction](https://www.ey.com/en_uk/growth/ey-item-club/uk-economy-headed-for-record-contraction)

## GLOSSARY

ADEPT	Association of Directors of Environment, Economy, Planning and Transport
C&I Waste	Commercial and Industrial Waste
GDP	Gross Domestic Product
HWRC	Household Waste Recycling Centre
Mt	Million tonnes
OBR	Office for Budget Responsibility
ONS	Office for National Statistics
SIC	Standard Industry Classification



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