



## **Medway Local Plan - Waste Evidence Base**

Medway Waste Needs Assessment 2020 - Report 2  
Management Requirements for Commercial &  
Industrial Waste Generated in Medway

Final Issue v1.2

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## Abbreviations and Glossary of Terms

### Abbreviations

AD	Anaerobic Digestion
C & I	Commercial & Industrial Waste
C, D & E / CDEW	Construction, Demolition & Excavation Waste
DEFRA	Department for Environment, Food and Rural Affairs
EA	Environment Agency
EfW	Energy from Waste
EWC	European Waste Catalogue
GVA	Gross value added
HWRCs	Household Waste Recycling Centres
LACW	Local Authority Collected Waste
MRF	Material Recycling Facility
MRS	Metal Recycling Site
RDF	Refuse Derived Fuel
WDF	WasteDataFlow
WDI	Waste Data Interrogator
WNA	Waste Needs Assessment
WPA	Waste Planning Authority
WTS	Waste Transfer Station

## Glossary of Terms

<b>Agricultural Waste</b>	Waste produced on a 'farm' in the course of 'farming'. Agricultural waste takes both 'natural' (or organic) and 'non- natural' forms e.g. plastics.
<b>Anaerobic Digestion</b>	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. Classed as 'Other Recovery' but counted towards composting.
<b>Biodegradable waste/ biowaste</b>	Waste that can break down over time due to natural biological action/processes, such as food, garden waste and paper.
<b>Commercial Waste</b>	Waste arising from premises which are used wholly or mainly for trade, business, sport, recreation or entertainment, excluding local authority collected and industrial waste.
<b>Construction and Demolition Waste</b>	Controlled waste arising from the construction, repair, maintenance and demolition of buildings and structures.
<b>DEFRA</b>	The UK Government department responsible for developing national waste management policy.
<b>Energy from Waste</b>	The conversion of the calorific value of waste into energy, normally heat and/or electricity, through applying thermal treatment of some sort. May also include the production of gas that can be used to generate energy.
<b>Environment Agency</b>	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 advice.
<b>Exemptions</b>	Certain activities exempt from the need to obtain an environmental permit. Each exemption has specific limits and conditions that must be complied with to remain valid. Exemptions must be registered with the Environment Agency. Each registration lasts 3 years.
<b>Green waste</b>	Biodegradable plant waste from gardens and parks such as grass or flower cuttings and hedge trimmings, from domestic and commercial sources suitable for composting.
<b>Hazardous Waste</b>	Waste requiring special management under the Hazardous Waste Regulations 2005 due to it posing potential risk to public health or the environment (when improperly treated, stored, transported or disposed). This can be due to the quantity, concentration, or its characteristics.
<b>Household Waste</b>	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.
<b>Household Waste Recycling Centres</b>	A facility that is available to the public to deposit waste not collected through kerbside collection (also known as a civic amenity site).
<b>Incineration</b>	The controlled combustion of waste. Energy may also be recovered in the form of heat (see Energy from Waste). Classed as disposal alongside landfill unless plants meet a minimum energy efficiency performance threshold.

<b>Industrial Waste</b>	Waste arising from any factory and from any premises occupied by an industry (excluding mines and quarries).
<b>Landfill (including land raising)</b>	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).
<b>Landfill Directive</b>	European Union requirements restricting the landfilling of biodegradable municipal waste and requiring pre treatment of all waste destined to be landfilled and separate disposal of hazardous, and non hazardous and inert wastes.
<b>Leachate (associated with landfill)</b>	Effluent arising from the breaking down of degradable waste in landfill when liquid (normally rainwater) is introduced. Normally carries pollutants from decomposing waste requiring special collection and treatment.
<b>Materials Recycling Facility (MRF)</b>	A facility for sorting recyclable materials from the incoming waste stream.
<b>Mining Waste</b>	Waste from extractive operations (i.e. waste from extraction and processing of mineral resources) including materials that must be removed to gain access to mineral resources, such as topsoil, overburden and waste rock, as well as tailings remaining after minerals have been largely extracted from the ore. Management subject to control through the EU Directive 2006/21/EC.
<b>Non Hazardous Landfill</b>	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.
<b>Recovery</b>	Subjecting waste to processes that recover value including recycling, composting or thermal treatment to recover energy.
<b>Recycling</b>	The separation and aggregation of materials extracted from the waste stream for reprocessing either into the same product or a different one.
<b>Refuse Derived Fuel</b>	A fuel produced to a contract specification by processing the combustible fraction of waste.
<b>Residual Waste</b>	Waste remaining after materials for re-use, recycling and composting/organic waste treatment e.g. anaerobic digestion have been removed.
<b>The Plan Area</b>	The area subject to the Local Plan to which this study relates; in this case Medway.
<b>Waste Local Plan</b>	A statutory development plan prepared (or saved) by the waste planning authority setting out policies in relation to the management of waste arising within the area and provision of development to manage waste arising within that area.
<b>Waste Planning Authority (WPA)</b>	The local authority responsible for waste development planning and control; in this case Medway Council.
<b>Waste Transfer Station</b>	A site to which waste is delivered for bulking prior to transfer to another place for further processing or disposal.

## 1 Introduction

1.1. The Medway Waste Needs Assessment 2020 consists of an overall main report and five waste stream specific supporting reports which review the projected management requirements, namely:

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

1.2. This report is concerned with estimating future management requirements for Commercial and Industrial (C&I) Waste in Medway to 2030. *The State of Medway (Waste) Report 2009* reports C&I waste as arising from "the varied and complex commercial and industrial activity of an area." but provides no precise definition. Given the lack of a precise definition the following working definition has been adopted for the purpose of this report and the Medway Waste Needs Assessment 2020 which is considered to encompass the range of waste covered by the national Reconcile methodology applied by Defra<sup>1</sup>:

- Commercial waste is "Waste arising from premises which are used wholly or mainly for trade, business, sport, recreation or entertainment, excluding local authority collected and industrial waste."
- Industrial waste is "Waste arising from any factory and from any premises occupied by an industry (excluding mines and quarries)."

The hazardous component of each waste stream is accounted for in the separate report on hazardous waste and so has been excluded from consideration. Waste arising from construction, demolition or excavation activity is also accounted for separately due to its unique characteristics and management requirements.

1.3. The national Planning Practice Guidance chapter on waste states that: "Planned provision of new capacity and its spatial distribution should be based on robust analysis of best available data." (emphasis added) (Para 035). Therefore, this exercise involves a robust analysis of the "best available data" relating to C&I waste production and management.

1.4. The Waste Needs Assessment 2020 provides the evidence base that supports production of the waste planning policy in the Medway Local Plan and, in particular, that relating to any projected shortfalls in waste management capacity that may require the identification and allocation of suitable land that could accommodate such capacity.

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<sup>1</sup> C&I waste is defined under the Defra Methodology as waste arising from "...a specific collection of economic activities described by the statistical classification of economic activities in the European Community (NACE). Namely: C, D, E36, E37 & E39 (excluding sewage sludge) and G-U (excluding G46.7.7)" See link for details  
[https://ec.europa.eu/eurostat/ramon/nomenclatures/index.cfm?TargetUrl=LST\\_NOM\\_DTL&StrNom=NACE\\_REV2&StrLang=uageCode=EN&IntPcKey=&StrLayoutCode=&IntCurrentPage=1](https://ec.europa.eu/eurostat/ramon/nomenclatures/index.cfm?TargetUrl=LST_NOM_DTL&StrNom=NACE_REV2&StrLang=uageCode=EN&IntPcKey=&StrLayoutCode=&IntCurrentPage=1)



- 1.5. The methodology for identifying future shortfalls in C&I waste management capacity involves the following:
  1. Estimating baseline C&I waste arisings;
  2. assessing management methods, including routes & targets;
  3. forecasting arisings for the plan period (to 2037); and,
  4. assessing existing capacity available to manage C&I waste in accordance with Plan objectives and targets and, in doing so, identifying any projected capacity gaps.
- 1.6. As there are similarities between management requirements for C&I waste and that of LACW, this report only covers items 1-3 above, with a separate report dealing with emerging requirements for the management of non-hazardous waste arising in either stream. The approach taken and the results are described in detail in the following sections.

## 2 Estimating C&I Waste Baseline Arisings

### Context

- 2.1 There is no requirement on businesses to submit records of the waste they produce and hence estimating quantities of Commercial and Industrial waste arisings for a specific Plan area, with any degree of accuracy, is a challenge. Historically two different methods have been taken to estimate a baseline for C&I waste as follows:

- 'Point of management'.

The 'point of management' method uses data related to the management of C&I waste. This approach forms the basis for the Defra 'Reconcile' method used to estimate C&I waste arisings at a national level<sup>2</sup>. This is primarily based on records submitted by operators of permitted waste management facilities to the Environment Agency (EA) of waste delivered to, and removed from, their sites. The EA collates this data in a database known as the 'Waste Data Interrogator' (WDI) on an annual (calendar year) basis. This data is supplemented by data for wastes managed at permitted sites that don't report through the WDI such as incinerators/energy from waste plants.

- 'Point of production'

The 'point of production' method uses data based on the profile of businesses within an area and the application of waste production factors which relate to the different business profiles. This method was used in the Defra national survey undertaken in 2009 that informed the previous approach to national estimates<sup>3</sup>.

The *State of Medway (Waste) Report 2009* applied the 'point of production' method using data for 1998-2003 from a Kent County Council report produced in 2007<sup>4</sup> and the Medway business profile for 2009. This method generated a baseline estimate value for 2009 of around 173,000 tonnes.

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<sup>2</sup> DEFRA 2014, *New Methodology to Estimate Waste Generation by the Commercial and Industrial Sector in England* as updated by *Commercial and Industrial Waste Arisings Methodology Revisions for England Defra October 2018* [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/873328/Commercial\\_and\\_Industrial\\_Waste\\_Arisings\\_Methodology\\_Revisions\\_Oct\\_2018\\_contact\\_details\\_update\\_v0.2.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/873328/Commercial_and_Industrial_Waste_Arisings_Methodology_Revisions_Oct_2018_contact_details_update_v0.2.pdf)

<sup>3</sup> *Commercial and Industrial Waste Survey 2009: Final Report*, Defra May 2011, Available: <http://archive.defra.gov.uk/evidence/statistics/environment/waste/documents/commercial-industrialwaste101216.pdf>

<sup>4</sup> *Commercial and Industrial Waste Forecasts*, A Draft Report for Kent County Council, Cambridge Econometrics, September 2007

## Chosen Methodology

- 2.2 The methodology chosen to estimate an updated baseline C&I waste arisings value (to be used as a starting point for forecasting C&I waste arisings in Medway) is based on the national 'Reconcile' methodology, adapted to reflect local circumstances i.e. a 'point of management' method.
- 2.3 This methodology considers a number of datasets to capture quantities of commercial and industrial waste that are actually managed at waste management facilities, rather than simply produced. Data for waste identified as arising from Medway managed at permitted waste management facilities reported in the latest Environment Agency Waste Data Interrogator dataset (for the calendar year 2018) is used, together with data for waste sent to Energy from Waste plants reported in a separate dataset<sup>5</sup>.
- 2.4 In order to avoid double counting, deductions are made to eliminate the following:
1. Waste streams included in the datasets but covered elsewhere in the Waste Needs Assessment (WNA) such as Agricultural, Mining, Construction, Demolition & Excavation Waste (C, D & E), wastewater and hazardous waste;
  2. Local Authority Collected Waste (LACW) managed through WDI reporting facilities but also reported through a separate LACW database known as WasteDataFlow<sup>6</sup>;
- 2.5 The method also includes a calculation to avoid double counting of waste inputs to 'intermediate' facilities<sup>7</sup> within Medway.
- 2.6 The national Reconcile method has been subject to an amendment that omits waste managed at waste management sites exempt from the need for an Environmental Permit on the basis that materials managed through these sites will emerge at a permitted site at some point in the management chain<sup>8</sup>. To be consistent with the national method, consideration of this category of sites has been omitted from the methodology applied in this report.

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<sup>5</sup> Waste Incinerator Returns 2018 available to download from the .gov website

<sup>6</sup> <http://www.wastedataflow.org/>

<sup>7</sup> Intermediate facilities are those which do not provide the final fate of waste. That is waste received leaves for onward management at other facilities elsewhere either having been subjected to some form of treatment or just simply bulked up e.g. transfer stations

<sup>8</sup> Commercial and Industrial Waste Arisings Methodology Revisions for England October 2018

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/873328/Commercial\\_and\\_Industrial\\_Waste\\_Arisings\\_Methodology\\_Revisions\\_Oct\\_2018\\_contact\\_details\\_update\\_vo.2.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/873328/Commercial_and_Industrial_Waste_Arisings_Methodology_Revisions_Oct_2018_contact_details_update_vo.2.pdf)

## Detailed C&I Waste Baseline Arisings Calculation

### Inputs to permitted waste management facilities

**Step 1: Collect data relating to waste arising in Medway from the Environment Agency Waste Data Interrogator.**

- 2.7 The starting point is to collect all data relating to waste arising in Medway from the Environment Agency Waste Data Interrogator. This is identified as waste arising in Medway that is managed within Medway and waste arising in Medway that is managed beyond Medway as shown in Table 1 below. This shows that the total quantity of waste arising from Medway managed through permitted sites reporting through the WDI for 2018 was 511,172 tonnes.

**Table 1: Waste Arising in Medway (tonnes)**

*Source WDI 2018*

	Landfill	Metal Recycling Sites	Transfer	Treatment	Recovery to Land	Grand Total
<b>Waste arising in Medway managed at Medway sites</b>	29,083	468	148,208	10,367	0	<b>188,127</b>
<b>Waste arising in Medway managed at sites outside Medway</b>	192,557	6,352	23,691	80,590	19,854	<b>323,045</b>
<b>Totals</b>	<b>221,641</b>	<b>6,820</b>	<b>171,900</b>	<b>90,957</b>	<b>19,854</b>	<b>511,172</b>

**Step 2: Make deductions in waste recorded in the Waste Data Interrogator as arising from Medway to eliminate non C&I waste streams**

- 2.8 Waste identified under waste codes considered to represent C, D & E Waste (EWC Chapter 17 plus EWC 191209 & 200202) and therefore accounted for in the separate estimates of C, D & E waste need to be deducted from the totals in Table 1. The quantities remaining after this deduction are displayed by management route in Table 2 below and this shows that the quantity of waste arising is reduced by 92,445 tonnes<sup>9</sup> to just under 419,000 tonnes.

<sup>9</sup> See Report 3 on C, D & E waste for further detail.

**Table 2: Waste Arising from Medway minus C, D & E Waste (tonnes).**

Source: WDI 2018

	Landfill	Metal Recycling Sites	Transfer	Treatment	Recovery to Land	Grand Total
<b>Medway arisings managed at Medway sites</b>	0	468	146,669	10,367	0	157,504
<b>Medway arisings managed at sites outside Medway</b>	160,387	3,507	23,610	73,443	298	261,245
<b>Totals</b>	<b>160,387</b>	<b>3,975</b>	<b>170,279</b>	<b>83,811</b>	<b>298</b>	<b>418,749</b>

- 2.9 Waste identified under waste codes considered to represent Agricultural Waste (EWC Chapter 02 01), mining (EWC Chapter 01) and hazardous waste (All codes with \*<sup>10</sup>) are accounted for separately (See separate waste stream report ) and so are also deducted. The quantities remaining after this deduction are displayed by management route in Table 3 which shows that the quantity of waste arising is reduced to just over 410,000 tonnes.

**Table 3: Table 2 minus agricultural, mining & hazardous waste (tonnes).**

Source: WDI 2018.

	Landfill	Metal Recycling Sites	Transfer	Treatment	Recovery to Land	Grand Total
<b>Medway arisings managed at Medway sites</b>	0	0	146,183	9,005	0	155,188
<b>Medway arisings managed at sites outside Medway</b>	160,320	1,940	23,309	69,625	298	255,491
<b>Totals</b>	<b>160,320</b>	<b>1,940<sup>11</sup></b>	<b>169,492</b>	<b>78,630</b>	<b>298</b>	<b>410,680</b>

<sup>10</sup> All hazardous waste codes are identified by an asterisk in the European Waste Catalogue

<sup>11</sup> Deduction relates to End of Life Vehicles which are classed as hazardous by virtue of the oil content and battery.

## Make deductions to account for Local Authority Collected Waste

- 2.10 Local Authority Collected Waste (LACW) is not distinguishable from Commercial and Industrial Waste by reference to EWC Codes. It is, however, possible to cross reference data from Wastedataflow (WDF), the online reporting portal for waste collection and disposal authorities. This allows the quantities of LACW managed through specific sites to be ascertained. Cross referencing between the sites identified in WDF and the category assigned where that site is listed in the WDI enables attribution to specific routes, as shown in Table 4:

**Table 4: Local Authority Collected Waste Received at Facilities included in WDI Count for Waste Arising from Medway (tonnes).**

*Source: WasteDataFlow 2018 & WDI 2018*

	Landfill	Metal Recycling Sites	Transfer	Treatment
Medway arisings managed at Medway sites	0	0	132,833	4,688
Medway arisings managed at sites outside Medway	15,490	0	2,969 (7,579)	45,638 (52,057)

- 2.11 The tonnages shown in italics in Table 4 are those shown in WDF. However, as inputs of LACW to some permitted sites are lower the values deducted are less. These discrepancies are attributed to some waste not being recorded as coming from Medway in the WDI dataset. This non attributed waste is captured in another stage of the process. When values displayed in Table 4 are deducted from the values in Table 3 the total remaining value is just over 209,000 tonnes as shown in Table 5 below. This may be referred to as the 'gross C&I waste arising' value.

**Table 5: Gross C&I Waste Arising from Medway (tonnes) .**

*Source: Table 3 minus Table 4.*

	Landfill	Metal Recycling Sites	Transfer	Treatment	Recovery to Land	Grand Total
Medway arisings managed at Medway sites	0	0	13,350	4,317	0	17,667
Medway arisings managed at sites outside Medway	144,830	1,940	20,340	23,987	298	191,394
<b>Totals</b>	<b>144,830</b>	<b>1,940</b>	<b>33,690</b>	<b>28,304</b>	<b>298</b>	<b>209,062</b>

### Step 3: Make deduction for specific wastes accounted for separately

2.12 Landfill leachate is expressly excluded from the national reporting method, as Defra considers counting wastes generated by the waste management facilities from processes handling wastes generated elsewhere in the economy to be double counting under this overall waste stream<sup>12</sup>. Based on this, the value for leachate from Medway managed at permitted facilities has also been deducted. This is calculated to be 2,937 tonnes of waste, all but 2 tonnes of which is delivered to sites outside Medway (39t to Havering landfill and 2,896t to treatment in Kent).

Table 6 shows that deducting these values gives a revised headline value of just over 206,000 tonnes.

**Table 6: Gross C&I Waste Arising from Medway (tonnes)**

*Source: Table 5 minus Step 2 values*

	Landfill	Metal Recycling Sites	Transfer	Treatment	Recovery to Land	Grand Total
<b>Medway arisings managed at Medway sites</b>	0	0	13,350	4,316	0	<b>17,666</b>
<b>Medway arisings managed at sites outside Medway</b>	144,791	1,940	20,340	21,091	298	<b>188,460</b>
<b>Totals</b>	<b>144,791</b>	<b>1,940</b>	<b>33,690</b>	<b>25,407</b>	<b>298</b>	<b>206,125</b>

### Step 4: Make adjustments to account for intermediate sites (inc. waste transfer stations).

- 2.13 Adjustments may be needed to address waste reported as being managed at intermediate sites for the following reasons:
1. Double counting. This occurs when the same waste is recorded once as an input from Medway to an initial facility located in Medway, and then recorded again as an input from Medway to a further facility (if it is transferred from the initial facility for onward management) and;
  2. Loss of some waste. Some waste may be 'lost' as a consequence of residues from the processing of waste arising at intermediate sites (e.g. MRFs) where some outputs may be recoded from the original source of inputs i.e. the source identity gets lost, are not distorting the final C&I waste arisings value. This particularly applies for waste coded under 19-12-12 which may capture waste arising from the C,D & E waste stream too.

<sup>12</sup> See footnote 1 of DEFRA Waste Data Overview, May 2011.

- 2.14 However analysis of the WDI has found that there are only three intermediate sites located in Medway identified as receiving waste reported as arising in Medway. As these sites deal with a relatively small tonnage of C&I waste no further adjustments have not been undertaken. Hence, the headline value for C&I waste from Medway following the above stages remains at c206,000 tonnes.
- 2.15 The following additional stages are needed to account for waste arising in Medway recorded in databases other than the WDI.

## Additions

### ***Step 5: Add non LACW inputs made to Energy from Waste (EfW) facilities***

- 2.16 There are no operational EfW plants in the Medway. Examination of a separate EA dataset<sup>13</sup> for inputs to EfW facilities indicates that c42,000 tonnes waste, attributed to Medway, was sent to two EfW plants operated by Veolia. A check of the WasteDataFlow dataset for LACW arising from Medway shows that c31,500t of this was LACW, which leaves a remainder of c10,000 tonnes of waste originated from non LACW sources. Therefore, this has been added to the baseline value and results in a value of 216,000 tonnes.

### ***Step 6: Accounting for waste recorded to regional level source only.***

- 2.17 The WDI 2018 reports inputs of 23,500 tonnes of C&I type waste going to three Medway sites as having only been coded down to regional level (in this case the source of the waste is reported as 'South East', 'London', and 'West Midlands'). The tonnage of C&I type waste attributed to each of these sites is shown in Table 7. The unattributed input tonnage has been assessed against whether waste reported as coming from Medway represents a significant tonnage of the inputs, and also what percentage the unattributed tonnage represents of the total input of each site adopting the following process:
- if a site reports having received a significant tonnage from Medway already, then it indicates effective recording of waste from Medway and therefore it is less likely that the unattributed tonnage arose in Medway and the amount is ignored; and
  - where that does not hold, if the unattributed tonnage represents a small % of total input, that indicates that effective coding is being applied across the majority of inputs regardless of source and the amount is included under Medway on a precautionary basis.

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<sup>13</sup> Waste Incinerator Returns 2018



**Table 7: Medway sites receiving 500 tonnes or more of C&I Type Waste not attributed below region**

Source: WDI 2018

Facility Type	Site	Total Unattributed (tonnes)	Reported input from Medway (tonnes)	% unattributed represents of total input
<b>MRS</b>	EMR Ltd Whitewall Road	6,116	0	100%
<b>Treatment</b>	Street Fuel Ld Berth 6, Chatham Dockyard	15,419	7,880	5%
	Chatham Freight Station Ltd, Chatham Docks	2,003	57	29%
	<b>Grand Total</b>	<b>23,539</b>		

- 2.18 The outcome of this process was that the total value of c23,500 tonnes of waste added to the running total to give a baseline value of 239,500 tonnes of C&I waste.

#### **Step 7: Accounting for misattributed tonnage.**

- 2.19 It was noted in the C, D & E waste baseline estimation exercise that inputs to the site operated by ADS Skip Hire at Unit 18 Morgans Timber Yard were all attributed to the Chapter 20 municipal waste code under which C&I waste may appear. Given that skip hire predominately deals with construction and demolition waste, albeit from households, and no outputs were coded as Chapter 20, the input of 2,273 tonnes was reattributed as mixed C, D & E waste. Hence that tonnage is deducted from the C&I baseline value to give a baseline value of 237,500 tonnes of C&I waste.

#### **Final C&I waste baseline arisings estimate & management profile**

- 2.20 The outcome of this process is the baseline value of 237,500 tonnes of C&I waste was generated in Medway in 2018 with the profile displayed in Table 8 below. This is the value used for forward planning purposes.

**Table 8: Management Profile of C&I Waste Arising from Medway (tonnes)**

Source: Table 6 plus Step 4-7

	Landfill	Metal Recycling	Transfer	Treatment	Recovery to Land	EfW	Grand Total
<b>Medway arisings managed at Medway sites</b>	0	6,116	11,077	21,738	0	0	38,931
<b>Medway arisings managed at sites outside Medway</b>	144,791	1,940	20,340	21,091	298	10,000	198,460
<b>Totals</b>	144,791	8,056	31,417	42,829		10,000	<b>237,390</b>

#### Comparison with State of Medway (Waste) Report 2009 baseline estimate

- 2.21 The *State of Medway (Waste) Report 2009* baseline estimate value of around 173,000 tonnes of C&I waste arisings for 2009 was based on a partial assessment of the Medway business profile applying the 'point of production' method using data generated for Kent for 1998-2003. Hence this estimation is considered to underestimate arisings and it is therefore not surprising that the value obtained for 2018 is considerably higher.

### 3 Assessment of C&I Waste Management Capacity Requirement for Medway

3.1 Having established a baseline value for C&I waste arising in Medway, future management capacity requirements can be determined by:

1. Forecasting how much waste may be produced in future, and,
2. Establishing different management capacity requirements taking account of current management methods and objectives for future waste management e.g. proportion to be recycled during the plan period.

The section that follows addresses both of the above matters in turn.

#### National Planning Practice Guidance

3.2 With respect to forecasting C&I waste arisings national Planning Practice Guidance states the following:

"Waste planning authorities can prepare growth profiles, similar to municipal waste, to forecast future commercial and industrial waste arisings. In doing so, however, they should:

- set out clear assumptions on which they make their forecast, and if necessary forecast on the basis of different assumptions to provide a range of waste to be managed
- be clear on rate of growth in arisings being assumed. Waste planning authorities should assume a certain level of growth in waste arisings unless there is clear evidence to demonstrate otherwise."

*Paragraph: 032 Reference ID: 28-032-20141016 Revision date: 16 10 2014*

3.3 Hence PPG anticipates the application of a positive growth rate .

#### Government Analysis of Future Municipal Waste Growth

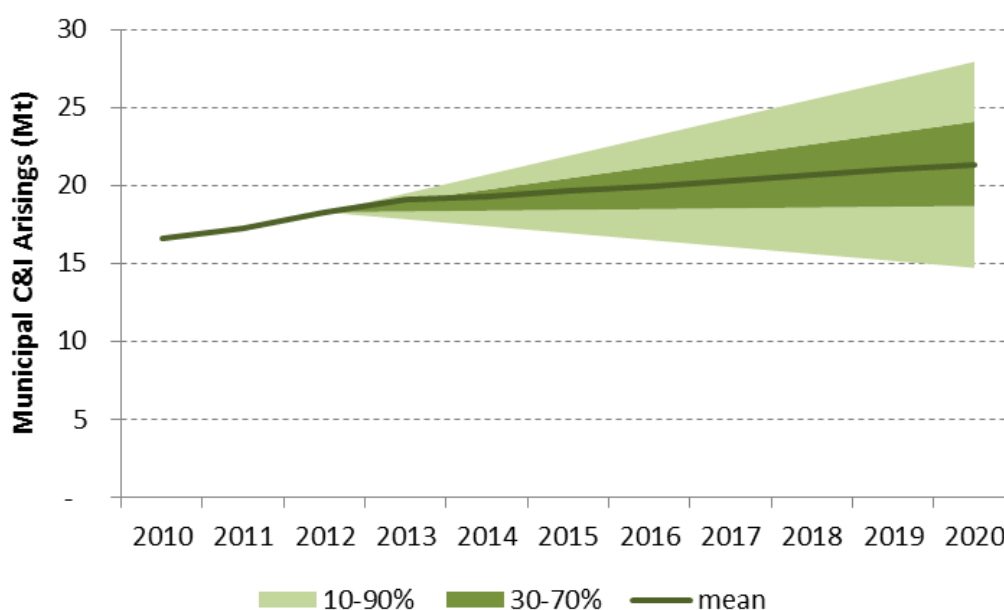
3.4 While the updated national Resources & Waste Strategy was published in 2018<sup>14</sup>, it does not include arising forecasts, and hence the forecasts for the municipal component of the C&I waste stream for England presented in the 2014 update of the Defra commissioned national forecast<sup>15</sup> report still represents the most current national forecast published by Government, albeit to 2020 only. This forecast considered the likelihood of meeting Landfill Directive targets in England utilising infrastructure already in the pipeline across the country. It should be noted that this forecast only considered the municipal component of the C&I waste stream as it is only this element of the waste stream that is subject to the Directive's targets for diversion of biodegradable waste from landfill.

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<sup>14</sup> *Our Waste, Our Resources: A Strategy for England*, Department for Environment, Food & Rural Affairs, December 2018,

<sup>15</sup> 'Forecasting 2020 Waste Arisings and Treatment Capacity' Revised October 2014 Report DEFRA (Analysis to inform the review of Defra financial support for the Hertfordshire County Council residual waste treatment project)

- 3.5 A probability distribution was fitted around the central estimate for municipal C&I waste<sup>16</sup> arisings in 2020 of 21.4 million tonnes per year<sup>17</sup> to allow for a wide range of possible outcomes. The tenth percentile, towards the lower end of the range, suggests 14.7 million tonnes and the 90th percentile, towards the upper end of the range, indicates 27.9 million tonnes. Values closest to the central estimate are assigned the highest probability of occurring in the analysis, with those towards the edges of the range relatively unlikely to occur. This results in a 'cone of possibility' as shown in Figure 1 below.



**Figure 1: Municipal Sourced C&I Arising Forecasts for England to 2020**  
Source: *Forecasting 2020 Waste Arisings and Treatment Capacity, Defra (2014)*

- 3.6 Of most significance is the fact that Figure 1 shows that the majority of the cone projected in the forecast, reaches values in 2020 that are greater than the arisings baseline figure for 2010. This suggests that growth of some degree is highly likely to occur.
- 3.7 This rising growth is consistent with the advice in PPG published in 2014.

<sup>16</sup> Municipal C&I waste is waste from commercial and industrial sources similar (or akin) to LACW. It is the element of C&I waste that is subject to the Landfill directive BMW diversion targets so has been modelled for these purposes. It represents a sub set of C&I waste in totality.

<sup>17</sup> The municipal component was taken to represent 44% of total C&I arisings in England based on assumed total arising of 48.9 million tonnes at 2020.

### State of Medway (Waste) 2009

- 3.8 The *State of Medway (Waste) 2009* concluded the following in relation to growth:

"Though growth in these streams is declining nationally (and potentially a similar trend is occurring locally) it is reasonable to conclude that Medway will have some 170,000 tonnes per annum of commercial and industrial wastes for some time to come." (para 4.32). That is to say it assumed the arisings would remain constant for the medium term at least.

- 3.9 However, this is in contrast to the national Planning Practice Guidance advice and the growth indicated nationally since 2015. Hence a forecast assuming a 0.5% per annum growth rate has been generated. This reflects the assessment of the potential economic growth in Medway forecast in the Medway Integrated Growth Needs Assessment<sup>18</sup> and would confer flexibility in the plan.

**Table 9: C&I Waste Forecast applying WNA 2014 Growth Factors to Updated Baseline**

	2018/19	2023/24	2028/29	2035/36
<b>Forecast with Updated Baseline (at end year)</b>	<b>237,500</b>	260,000	279,000	314,000

<sup>18</sup> Appendix 2 Technical Note to North Kent SHENA Bilfinger & GVA November 2015

## 4 C&I Waste Targets

- 4.1 Determination of how waste might be managed requires assessment of how the waste in the Plan area is currently managed and then projecting Medway Council's objectives for the future management of waste arising within its area taking account of national Government policy and expectations.

### Baseline Profile

- 4.2 *To set realistic targets it is first necessary to estimate the current management profile as this indicates the starting position on which future targets can be based.* The management profile presented in Table 8, based on the management data available primarily through the WDI has been used as a starting point. However since waste identified as undergoing treatment may go on for recycling, landfill or energy recovery so the principal management types considered are those that would represent a final fate, that is:

- landfill/energy recovery
- composting and landspreading.

The difference between the sum of the above and the baseline value has been taken to represent the tonnage that went on for recycling from permitted facilities.

### Landfill/ Energy Recovery

- 4.3 As shown in Table 8, just under 145,000 tonnes of C&I waste arising in Medway was sent to landfill. In addition, an estimated 10,000 tonnes was sent to energy recovery and just under 43,000 tonnes went to treatment, (of which just over 3,000 tonnes was treated by composting and 21,300 tonnes to converted to Refuse Derived Fuel (RDF).

### Composting & land spreading

- 4.4 According to WDI 2018, only 3,092 tonnes of C&I waste attributed to Medway was managed at permitted composting facilities. When this is added to the 298 tonnes of biodegradable waste that went to recovery to land that gives a total of 4,000 tonnes.
- 4.5 Assessing the actual data into a management profile while holding the baseline value at the updated level, gives the values shown in Table 10 below.

**Table 10: Computed C&I Waste Management Profile (order inverted) (*italicised entry computed*)**

*Source: Table 8*

Route	Tonnes	%
Total Arisings	237,390	
Landfill	144,791	61%
EfW	31,300	13%
Composting	4,000	2%
<i>Recycling &amp; Reuse (remainder)</i>	<i>57,299</i>	<i>24%</i>

- 4.6 This shows that if it is assumed that only three principal management routes are utilised the actual % recycled/ reused/ composted stands at 26%, while Other Recovery (EfW & RDF) stands at 13% and landfill stands at 61%.

### Waste Management Targets

- 4.7 Having established an existing management profile, the next step is to consider what management profile may be desirable and achievable and therefore what waste management targets ought to be set in the Plan to achieve that management profile.
- 4.8 There are no national government targets for the management of C&I waste. However the recently adopted EU Circular Economy package, to which the UK government has confirmed its commitment, includes the following targets for municipal waste:
- 55% recycling by 2025; and
  - 60% recycling by 2030; and
  - 10% limit of landfilling by 2035.

Municipal waste is LACW and waste of a similar nature. Given that it has been estimated that up to 60% of commercial waste could fall within that definition, the targets would apply to a substantial proportion of C&I waste arising in Medway.

- 4.9 By way of comparison, the targets relating to the future management of C&I waste arising in Kent presented in the *Early Partial Review of the Kent Minerals & Waste Local Plan*<sup>19</sup> (currently undergoing examination) were derived from the Circular Economy package targets for landfill diversion and recycling/composting. These are shown in Table 11 below.

**Table 11: Proposed Targets for C&I Waste Management for Kent**

*Source: Early Partial Review of Kent MWLP*

	Milestone Year			
	2015/16	2020/21	2025/26	2030/31
<b>Recycling/composting</b>	n/a	50%	55%	60%
<b>Other Recovery</b> <sup>20</sup>	n/a	35%	32.5%	30%
<b>Remainder to Landfill</b> <sup>21</sup>	n/a	15%	12.5%	10%

<sup>19</sup> [https://consult.kent.gov.uk/portal/second\\_call\\_for\\_sites\\_2016/document\\_library](https://consult.kent.gov.uk/portal/second_call_for_sites_2016/document_library)

<sup>20</sup> This identifies the consequential predicted remaining management requirement assuming the other targets are met.

<sup>21</sup> Progressive reduction towards target brought forward by 5 years on EU limits due to predicted limited availability of landfill capacity in Kent and ambition to drive waste up the hierarchy.

- 4.10 Given the current management profile shown in Table 10 and the longer Plan period it is suggested the targets for Medway be moderated. Table 12 below sets out the proposed targets.

**Table 12: Proposed Targets for C&I Waste Management for Medway**

(italicised values from Table10)

	Milestone Year			
	2018/19	2023/24	2028/29	2035/36
<b>Recycling/composting</b>	<i>27%</i>	44%	55%	60%
<b>Other Recovery</b>	<i>13%</i>	13%	18%	40%
<b>Remainder to Landfill</b>	<i>60%</i>	43%	27%	10%

- 4.11 The proposed targets have been arrived at as follows:

- Landfill: Working back to give a steady year on year decline to achieve the 2035/6 target of 10%;
- Recycling: Targets set back by five years given low starting point;
- Other Recovery: Stable for first period on the basis that focus should be on moving waste from landfill to recycling/composting which sits further up the waste hierarchy in the initial period, then taking the remainder after recycling target and landfill diversion trajectory met.



## 5 Projected Waste Management Requirements

- 5.1 Applying the management targets presented in Table 12 to the forecast gives the following management requirements for the Plan Milestone years.

**Table 13: C&I Waste Management Requirements Derived by Applying Targets to Updated Forecast at Plan Milestone years (tonnes) (rounded)**

	Waste Management Requirements at Milestone Years (tpa)				Peak Requirement Difference / Cumulative Requirement (tonnes)
	2018/19	2023/24	2028/29	2035/36	
<b>Recycling/composting</b>	61,300	113,000	153,500	185,500	185,500
<b>Other Recovery</b>	31,300	34,000	51,000	124,000	124,000
<b>Remainder to Landfill</b>	144,800	112,500	74,500	31,000	1,726,500

- 5.2 Table 13 indicates the following peak capacity requirement for the Plan period:
- 185,500 tpa of recycling/composting; and
  - 124,000 tpa Other Recovery.
- In addition a cumulative capacity requirement c1.7Mt of non inert landfill capacity.
- 5.3 Comparing the peak management requirement presented in Table 13 with the 2018/19 profile gives a capacity management gap for the Plan period:
- 124,500 tpa of recycling/composting; and
  - 92,500 tpa Other Recovery;

### Provision for recycling/composting

- 5.4 In the past provision for recycling has been taken to mean provision of waste management facility capacity to sort materials through a Materials Recycling Facility (MRF). However where materials are separated at source the facility requirement may essentially constitute a transfer station where source separated materials (e.g. paper, plastic) are stored and bulked up in bays prior to onward bulk delivery to a reprocessor. It should also be noted that local provision of MRFs has declined due to the closure of several such facilities in the South East. These closures are a response to economies of scale which are required to address the increasing costs associated with greater technological complexity of sorting associated with achieving a higher quality recyclate. Hence it may not be realistic to expect specific provision to be made for such capacity within Medway; that is to say this need for recycling capacity may be met by existing waste transfer facilities in Medway that offer bulking capacity.
- 5.5 In contrast to this, composting does require specific facilities. Hence additional consideration has been given to what the composting capacity requirement might be. The C&I waste stream has been assessed to contain up to 13% organic waste<sup>22</sup>. Given that the Government committed to introduce separate food waste collections for households and businesses by 2023 in the Resources & Waste Strategy, it can be assumed that all biowaste within the C&I stream would be effectively captured for separate treatment by 2023/4. This then yields the management capacity requirements for the recycling/composting component shown in Table 14.

**Table 14: Recycling/composting Management Requirement with Separate Biowaste Collection (tonnes)**  
(rounded)

	Waste Management Requirements at Milestone Years (tpa)				Peak Requirement Difference / Cumulative Requirement (tonnes)
	2018/19	2023/24	2028/29	2035/36	
<b>Composting</b>	19,400	34,000	36,000	40,000	21,000
<b>Recycling</b>	41,900	79,500	117,000	145,000	103,000
<b>Total (Table 14)</b>	<b>61,300</b>	<b>113,500</b>	<b>153,000</b>	<b>185,000</b>	

- 5.6 Table 15 shows the peak composting capacity requirement would be 41,000tpa at the end of the Plan period with an initial peak of c34,000 in 2023/4. Given that it is reasonable to assume that centralised composting facilities might normally have a minimum capacity of c10,000tpa, this suggests that a minimum facility requirement of two to three facilities ought to be specified at 2023/24, with a capability of expansion of capacity to meet the predicted growing need in latter years of the Plan period. It should be noted that while the difference

<sup>22</sup> Commercial and Industrial Waste Survey 2009: Final Report, Defra May 2011,

between the peak requirement and the current level is 21,000 tonnes, given that there is no operational or consented composting capacity within Medway the value of 40,000tpa ought to be taken as the maximum capacity requirement. If the overall recycling/composting target of 60% by 2035/36 is to be met and provision is made for separate management of 40,000 tonnes of biowaste from C&I sources, then the peak recycling bulking capacity requirement is reduced to 145,000tpa at the end of the Plan period.

### Zero Waste to Landfill by 2029 Sensitivity

- 5.7 Table 13 shows that application of the proposed targets would still mean a cumulative non-inert landfill requirement over the Plan period of 1.7Mt. However given the shortage of non-inert landfill capacity in the South east a scenario where net<sup>23</sup> zero waste to landfill is pursued has also been considered. This reflects the strategies adopted both by East Sussex and West Sussex in their respective adopted Waste Local Plans. The residual waste component is calculated to be the combined value of the waste going to Other Recovery and Landfill shown in Table 13 giving the totals in Table 15 below.

**Table 15: Residual Waste Capacity Requirement for C&I Waste at Plan Milestone years (tonnes)**

	Waste Management Requirements at Milestone Years (tpa)				Peak Requirement (tonnes)
	2018/19	2023/24	2028/29	2035/36	
<b>Other Recovery (Table 13)</b>	31,300	34,000	51,000	124,000	
<b>Remainder to Landfill (Table 13)</b>	144,800	112,500	74,500	31,000	
<b>Total Residual Waste</b>	<b>176,100</b>	<b>146,500</b>	<b>125,500</b>	<b>155,000</b>	<b>155,000</b>

- 5.8 This shows that if the residual waste component of the C&I waste stream were to all be managed through provision of an energy recovery facility (Other Recovery) this would give rise to a peak requirement for Other Recovery capacity of 155,000 tonnes at the end of the Plan period. It should be noted that given the falling requirement in the initial part of the Plan period and the lead time for the actual provision of a new plant (5yrs plus), it might be prudent to cap provision to reflect the maximum value at 2028/9 to 125,500 tpa. This would ensure that sufficient capacity is available for residual waste management, without compromising the movement of waste up the hierarchy towards meeting the 60% recycling target earlier than planned. It should be noted this does not consider the possible management need arising from the LACW stream – the overarching main WNA report considers the total requirement for 'other recovery' capacity were the C&I waste requirement and LACW requirement to be combined. This prospect is addressed in the WNA overview report.

<sup>23</sup> "net" allows for the possibility of non-inert waste still going to landfill outside the Plan Area providing the provision is made for the equivalent tonnage within. This capacity may be at or higher up the waste hierarchy.

## Conclusion

- 5.9 The combined effect of the capacity adjustments on the projected management requirements for C&I waste forecast to arise in Medway is presented in Table 16 below.

**Table 16: Residual Waste Capacity Requirement for C&I Waste at Plan Milestone years (tonnes)**  
(rounded)

	Waste Management Requirements at Milestone Years (tpa)				Peak Requirement Difference / Cumulative Requirement (tonnes)
	2018/19	2023/24	2028/29	2035/36	
Composting	19,400	34,000	36,000	40,000	21,000
Recycling	41,900	79,500	117,000	145,000	103,000
Other Recovery	31,300	74,000	126,000	155,000	155,000
Remainder to Landfill	144,800	72,500	0	0	941,000

- 5.10 The landfill requirement of just under a million tonnes over the Plan period arises as shown in Table 17 below. However it should be noted that if counted from the anticipated year of plan adoption of 2021 the requirement would reduce to just over half a million tonnes to 2030.

**Table 17: Predicted Non Inert Waste Landfill Requirement for C&I Waste over Plan period assuming zero waste to landfill from 2030 onwards (tonnes)** (rounded)

Year	Annual Requirement	Cumulative Requirement
2018	144,790	144,790
2019	132,724	277,514
2020	120,658	398,173
2021	108,593	506,765
2022	96,527	603,292
2023	84,461	687,753
2024	72,395	760,148
2025	60,329	820,477
2026	48,263	868,740
2027	36,198	904,938
2028	24,132	929,069
2029	12,066	941,135
2030	0	941,135