



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

Medway Waste Needs Assessment 2020 – Report 4

Management Requirements for Hazardous Waste Generated  
in Medway

**Final Issue v1.2**

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## Abbreviations and Glossary of Terms

### Abbreviations

C, D & E / CDEW	Construction, Demolition & Excavation Waste
CFC	Chlorofluorocarbon (gases)
DEFRA	Department for Environment, Food and Rural Affairs
EA	Environment Agency
ELVs	End of Life Vehicles
EWC	European Waste Catalogue
GVA	Gross value added
HTI	High Temperature Incineration
HWI	Hazardous Waste Interrogator
HWRCs	Household Waste Recycling Centres
IED	Industrial Emissions Directive
LACW	Local Authority Collected Waste
LDF	Local Development Framework
MRS	Metal Recycling Sites
nPPG	National Planning Practice Guidance
PI	Pollution Inventory
WDI	Waste Data Interrogator
WEEE	Waste Electrical & Electronic Equipment
WNA	Waste Needs Assessment
WPA	Waste Planning Authority

## Glossary of Terms

<b>Construction, Demolition &amp; Excavation 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>Duty to Cooperate</b>	The Duty to Cooperate is a legal test that requires cooperation between local planning authorities and other public bodies to maximise the effectiveness of policies for strategic matters in Local Plan making.
<b>End of Life Vehicles</b>	Vehicles classed as waste having been declared as no longer usable and for which a Certificate of Destruction has been issued by DVLA. Deemed hazardous until hazardous components removed via depollution processes.
<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>Hazardous Waste Landfill</b>	Sites where hazardous waste may be disposed by landfill. This can be a dedicated site or a single cell within a non-hazardous landfill, which has been specifically designed and designated for depositing hazardous waste.
<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. (otherwise 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).
<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>Recovery</b>	Subjecting waste to processes that recover value including recycling, composting or thermal treatment to recover energy.
<b>Recycling</b>	The sorting and separate storage of materials extracted from the waste stream for reprocessing either into the same product or a different one.
<b>Vehicle depollution</b>	Removal of hazardous components from End of Life vehicles. May only take place at authorised facilities permitted to do so.
<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, namely:

1. Local Authority Collected Waste;
2. Commercial & Industrial Waste;
3. Construction, Demolition & Excavation Waste;
4. Hazardous Waste; and
5. Review of management requirements for 'Other Waste'.

This supporting report details the background work undertaken in relation to the Hazardous Waste stream.

1.2 The term 'hazardous waste' is used to describe waste considered to possess properties that pose a threat to human health and/or the environment such as toxicity, flammability, corrosiveness and carcinogenicity. Hazardous waste arises from different sources so does not occur as a discrete waste stream, being more a collection of different materials which are generally collected and managed separately due to their hazardous properties. For example, fridges containing CFC gases and cathode ray tubes used in TV and computer monitor screens are classed as hazardous, as are oily water, interceptor wastes and undepolluted scrap ('End of Life') vehicles. Each of these waste types require management by distinctly different methods and hence provision of different types of facilities, regardless of their origin. Hence the hazardous component of each origin streams i.e. LACW, C&I and C, D & E waste are considered together in this report, and in doing so the quantity arising in each is deducted from the origin stream arising estimation in order to avoid double counting.

### Previous Waste Needs Assessments for Medway

1.3 The *State of Medway (Waste) Report 2009* refers to data from two modelling exercises undertaken at regional level by consultants: ERM in 2007; and Scott Wilson in 2008. Both reports drew on data from the Environment Agency Hazardous Waste Interrogator (HWI). This used a baseline value for hazardous waste arising in Medway of 27,912 tonnes in 2008 to generate forecasts for potential management requirements applying predicted growth factors identical to those applied to commercial and industrial waste across the south east region. The resulting scenarios generated the values in the LDF milestone years presented in Table 1 below:

**Table 1: Medway Hazardous Waste Arisings & Forecasts (tonnes)**

Source: State of Medway (Waste) Report 2009

	2008	2016/18	2025/26
Scenario 1	27,912	34,019	38,514
Scenario 2	27,912	33,746	42,023

- 1.4 With regard to the capacity available to manage hazardous waste in Medway the report goes on to assess capacity at existing individual sites that may have accepted hazardous waste at that time concluding that:
- " 4.61 To attempt to plan for a series of capacities to match the area's arisings in this sector would be exceptionally difficult. The complex movements of materials, sometimes over long distances, not only denotes their particular treatment needs but also the fact that there may be certain economies of scale needed in order to operate efficiently. This behaviour is in contrast to less problematic wastes, such as construction and demolition wastes (inert) that are often recycled at the place of origin to be economic. Essentially hazardous wastes have a regional and sometimes national scale of operations."*
- 1.5 This report updates and supersedes Medway Council's previous assessments for hazardous waste by producing a more up to date and comprehensive assessment of future waste management capacity requirements.



## 2 Calculating a Baseline Arisings Estimate

- 2.1 To generate a baseline arising for hazardous waste arisings in Medway the following datasets have been accessed:
1. The EA Hazardous Waste Interrogator 2018 - movements.
  2. The EA Waste Data Interrogator 2018 – inputs to permitted management sites.
  3. The EA Waste Data Interrogator 2018 – outputs from permitted management sites.
  4. The EA Pollution Inventory Site outputs 2018 - waste from significant industrial sites.

### The EA Hazardous Waste Interrogator (HWI) 2018

- 2.2 Legislation requires that the waste regulation authority<sup>1</sup> be notified when hazardous waste is moved. The notification takes the form of a consignment note that details the quantities and destination of the waste. This means that the following movements of hazardous waste are recorded and reported to the regulatory body:
- From producer site directly to disposal/treatment facilities;
  - from producer sites to transfer locations for bulking up and onward management; and,
  - from treatment facilities to final disposal sites.

This data is then aggregated by the Environment Agency and made available in the Hazardous Waste Interrogator (HWI) that is published on an annual basis.

- 2.3 The reporting method means that the dataset may be incomplete for the following reasons:
- Consignment notes are not issued when hazardous waste is managed on the site of its production i.e. when hazardous waste is managed onsite by the producer or same operator.
  - Where the producer of hazardous waste is a householder the requirement to consign does not apply. Therefore waste produced will only be recorded on arrival at the receiving site itself, where the site operates under an Environmental Permit. For example, End of Life Vehicles, which are classed as hazardous waste, will often not be consigned to a vehicle de-pollution site because the owner of the vehicle is not required to do so and hence it is not recorded in the HWI. However, it should be recorded as hazardous waste on arrival at the vehicle de-pollution site, as an input of waste to a site with an Environmental Permit, and it is then reported within the separate Environment Agency Waste Data Interrogator (WDI).

Both of the above can result in under-reporting of hazardous waste arisings in the HWI. However, this may be balanced by aspects of the hazardous waste consignment process that

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<sup>1</sup>The Environment Agency for England

allows for the possibility of over-reporting. For example, if waste is moved to an intermediate management site within Medway and then moved on to a further site it will be consigned twice and so double counted. Also, the person consigning hazardous waste may not have facilities to precisely measure the quantity of waste being consigned so may estimate the amount per load. This may result in a discrepancy between the quantity recorded as having been consigned e.g. a half-full drum may be recorded as by its total capacity, and the quantity actually recorded at the receiving site which would normally have a reliable measurement method such as a weighbridge.

- 2.4 The EA Hazardous Waste Interrogator 2018 indicates the following:
- In 2018 24,495 tonnes of hazardous waste (of all types) were produced in Medway;
  - Of this, 607 tonnes were managed in Medway; with
  - 23,888 tonnes managed outside Medway i.e. exported.
  - 23,745 tonnes of hazardous waste was imported to Medway for management.
- 2.5 To address the limitations associated with the HWI outlined above, and thereby utilise the best available data as required by national Planning Practice Guidance, data from the WDI and the Pollution Inventory (PI) has also been consulted..

#### The EA Waste Data Interrogator (WDI) 2018

- 2.6 While one might expect the values for inputs to permitted intermediate sites as reported through the WDI to correspond to outputs from those sites there can be discrepancies. This can be attributable to missing movements associated with facilities that do not report inputs as comprehensively, such as ELVs received at vehicle depollution sites or hazardous waste taken to HWRCs. In addition, inputs to some facilities, such as high temperature incinerators, are not reported through the WDI. Comparing the WDI output value with the input value by site type can reveal discrepancies in recording of inputs to sites as hazardous waste. In some cases, for the same type of hazardous waste, output values are greater than input values. In these cases the output value may be capturing a more complete picture and hence result in a more accurate estimate of arisings. This is considered below.

#### Inputs from Medway to permitted sites reporting through WDI

- 2.7 The EA WDI 2018 indicates the following:
- In 2018 6,766 tonnes of hazardous waste managed at permitted sites (both within and beyond Medway) were attributed to Medway as its source;
  - Of this, the EA WDI indicates that, 2,315 tonnes were managed in Medway with the difference (4,451 tonnes) being managed outside Medway.
  - In addition 23,284 tonnes were imported for management in Medway.

The above data suggests that Medway manages substantially more hazardous waste than it produces.

### Outputs from Medway to permitted sites reporting through the WDI

- 2.8 Outputs of hazardous waste received at Medway permitted sites reporting through the WDI will be identified as arising within Medway (regardless of its original source) and hence may contribute towards waste to be provided for in the Local Plan. For example, End of Life Vehicles (ELVs) are hazardous by virtue of the presence of oils, fluids and batteries. Once depolluted the ELV shell ceases to be hazardous but the extracted hazardous components will leave the depollution site as waste for onward management. Those components that arise from depollution sites operating in Medway will be reported as hazardous waste arising in Medway requiring onward management. This is illustrated in Figure 1.

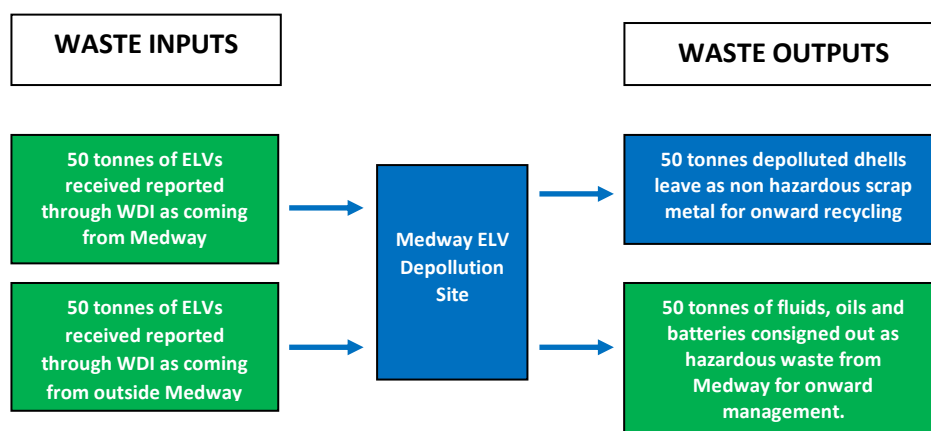


Figure 1: Illustrative Schematic of Flows of ELV to, and resulting from, an ELV depollution site.

- 2.9 The WDI 2018 indicates that 18,746 tonnes of hazardous waste was removed from permitted sites operating within Medway, with 5 tonnes going on for further management at sites within Medway. To avoid double counting this latter value should be discounted from the output total as it will have been recorded as an input from Medway already (i.e. will be included in the tonnes of Medway arisings managed within Medway). This gives a net output value of 18,741 tonnes.

### The Pollution Inventory (PI) 2018

- 2.10 The Pollution Inventory captures:
- Hazardous waste managed at certain waste management facilities such as High Temperature Incinerators (HTI) that do not report through the WDI; and,
  - waste arising from certain manufacturing installations, regulated under the Industrial Emissions Directive (IED) permitting regime. These may deal with their waste onsite or send their waste for offsite management.

This dataset is considered for the following reasons:

1. The WDI input dataset doesn't capture movements to facilities that fall outside the mainstream environmental permitting regime such as High Temperature Incinerators;
  2. As previously stated, the HWI may not capture all hazardous waste arisings as waste managed on the site of production through onsite treatment doesn't need to be consigned and it may be managed onsite by a method that is recorded in the Pollution Inventory;
  3. Both the WDI input and output datasets can be prone to underreporting by misattribution of waste. The Pollution Inventory does record sources for inputs to cross check.
- 2.11 A check has therefore been made of Environment Agency data for facilities that report through the Pollution Inventory. This dataset shows that 15,962 tonnes of hazardous waste was produced by installations operating in Medway reporting through this route in 2018.

The relationships between the datasets are illustrated in Figure 2.

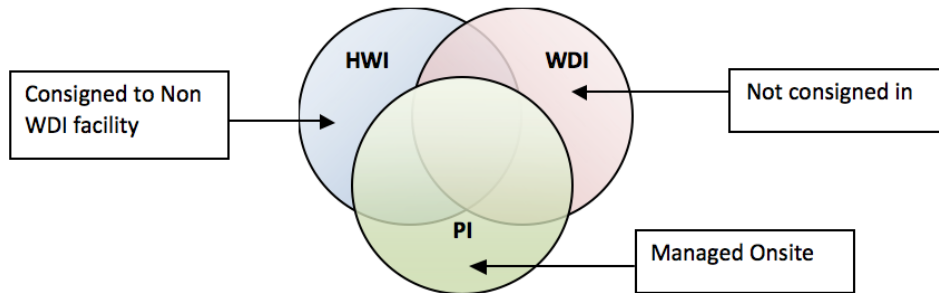


Figure 2: Relationship between Datasets for Hazardous Waste

### Summary of Headline Data

- 2.12 The data from the HWI, WDI and PI shows that:
- WDI input of hazardous waste arising in Medway to all sites: 6,766 tonnes.
  - HWI movements of waste arising in Medway: 24,495 tonnes.
  - Pollution Inventory Medway site production: 15,962 tonnes.

The management routes as indicated by the WDI and HWI is displayed in Table 2.

**Table 2: Medway Hazardous Waste Arisings & Management Data**

*Blue indicates values contributing to arisings, pink to Medway management capacity*

*Output values italicised as may already be counted in input line.*

*Source: HWI 2018 and WDI 2018 Environment Agency*

Data source	Medway Hazardous Waste Arisings (tonnes)		Hazardous Waste Managed in Medway (tonnes)		
	Quantity Managed Attributed to Medway	Of which Quantity Managed outside Medway (exports)	Quantity Managed in Medway Attributed to Medway	Quantity Managed in Medway from outside (imports)	Total Managed
HWI	24,495	23,888	607	23,745	24,352
WDI (inputs from Medway to all facilities)	6,766	4,451	2,315	23,284	25,599
WDI (outputs from Medway facilities)	18,746	18,741	5	n/a	

- 2.13 Table 2 clearly shows that more waste is recorded in the HWI as arising in Medway than the WDI input (24,495 vs 6,766 tonnes) and marginally more waste is being managed within Medway according to WDI (25,599 vs 24,352 tonnes).
- 2.14 The WDI may be underreporting arisings due to a number of reasons. Comparison of arisings fates by receiving WPA shows that inputs to sites within a number of WPAs are not recorded as coming from Medway in the WDI, whereas they are shown in HWI. As HWI entries are not site specific, to understand the discrepancies better it is necessary to assess the tonnages by waste code and fate. The outcome and findings of the comparison exercise for WPAs receiving 500 tonnes of more is shown in Table 3 below.

**Table 3: WPAs Receiving Hazardous Waste from Medway**

*Source: Environment Agency 2018*

Deposit WPA	HWI Total	WDI Total	Source of Discrepancy
Cambridgeshire	1,259	0	Oils destined for recovery/transfer
Hampshire	601	0	Chemicals destined for HTI
Kent	2,708	2,667	<i>No discrepancy</i>
Medway	607	2,315	Engine oils managed by Slicker Recycling, Kingsnorth
Northamptonshire	2,845	0	Soil & stones destined for transfer and landfill
Peterborough	912	0	Soil & stones destined for landfill
Suffolk	1,542	1,284	Clinical waste destined for incineration
Wolverhampton	1,001	501	Soil & stones destined for treatment
Worcestershire	8,723	0	Oils destined for treatment
<b>Total</b>	<b>20,198</b>	<b>6,766</b>	

- 2.15 This indicates that in a number of cases inputs recorded as coming from Medway in the HWI are not being attributed to Medway in the WDI. This could either be because the facilities do not report through the WDI (being facilities permitted under the IED), and reporting separately under that regime) or that inputs are not being attributed correctly down to WPA level - in this case Medway. The underreport in the HWI for Medway inputs itself suggests that internal movements taking place between two permitted sites operated by Slicker Recycling are being recorded in the WDI but not in the HWI. In reality this is likely to be the same waste counted twice and therefore may be discounted.
- 2.16 The outcome of this exercise confirms that the HWI dataset for Medway hazardous waste arising is the most comprehensive and hence represents the 'best available' data for the purposes of forward planning for the stream in Medway.

## Conclusion

### Plan Area Arisings

- 2.17 Hazardous waste arisings attributable to Medway for 2018 have been found to be c24,500 tonnes in 2018. This value is less than the baseline tonnage used in the 2009 assessment of c28,000 tonnes. It is also significantly less than the arisings forecast for 2017/18 of c34,000 tpa calculated in that assessment.
- 2.18 A full explanation for this decrease would require a cross comparison of the datasets by EWC code over the past decade which is beyond the scope of the project. However more recent trends are explored in the subsequent section of this report on forecasting as it is necessary to assess past data to discern possible future trends.

### Plan Area Management Capacity & Net Self Sufficiency Balance

- 2.19 This assessment has found that in 2018 the quantity of hazardous waste arisings of c24,500 tonnes is very closely matched to the quantity of hazardous waste managed within Medway, which stood at between 24,500 tonnes (HWI) and c25,500 tonnes (WDI). However the 2009 assessment correctly recognised that "*..hazardous wastes have a regional and sometimes national scale of operations.*" Therefore it is not considered appropriate to apply the goal of net self sufficiency to planning for the ongoing management of this waste stream in Medway.
- 2.20 However, it is still considered helpful to understand the balance between Plan Area arisings with Plan Area management capacity as future provision may be reliant on capacity in other areas thus making it a 'larger than local' strategic issue under the Duty to Cooperate. This is considered in more detail in Section 5 of this report.

### 3 Forecasting Future Hazardous Waste Arisings

#### National Policy

- 3.1 The 2013 National Policy Statement for Hazardous Waste<sup>2</sup> states that arisings of hazardous waste are expected to increase for the following reasons:
- Continuing consumer demand means that hazardous waste will continue to arise as consumer durables containing hazardous materials are discarded.
  - Increasing use of producer responsibility schemes, such as those provided for Waste Electrical and Electronic Equipment (WEEE) which require the separate collection of WEEE resulting in more hazardous items being removed from the mixed municipal waste stream, collected separately as hazardous waste.
  - Changes to the list of hazardous properties in the revised Waste Framework Directive and changes to the European Waste List, lead to further increases in the amount of waste that must be managed as “hazardous”.
  - There are still uses in which components that become hazardous waste may be unavoidable for the foreseeable future. For example, the use of oil in internal combustion engines.

#### Defining Growth Factors for Hazardous Waste arising in Medway

- 3.2 While Planning Practice Guidance advises that future hazardous waste arisings be estimated by extrapolating time series data drawn from the HWI, reliance on historical data to establish possible future trends is not considered to be entirely reliable due to frequent changes in the definition of hazardous waste and refinement of regulatory guidance which has tended towards increasing the range of waste being classed as hazardous and thereby 'artificially boosting' quantities of arisings. That is to say the dataset for 2008 would capture a more limited range of wastes than the 2018 dataset, so if the value shown by the more recent dataset is greater this is not necessarily because quantities of the wastes captured in 2008 has actually increased. However, such an increase in arisings is not actually evidenced by the values obtained from the HWI for hazardous waste produced in Medway over the past five years as shown in Table 4.

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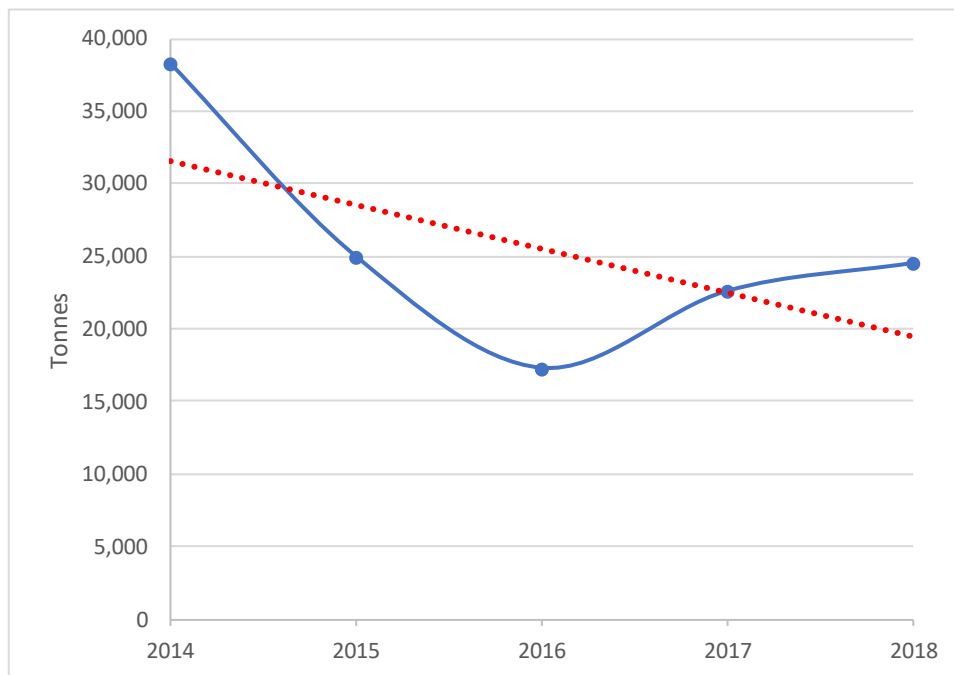
<sup>2</sup> National Policy Statement for Hazardous Waste: A framework document for planning decisions on nationally significant hazardous waste infrastructure Defra June 2013



**Table 4: Hazardous Waste Arising In Medway By Year**
*Source: HWI from WNAs*

Year	Indicated arisings
2014	38,320
2015	25,007
2016	17,285
2017	22,562
2018	24,495

- 3.3 These values are plotted in Figure 3 along with the data trend line illustrating an overall falling trend in arisings.



**Figure 3: Hazardous Waste arising (tonnes) in Medway as recorded by the HWI in 2014 to 2018.**

*Source: HWI 2014-18*

- 3.4 The annual growth rate implied by the trend is minus 10% per annum. If that were projected forward to the end of the Plan period (2037), it would suggest that the tonnage of hazardous waste requiring management in the final year would have reduced to less than 3,500 tonnes. While there is a reasonable expectation that arisings may have reduced by the end of the Plan period, such an extreme reduction is not considered to be realistic.

- 3.5 Given the falling trend over the past 5 years neither of the scenarios modelled in 2009 are considered to be realistic either. In order to arrive at a more representative forecast value, the composition of the hazardous waste that has arisen in the recent past has first been assessed. Then the factors affecting the production of each principal component have been assessed to determine how they might affect growth in arisings over the Plan period and if so, at what rate.

### Composition of Medway Hazardous Waste

- 3.6 Table 5 below presents the principal arisings for 2018 based on the assessed HWI dataset. Hazardous waste types arising in a quantity greater than 500 tonnes have been listed and so the five categories listed account for 90% of arisings.

**Table 5:** Principal Hazardous Waste Types arising in Medway in 2018  
 Source: HWI 2018, Environment Agency

Hazardous Waste Type/Source	Total
Vehicle Maintenance inc ELV components	12,938
Construction, Demolition & Excavation Waste	4,540
Oil & Liquid Fuel Waste	2,069
Clinical Waste	1,667
WEEE	894
<b>Total</b>	<b>22,108</b>

- Vehicle maintenance waste including End of Life Vehicles and components rank first. Oils will arise from vehicle maintenance and depollution activities, The predominant wastes are 'mineral-based non-chlorinated engine, gear and lubricating oils' (EWC 13 02 05) at 3,148 tonnes and 'other engine, gear and lubricating oils' (EWC 13 02 08) at 7,997 tonnes. Comparison of the data for these wastes in the HWI with the dataset for outputs shown for Medway sites reporting through the WDI shows that the bulk of these waste actually arise from the Slicker Recycling site at Kingsnorth. This site accepted 12,912 tonnes of these combined wastes, of which only 1,343 tonnes is recorded as actually coming from Medway. Hence the HWI value might be discounted as being a data aberration as it doesn't actually arise within Medway. However if that view was to be taken then it might be said that the management capacity offered by the Kingsnorth facility ought also to be disregarded.
- CDEW waste consists of c3,500 tonnes of contaminated soil and c1,000 tonnes of asbestos contaminated wastes. This will have arisen from a variety of sources and comparison across the 5 year dataset shows a high variability in annual arisings.
- Oil & Liquid Fuel Waste consists of emptyings from grit chambers and oil/water separators (EWC 13 05 07 +13 05 08). Comparison of the data for these wastes in the

HWI with the dataset for outputs shown for Medway sites reporting through the WDI shows that the bulk of these waste (1,709 tonnes) actually also arose from the Slicker Recycling site at Kingsnorth. This site only accepted 37 tonnes of these combined wastes, so the majority must have been generated during the course of the waste treatment processes conducted onsite, being in effect a product of the waste management process itself.

- Clinical waste consists primarily of 'wastes whose collection and disposal is subject to special requirements in order to prevent infection' (EWC 18 02 02). Comparison of the data for these wastes in the HWI with the dataset for outputs shown for Medway sites reporting through the WDI shows that the bulk of these waste (1,318 tonnes) actually arose from the Tradebe Clinical Waste Transfer Station at Rochester. This site accepted 9,147 tonnes of these wastes, of which only 285 tonnes is recorded as actually coming from Medway. Hence the HWI value might be discounted as being a data aberration as it doesn't actually arise within Medway. However, if that view was to be taken then it might be said that the management capacity offered by the facility ought also to be disregarded.
- Waste Electrical & Electronic Equipment (WEEE) consist primarily of discarded equipment containing chlorofluorocarbons (EWC 20 01 23 + 16 02 11) and discarded electrical and electronic equipment (EWC 20 01 35). Comparison of the data for these wastes in the HWI with the dataset for outputs shown for Medway sites reporting through the WDI shows that around a third of these waste (378 tonnes) actually arose from the 3 HWRCs and the Transfer Station operated by Veolia that takes LACW. These sites don't record inputs separately but it may be assumed that the majority of inputs arise from within Medway. The remaining quantity appears to have been consigned directly to management sites.

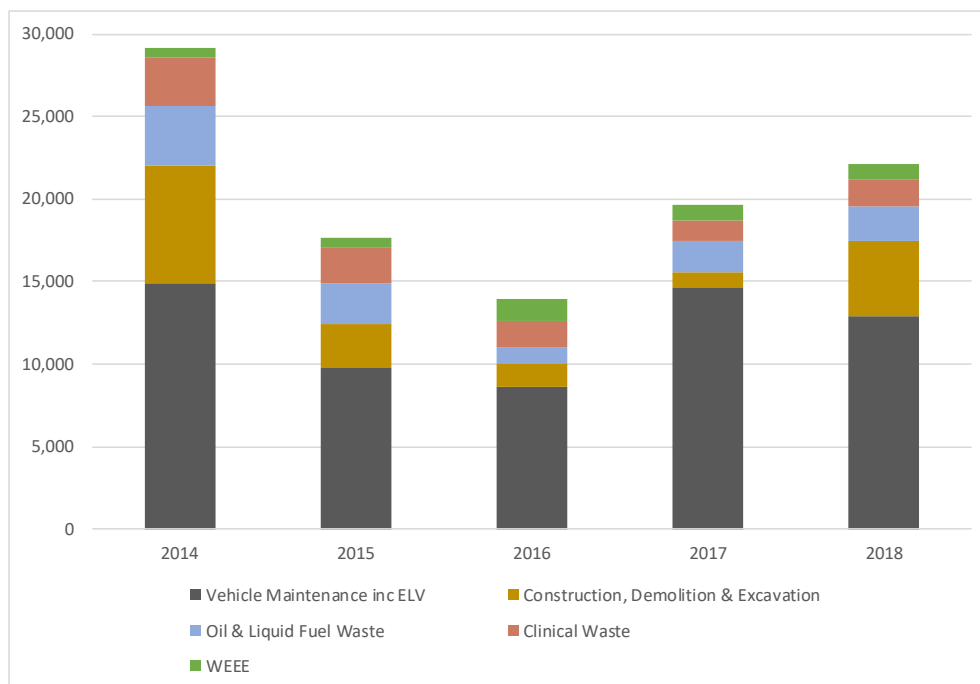
### Forecasting Arisings of Medway Hazardous Waste by Type

3.7 In order to forecast arisings it is normal to correlate predicted economic activity in each sector over the Plan period. However this level of granularity does not exist in the economic forecasting undertaken for Medway in relation to the Local Plan. Therefore qualitative consideration of likely trends in arisings in each of the principal components has been undertaken as laid out below:

- Oils arising from conventional vehicle maintenance and depollution activities can be expected to fall with the transition to electric vehicles. Electric vehicles are expected to account for 20% of car sales at 2025, with a ban on sales of conventional vehicles by 2035 now proposed by Government. While some of the current conventional vehicle stock will remain in use beyond 2035 the gradual shift can be expected to depress any growth in arisings in this sector.

- CDEW waste. There is a reasonable expectation that over time arisings of this component will reduce as historical land contamination (source of contaminated soils) is remediated and the stock of asbestos in building is removed. This view that arisings of this component will fall over time is supported by the HWI dataset which indicates the tonnage arising within Medway in 2014 amounted to 7,200 tonnes.
- Oil & Liquid Fuel Waste: Given emptyings from grit chambers and oil/water separators will arise from petrol station forecourts and other industrial type sites including waste management facilities where oil bearing waste are handled (such as metal recycling sites undertaking vehicle depollution), arisings of this component can be expected to fall in line with the vehicle transition discussed above.
- Clinical waste: While healthcare waste is expected to increase due to aging population, introduction of effective segregation to reduce unnecessary classification of clinical waste arisings as hazardous is likely to stabilise arisings.
- While WEEE arisings can be expected to increase with growing sales of electronic devices in line with disposable income, given the phase out in use of hazardous materials in new devices/appliance, the hazardous component is expected to fall. The bulk of arisings currently requiring management are fridges containing CFCs, and TV/monitor screens using CRT technology. Both technologies have been phased out, and this can be expected to fall over time while the existing stock diminishes.

3.8 To discern possible trends the data for arisings of different types of hazardous waste over the past 5 years reported through the HWI has been reviewed and is presented in Figure 4.



**Figure 4: Principal Hazardous Waste Component Arisings in Medway 2014-2018**
*Source: Environment Agency HWI*

- 3.9 The recent data shows there is significant variability in arisings in each component on an annual basis. This creates such an amount of 'noise' that it is impossible to discern any apparent trends other than a significant overall fall. It is therefore considered that a zero growth forecast ought to be applied on a conservative basis for the early part of the Plan period (to 2025), with a fall of half percent per annum in the latter half (2031 to 2035) reflecting the confounding factors discussed above. Given the principal types represent 90% of total arisings of hazardous waste in Medway in 2018, the other waste contributions have been held constant over the Plan period. The growth forecasts based on these assumptions are presented in Table 6:

**Table 6: Forecast Hazardous Waste Arisings in Medway Extrapolating Sector Total**
*Source: Baseline Arising plus discussion above*

Hazardous Waste Type/Source	Plan Milestone Year			
	2019	2025	2031	2037
Vehicle Maintenance inc ELV components	12,938	12,938	9,511	6,991
Construction, Demolition & Excavation	4,540	4,540	3,337	2,453
Oil & Liquid Fuel Waste	2,069	2,069	1,521	1,118
Clinical Waste	1,667	1,667	1,226	901
WEEE	894	894	657	483
<i>Subtotal</i>	<i>22,108</i>	<i>22,108</i>	<i>16,251</i>	<i>11,946</i>
Other wastes	2,387	2,387	2,387	2,387
<b>Total Projected Arisings</b>	<b>24,495</b>	<b>24,495</b>	<b>18,638</b>	<b>14,333</b>

## Conclusion

- 3.10 It is considered that projecting the value of **c24,500 tonnes** forward to 2026 and then applying a declining growth rate through to 2037 to arrive at a final value of **c14,500 tonnes**, reflects the best available data combined with an understanding of factors likely to affect arisings. These values have therefore been used to project capacity requirements based on an assessment of existing capacity within Medway and management routes followed, that follows.

## 4 Hazardous Waste Management Capacity in Medway

- 4.1 This section considers the availability of capacity within Medway for managing hazardous waste<sup>3</sup>. It provides the basis from which the existing baseline hazardous waste management capacity may be established and, subsequently, from which specific management capacity requirements might be identified. Quantities of hazardous waste inputs to sites recorded in the WDI have been used to assess existing capacity, instead of the HWI, because the HWI does not expressly identify receiving sites, just the host WPA..

**Table 7: Hazardous Waste Inputs to Medway Facilities Reporting through the WDI in 2018 (tonnes)**

Source: WDI, 2018 Environment Agency

Facility Type	Facility Name/Operator	Tonnes received
Hazardous Waste Treatment	Kingsnorth Oil Treatment Plant	13,081
	Rochester Clinical Waste Treatment Facility	9,147
Vehicle Depollution Facility	Mollys Car & Commercial Recycling Limited	189
	Molly's Car Breakers	279
	EMR, Whitewall Road	114
Haz Waste Transfer	Kingsnorth Oil TP	2,093
	Hoo Waste Oil Facility	0
Non Haz Waste Transfer	The Highways Depot	86
	Capstone HWRC	194
	Cuxton HWRC	245
	Hoath Way HWRC	160
<b>Total</b>		<b>25,588</b>

- 4.2 Comparing the total managed value (c25,500 tonnes) to the final arising value derived for Medway (c 24,500 tonnes) suggests a balance between overall hazardous waste arisings and capacity within Medway. Moreover it must be borne in mind that the inputs to sites in 2018 may neither be truly representative of actual site capacity i.e. inputs in 2018 may be lower than the peak, nor actually reflect the theoretical capacity that a site may offer, therefore a review of each site's capacity has been undertaken looking across 3 years WDI data, the Environment Agency permitted site listing and the Medway Planning Register. The sites identified as non hazardous waste transfer stations have been ignored as hazardous inputs will only be accepted on an incidental basis.

<sup>3</sup> Based on the latest data available i.e. 2018

**Table 8: Notional Capacity of Facilities Permitted to Manage Hazardous Waste in Medway (tonnes)**

Source: WDI 2016-18 + Environment Agency dataset, Medway planning register

Facility Type	Facility Name/Operator	WDI 3 yr peak	Permit Limit	Preferred Value	Comment
Hazardous Waste Treatment	Kingsnorth Oil Treatment Plant	13,081	26,000	26,000	Permitted tonnage based on 10 t/day -
	Rochester Clinical Waste Treatment Facility	9,147	74,999	9,147	Permit Limit considered to be unrepresentative. Peak input value over 3 years used.
Vehicle Depollution Facility	Mollys Car & Commercial Recycling Ltd	232	12,775	232	
	Molly's Car Breakers	279	2,500	279	
	EMR, Whitewall Road	114	4,999	114	
	Westfields ELV	-	4,999	0	Inactive
Haz Waste Transfer	Kingsnorth Oil TP	2,093	-	2,093	Peak input value over 3 years used.
	Hoo Waste Oil Facility	4,141	74,999	4,141	Permit Limit considered to be unrepresentative. Peak input value over 3 years used.
<b>Total</b>				<b>42,006</b>	

4.3 Comparing the notional capacity value (approx. 42,000 tonnes) to the peak arising value for Medway at the start of the Plan period (approx. 24,500 tonnes) suggests an overall surplus of 17,500 tpa of management capacity for hazardous waste might exist within Medway.

#### Management Capacity Conclusion

4.4 Medway hosts a number of facilities that manage hazardous waste in a manner that includes treatment. The combined capacity offered by facilities within Medway to manage hazardous waste equates to at least 42,000 tonnes per annum, including a number of niche operators solely accepting hazardous wastes which provide capacity that can be considered strategically significant.

4.5 Given the overall capacity exceeds the total projected arisings of hazardous waste. this suggests that Medway will continue to be net self sufficient in hazardous waste for the Plan period. However, it is important to ensure that each type of hazardous waste produced within Medway in significant quantities will be adequately catered for throughout the Plan period. For this reason the role of facilities beyond Medway in the management of certain types hazardous waste arising in the area is considered in the following section.

## 5 Management Routes Followed by Medway Hazardous Waste

- 5.1 This section assesses the management routes followed by hazardous waste that arises in Medway but is managed elsewhere. The HWI is used as the primary data source, but cross checked with the WDI to identify specific receiving sites where possible. This exercise is important to identify WPAs hosting receiving facilities with whom Medway should engage under the Duty to Co-operate to establish if the current patterns of management can continue for the Plan period. If such engagement suggests that certain types of waste cannot continue to be managed at certain facilities in future, then this may require Medway to plan for the management of that waste type within its own boundaries.
- 5.2 Of the 24,500 tonnes of hazardous waste produced in Medway, 23,888 tonnes ultimately left Medway for management at facilities located within 69 WPAs. Applying a significance threshold, whereby WPAs only receiving over 100 tonnes of waste are considered, reduces the number of receiving WPAs down to 23 (as shown in Table 11). Table 11 shows that Worcestershire is the principal recipient (8,709 tonnes), followed by Northamptonshire (2,843 tonnes), Kent (2,708 tonnes) and Suffolk (1,542 tonnes). These WPAs together account for nearly 70% of exports. This is presented in rank order in terms of WPA tonnage and fate in Table 9 below.

**Table 9: WPAs Receiving over 100 tonnes of Hazardous Waste from Medway (in rank order)**

Source: HWI 2018 Environment Agency

Deposit WPA	Waste Fate							Total
	Transfer for Recovery	Landfill	Recovery	Treatment	Incin, without energy recovery	Transfer for Disposal	Incin. with energy recovery	
Worcestershire	8,709	0	0	0	12	2	0	8,723
Northamptonshire	932	1,676	237	0	0	0	0	2,845
Kent	819	294	479	962	66	89	0	2,708
Suffolk	1,283	0	0	0	258	0	0	1,542
Cambridgeshire	498	51	560	13	0	138	0	1,259
Wolverhampton	667	0	0	334	0	0	0	1,001
Peterborough	0	912	0	0	0	0	0	912
Medway	555	0	2	16	0	26	0	599
Hampshire	1	0	30	0	478	92	0	601
Richmond	0	0	415	0	0	0	0	415
East Sussex	0	0	396	0	0	0	0	396
Dorset	56	0	0	0	0	313	0	369
Walsall	122	0	189	0	0	8	0	318
Birmingham City	0	0	0	247	0	0	0	247
Thurrock	16	0	0	211	0	13	0	239
Derbyshire	0	0	228	0	0	0	0	228
Surrey	3	131	4	78	0	2	0	218
Bexley	89	0	23	0	65	12	0	189
Havering	23	0	0	125	0	33	0	181
Greenwich	152	0	19	0	0	1	0	172
Sandwell	2	0	0	0	0	61	72	136
Bristol City	125	0	3	0	0	1	6	134



Cheshire West	1		19		107			126
<b>Grand Total</b>	<b>14,051</b>	<b>3,064</b>	<b>2,602</b>	<b>1,986</b>	<b>987</b>	<b>791</b>	<b>78</b>	<b>23,560</b>

5.3 These WPAs have been mapped on Figure 4 below with an indication of how much hazardous waste from Medway is being managed in their respective areas.

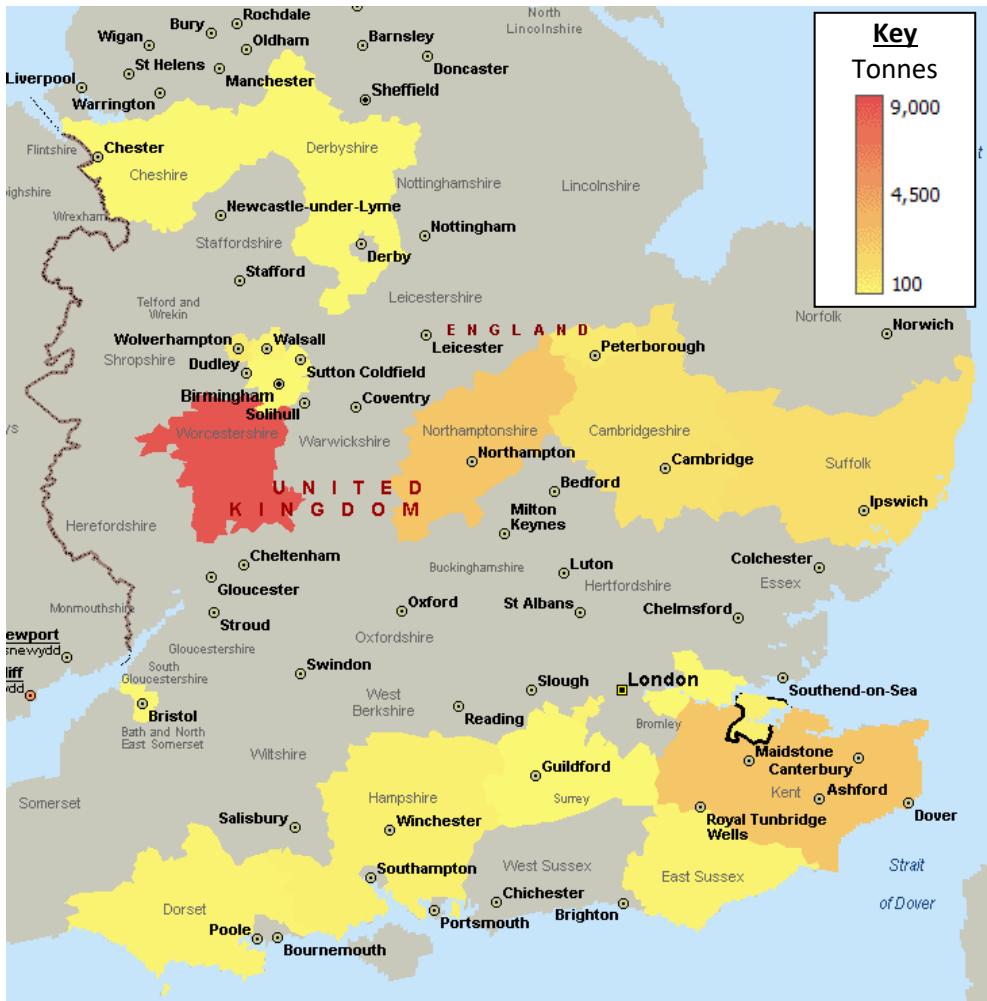


Figure 5: Map of Principal WPAs Receiving Hazardous Waste from Medway

## Conclusion on Medway's Hazardous Waste Management Capacity Requirements

- 5.4 Approximately 24,500 tonnes of hazardous waste was produced in Medway in 2018. This is predicted to fall to c14,500tonnes by the end of the Plan period. Currently all reported hazardous waste arising in Medway appears to be effectively managed and there are no obvious stresses in the system.
- 5.5 The capacity assessment indicates that the combined notional capacity of the principal sites receiving hazardous waste in Medway is around 42,000 tpa, indicating a surplus of waste management capacity for the management of Medway's hazardous waste during the majority of the Plan period assuming all sites identified continue to offer capacity for the duration of the plan period. It is recommended that the sites be safeguarded through policy whereby potential loss of capacity in future, through either redevelopment or constraints, is discouraged unless equivalent compensatory capacity is provided.
- 5.6 Notwithstanding the above, given the varying management requirements of particular waste types the continued availability of capacity for the Plan period at facilities outside the Plan area currently managing significant quantities should be confirmed through contact with the host Waste Planning Authorities named in Table 9 under the Duty to Cooperate.