Cheshire West & Chester Waste Need Assessment 2023

Capacity Requirement for the Management of Waste in Cheshire West & Chester to 2045

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Glossary of Terms

Agricultural Waste	Waste produced on a 'farm' in the course of 'farming'. Agricultural waste takes both 'natural' (or organic) and 'non- natural' forms e.g. plastics and metal.
Anaerobic Digestion	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.
Biowaste	Waste that can break down over time due to natural biological action/processes, such as food, garden waste and paper.
Commercial Waste	Waste from factories or premises used for the purpose of trade or business, sport, recreation or entertainment.
Composting	A process in which biodegradable waste (such as green waste and kitchen waste) is broken down in aerobic conditions by naturally occurring micro-organisms to produce a material suitable for use as a soil improver.
Construction, Demolition & Excavation Waste (C, D & E waste)	Waste arising from the building process comprising demolition and site clearance waste and builders' waste from the construction/demolition of buildings and infrastructure. Includes masonry, rubble and timber.
Defra	The UK Government department responsible for developing national waste management policy.
Energy from Waste	The conversion of the calorific value of waste into energy, normally heat or electricity through applying thermal treatment of some sort. May also include the production of gas that can be used to generate energy.
Environment Agency	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.
Exemptions	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.
Green waste	Biodegradable plant waste from gardens and parks such as grass and hedge trimmings, from domestic and commercial sources suitable for composting.
Hazardous Waste Landfill	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.
Hazardous Waste	Waste requiring special management under the Hazardous Waste Regulations 2005 due to 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 characteristics of the waste.
Household Waste	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.
Incineration	The controlled combustion of waste. Energy may also be recovered in the form of heat (see Energy from Waste).
Industrial Waste	Waste arising from any factory and from any premises occupied by an industry (excluding mines and quarries).
Inert Landfill	Landfill site permitted to only accept inert waste for disposal.
In Vessel Composting (IVC)	Composting materials within a closed system. Can be used to treat food and garden waste.
Landfill (including land raising)	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).
Landfill Directive	European Union requirements restricting the landfilling of biodegradable municipal waste and requiring pre-treatment of all waste to be landfilled and separate disposal of hazardous, and non-hazardous and inert wastes.
Local Aggregate Assessment (LAA)	Annual local aggregate supply and demand assessment conducted by Mineral Planning Authorities which includes a survey of recycled, secondary and alternative aggregate producers within their particular Plan area.

Local Authority Collected Waste (LACW)	Waste collected by or on behalf of a local authority. Includes household waste and business waste were collected by a local authority and non-municipal fractions such as construction and demolition waste delivered to HWRCs. LACW is the definition used in statistical publications, which previously referred to municipal waste.
Mass Balance	Method of assessing the quantity of waste that may be converted to recycled aggregate by comparing inputs and outputs for sites reporting through the WDI.
Materials Recycling Facility (MRF)	A facility for sorting recyclable materials from the incoming waste stream.
Mechanical Biological Treatment (MBT)	A waste facility that combines a sorting facility with a form of biological treatment such as composting or anaerobic digestion.
Municipal Solid Waste (MSW)	Household waste and any other waste collected by a waste collection authority such as municipal parks and gardens waste and waste resulting from the clearance of fly-tipped materials.
Non-Hazardous Waste Landfill	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.
Open Windrow Composting	A process in which biodegradable waste (such as green waste and kitchen waste) is broken down in an open-air environment (aerobic conditions) by naturally occurring micro-organisms to produce a material suitable for use as a soil improver.
Recovery	Subjecting waste to processes that recover value including recycling, composting or thermal treatment to recover energy.
Recycling	The reprocessing of materials extracted from the waste stream either into the same product or a different one.
Refuse Derived Fuel	A fuel produced to a contract specification by processing the combustible fraction of waste.
Residual Waste	Waste remaining after materials for re-use, recycling and composting/organic waste treatment e.g. anaerobic digestion has been removed.
The Plan area	The area subject to the Waste Local Plan to which this study relates. In this case the borough of Cheshire West and Chester.
Waste Collection Authority (WCA)	A local authority that has a duty to collect household waste. They also have a duty to collect commercial waste if requested to do so and may also collect industrial waste.
Waste Disposal Authority (WDA)	A local authority responsible for managing the waste collected by councils acting as waste collection authorities and the provision of household waste recycling centres. In this case Cheshire West & Chester Council.
Waste Planning Authority	The authority responsible for planning for waste within a specific administrative area. In this case Cheshire West & Chester Council.
Waste Transfer Station	A site to which waste is delivered for sorting or baling prior to transfer to another place for recycling, treatment or disposal.

Executive Summary

This report presents the outcome of the Waste Need Assessment (WNA) undertaken by BPP Consulting LLP on behalf of Cheshire West and Chester (CWaC) Council. This WNA was produced as part of the evidence base supporting the preparation of the Cheshire West and Chester Local Plan. The WNA seeks to identify the future need for additional waste management capacity in CWaC to 2045. Future need is assessed by quantifying the principal waste streams arising in CWaC and forecasting the amount of waste that may need to be managed over the Plan period by different management methods. This takes into account the potential contribution existing waste management capacity within CWaC may make towards meeting this need.

The WNA estimates that a total of 1.1 million tonnes of waste arose within CWaC in 2021. The quantities of waste arising by principal category or waste-stream are shown in Figure 1 below:

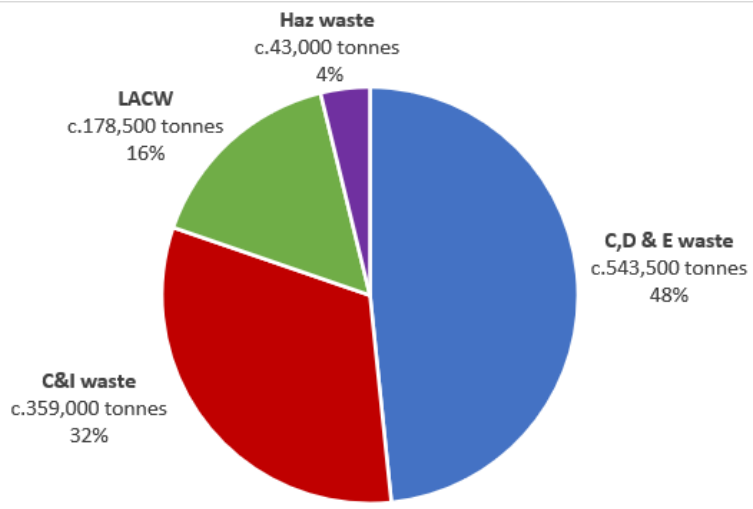

Figure 1: Quantities of Waste Arising in CWaC in 2021 by Stream

The WNA found that:

- There appears to be sufficient existing consented capacity to meet the projected management requirements for; recycling/ composting; 'Other Recovery' of residual non-hazardous Local Authority Collected Waste (LACW) & Commercial and Industrial (C&I) waste, and for inert waste via recovery throughout the Plan period.
- The closure of Kinderton Lodge Landfill in 2037 will lead to a cumulative deficit in non-hazardous waste landfill capacity of c130,500 tonnes by the end of the Plan period. However, given that 'Other Recovery' capacity is more than sufficient to meet the identified Other Recovery need, it can be expected to cater for the projected deficit in non-hazardous waste landfill capacity. In addition, landfills that have sufficient remaining void space to manage the predicted shortfall in non-inert waste landfill capacity have been identified in Lancashire and Greater Manchester. Availability from 2037 onwards should be confirmed via enquiry.

It should, be noted that given there is a policy expectation for waste to be driven up the waste hierarchy and a need to intensify recycling to reach the Government's expectations regarding residual waste reduction by 2042, proposals for capacity to move waste to tier three and above of the hierarchy (i.e. recycling), should not be constrained by the findings of this WNA.

1 Purpose

This report presents the outcome of a comprehensive Waste Need Assessment (WNA) update undertaken by BPP Consulting on behalf of CWaC Council. The WNA is intended to identify the adequacy of waste management capacity and possible shortfalls that may emerge over the proposed Local Plan period (to 2045). The WNA estimates the amount of waste that will require management over the plan period, whilst taking into account the contribution existing waste management capacity may make, to identity future gaps in capacity. This involves first quantifying and characterising the principal waste streams arising in CWaC. This work is undertaken in the context of the National Planning Policy for Waste (NPPW) and the national Planning Practice Guidance (PPG), which expects that:

> "*Planned provision of new capacity and its spatial distribution should be based on robust analysis of best available data.*" (PPG Para 035).

To achieve this the following steps have been followed:

1. Scope the key waste streams to be targeted for assessment;
2. Generate robust baseline waste arisings values;
3. Generate realistic forecasts of future waste arisings;
4. Define appropriate (relevant to the Plan area) targets for the management of each waste stream (to ensure that waste is managed in accordance with the waste hierarchy);
5. Assess current consented management capacity in CWaC;
6. Quantify future capacity needs accounting for cross boundary movements of waste;
7. Establish any associated future gaps in waste management capacity.

The WNA consists of the following reports:

- This Overview Report including Appendix 1;
- Local Authority Collected Waste - Assessment of Management Requirements to 2045 (Appendix 2);
- Commercial & Industrial Waste - Assessment of Management Requirements to 2045 (Appendix 3);
- Construction, Demolition & Excavation Waste - Assessment of Management Requirements to 2045 (Appendix 4);
- Hazardous Waste - Assessment of Management Requirements to 2045 (Appendix 5);
- Scoping Review of Other Waste Streams[1] (Appendix 6);
- Review of Waste Flows (Appendix 7); and
- Waste Attribution (Appendix 8).

A technical report relating to characteristics of different types of waste management facilities to assist CWaC in determining future applications has also been produced as an adjunct to this WNA.

[1] This concluded that the capacity needs of these streams need not be considered further in this WNA.

1.1 Principal Data Sources

The principal data sources used to generate this WNA are as follows:

Waste Data Interrogator

Operators of all sites subject to environmental permits relating to the management of waste in England are required to submit returns to the Environment Agency setting out the quantities, types and origin of waste received and, where applicable, destination and fate of waste removed. These returns are collated by the Environment Agency and reported in a national dataset known as the Waste Data Interrogator (WDI). The WDI is released approximately nine months after the end of the calendar year to which the data relates. The 2021 WDI (version 3 released January 2023), for the calendar year 2021, was the most current version available at the time of producing this WNA.

Hazardous Waste Interrogator

In the UK producers and managers of hazardous waste must notify the environmental regulator for the country in which they are located (in England this is the Environment Agency) of movements of waste classed as hazardous. This data is collated and reported in the Hazardous Waste Interrogator (HWI). Data is currently reported down to the receiving local area (defined by council or unitary authority) rather than by receiving site. The HWI (HWI 2021) released in September 2022 reporting data for 2021 was used in producing this WNA.

WasteDataFlow

WasteDataFlow (WDF) is a web-based data entry portal used by local authorities in England to report on the management of Local Authority Collected Waste (LACW) in their area to central Government (DEFRA) on a quarterly basis. Following independent quality checking the data is used to report on national LACW recycling and landfill diversion performance. While Councils normally report to WDF in financial years, as the Environment Agency WDI reports on a calendar year basis, the data for CWaC within WDF covering the four quarters of 2021 has been accessed to ensure comparability between datasets.

1.2 Quantities of Waste Produced in Cheshire West and Chester

The WNA update has found that c1.12 million tonnes of wastes arose within CWaC in 2021. The principal components are:

- Construction, Demolition & Excavation: c543,500 tonnes
- Commercial & Industrial Waste: c359,000 tonnes
- Local Authority Collected Waste: c178,500 tonnes
- Hazardous Waste: c43,000 tonnes

Quantities of waste arising from agriculture, waste water treatment and non-nuclear radioactive waste management were also reviewed in a separate report (Scoping Review of Other Waste Streams Appendix 6) as required[2] but not found to arise in sufficient quantities to warrant inclusion in the assessment exercise.

[2] Planning Practice Guidance: Waste Paragraph: 031 Reference ID: 28-031-20141016

2 Capacity Assessment Overview

The capacity of waste management facilities in CWaC has been established using data for planning consents combined with a review of data for waste inputs over the past five-years as reported through the annual versions of the WDI (2017-2021). Where possible the site specific values have been corroborated through direct contact with site operators/developers as part of a survey. The outcome of the survey is reported separately.

Examination of these datasets indicates that the following capacity types exist within the Plan area:

- Recycling including Recycled Aggregate Facilities (RAF), Material Recycling Facilities (MRF) and Metal Recycling Sites (MRS);
- Organic waste treatment (e.g. composting and anaerobic digestion);
- Waste Transfer/treatment capacity;
- Energy Recovery; and
- Landfill (non-hazardous and hazardous only).

Facilities where waste recyclate is reprocessed into product, such as glass-furnaces and paper mills, were not included in this assessment exercise as they are not considered to be waste management development and therefore are not normally planned for in a waste local plan.

2.1 Net Self Sufficiency

Net self-sufficiency is an approach applied in waste planning to establish how much capacity should be planned for in each waste plan area. This follows the polluter pays principle whereby the area that produces the pollution (in this case waste) is taken to be responsible for ensuring its safe management. 'Net' self-sufficiency is applied as waste does not recognise administrative boundaries and so there is no expectation that every tonne of waste produced in CWaC ought to be managed within CWaC, rather that, overall, there should be a balance of provision. While not specifically required by NPPW, net self-sufficiency is applied as a principle to ensure that sufficient capacity is provided to manage the tonnage of waste equivalent to that predicted to arise within a Plan area, in this case in CWaC to 2045 i.e. the Plan period.

The degree to which CWaC is net self-sufficient is established by comparing the available management capacity within CWaC with the projected arisings which have been determined in the separate waste stream specific reports included as Appendices to this report. This ascertains overall state of self sufficiency, which may not necessarily reflect any specific projected capacity gap. It should be noted that any assessment of the total waste management capacity of a Plan area only presents a snapshot at a particular point in time as the number of waste management facilities in existence and in operation is in a state of flux, as new sites come on stream, and sites may expand and contract or even close over time.

It should be noted that while the assessment of management requirements has been conducted on a waste stream-specific basis within each report, the assessment of capacity cannot be conducted in such a specific way since the same facility may manage waste from a number of different waste streams. For example, sites receiving C, D &E waste may also receive C&I waste and LACW for transfer. This means it is necessary to interpret between the identified needs and the existing available capacity to identify any projected capacity shortfall.

2.2 Sources of Facility Capacity Data

Facility capacity data has primarily been ascertained from site input data presented in the WDI compiled by the Environment Agency over the most recent 5-year period 2017-2021 for which data is available (See Appendix 1). The 5-year peak input was then calculated on a site-by-site basis. Any sites that did not report any inputs in the most recent 3-years have been excluded and the capacity has not been counted for the purposes of this WNA. For any sites that managed a significant amount of hazardous waste (greater than 20% of the total peak amount of waste managed) this capacity was deducted from the preferred capacity value, to ensure that hazardous waste management capacity provided by these sites was not compromised.

To allow for the possibility that the peak input value is not an absolute limit, a 20% 'freeboard' was added to the peak input values shown in the WDI. This adjustment is intended to reflect the maximum realistic throughput of a facility (on the basis that most facilities will not be working to their maxima throughout a year), as opposed to theoretical capacity that may be indicated by, for example, the site's Environmental Permit.

Where applicable, site capacity based on the planning consent issued by CWaC was compared to the peak value +20%. Consented capacity was used in preference to the peak value +20%, unless the peak value +20% deviates significantly (+/- 50%) from the consented capacity. In this case, the peak value +20% has been used as it is considered to provide a more accurate representation of the true operational capacity. The values obtained have been checked with site operators/developers through direct contact, and where appropriate to adjusted to reflect their feedback.

Planning consents issued by CWaC have been reviewed where they are available to identify any capacity limitations relating to annual throughput of waste management facilities. Capacity or throughput limitations may be expressed in planning conditions where necessary to ensure that the impacts of site operations are controlled to acceptable levels. They are often expressed in terms of a limitation on vehicle movements per day, normally Heavy Goods Vehicles (HGVs). Where planning consents make no reference to capacity limitations or HGV movement limits, the supporting statements provided by the applicant (usually the operator or agent on behalf) as part of the planning application can be reviewed. These may include the proposed level of waste management capacity. Similarly, the planning application forms for contemporary consents normally specify total capacity and/or maximum annual operational throughput of each waste stream proposed to be managed. As planning consents generally include a condition requiring the development to be undertaken in accordance with the details set out in the application, the entries in this form may be considered to form part of the consent and binding once implemented.

2.3 Operator Survey

An operator survey was conducted by BPP Consulting, whereby the operators of waste management facilities in CWaC were contacted and given the opportunity to comment on the information that had been compiled for each site. This included capacity data from the last 5-year period in the WDI plus 20% and any known planning limits. The operators were invited to comment on whether the capacity data indicated was an accurate representation of the true operational capacity. Where the respondent offered an alternative value that they considered to be more realistic, this has been used.

3 Capacity in CWaC by Management Method

3.1 Types of Waste Management Capacity

The waste hierarchy is set out at Article 4 of the revised Waste Framework (Directive 2008/98/EC) and compliance with it is obligatory under *The Waste (England and Wales) (Amendment) Regulations 2012.* The hierarchy sets an order of preference by which waste is to be managed, starting with the preferred option of prevention (Tier 1), followed by preparing waste for re-use (Tier 2), recycling/composting (Tier 3) and 'other recovery' (Tier 4), with disposal (Tier 5) (such as landfill or incineration without energy recovery) as the least favoured as shown in Figure 2.

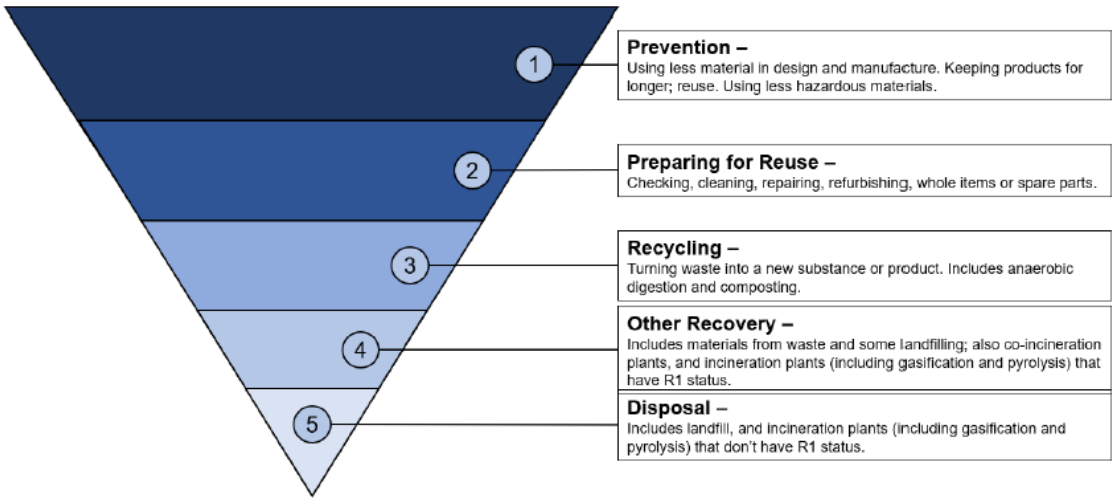

Figure 2: Diagrammatic representation of the Waste Hierarchy
Source: Resource efficiency and waste reduction targets detailed evidence report DEFRA April 2022.

It should be noted that under the Waste Framework Directive, recycling, composting and 'other recovery' operations such as Energy from Waste and anaerobic digestion are all classed as 'recovery' operations. Hence the use of the term 'other recovery', to cover operations that involve something other than recycling and/or composting/anaerobic digestion. This includes Energy from Waste (EfW) facilities, where waste is burnt to produce power and/or heat, providing they meet a minimum performance standard set out in the R1 formula and some landfilling where it involves the use of materials for restoration.

Following the waste hierarchy should generally lead to the most resource efficient and environmentally sound approach to managing waste. However, because the 'best' choice can be influenced by the fact that different waste streams have different characteristics (such as calorific value), in some cases departing from the waste hierarchy can lead to better environmental outcomes. When considering whether a departure from the waste hierarchy would be justified, decision-makers are to base their choices on the findings of Life Cycle Assessments (LCAs)[3].

[3] The way in which the findings of LCAs are relevant to decision making on the application of the hierarchy to waste management has been set out by Government in *Applying the Waste Hierarchy: evidence summary* DEFRA June 2011 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69403/pb13530-waste-hierarchy-guidance.pdf

Recycling is taken to include any activity that either results in the separation of materials suitable for reuse as a raw material and/or its actual conversion to a product (reprocessing). For the purposes of this capacity assessment exercise, recycling capacity does not include reprocessing capacity where a material such as waste paper is converted into a product such as newsprint as that is a manufacturing process. Plants or facilities where such processes take place are generally not considered to be development undertaken for the purposes of managing waste and so do not usually require planning consent from the WPA. Recycling capacity can take various forms from depots where source separated recyclable materials are bulked up for onward recycling, to facilities where materials may be separated out on delivery e.g. Household Waste Recycling Centres (HWRCs), through to fully fledged Material Recycling Facilities where complete loads of waste are passed through a processing line to extract and separate materials for recycling.

Composting, involves the decomposition of biodegradable and putrescible matter by aerobic processes. Composting facilities come in two principal forms, open-air (windrow), or enclosed (In Vessel Composting (IVC)). Open-air composting is only suitable for treating biodegradable waste such as green waste and some cardboard, while IVC can also process putrescible wastes such as kitchen wastes due to the requirements of the Animal By-Products Regulations.

Anaerobic Digestion (AD) involves the decomposition of biodegradable and putrescible matter within a vessel to produce biogas. While it has been classified in the waste hierarchy as a form of 'other recovery' (Tier 4), life cycle assessment has demonstrated that it is better than composting and other recovery options when it comes to the management of food wastes, and garden waste in some cases. Given that deviation from compliance with the waste hierarchy may be justified by life cycle thinking, it is therefore now considered alongside composting as an organic waste treatment method that can contribute to meeting recycling/composting targets. Figure 2 reflects this. Kitchen and commercial food waste can only be processed in enclosed systems such as in-vessel composting plant (IVC) and AD facilities due to the requirements of the Animal By-Products Regulations.

In this report, 'Recycling/composting' is therefore used as a shorthand term for material recycling and organic waste treatment including AD.

3.2 Recycling Capacity

Table 1 shows the assessment of recycling capacity in CWaC for all non-hazardous waste i.e. inert and non-inert waste excluding MRS as a number of these sites manage hazardous waste the capacity for which is accounted for in the separate hazardous waste report. The listing provided by CWaC classes some sites as 'treatment' and these have been counted towards providing recycling capacity and are therefore shown in Table 1. Any sites that were active in the period 2017-2021 as shown in the WDI have been included in Table 1 even if they were omitted from the CWaC list.

3.3 Other Recycling Capacity

Whilst the WDI 2021 included eleven CWaC sites under the transfer site category, closer examination of the inputs and fates of the outputs of these sites revealed some separation and processing for recycling takes place. Of these sites, 1 was found to be a true transfer site, 2 were assessed to be converting C, D & E waste to recycled aggregate and have thus been included in Table 6 (that relates solely to inert waste recycling capacity); and 8 sites were found to be undertaking some recycling and so have been included in Table 1 overleaf.

Table 1: Recycling Capacity in CWaC for non-hazardous waste excluding MRSs

Site Name & Operator	Consented capacity provided (tpa)	Peak Input +20% tonnes (Appendix 1)	Preferred Value (tonnes p.a.)	Notes
Argent Biodiesel Stanlow Plant, Argent Energy (UK) Ltd	116,051	125,097	125,097	
Ashfield House, Dunkirk Way, Ash Metal Recycling Ltd	25,000	11,423	25,000	
Big Atom Recycling Plant, Big Atom Ltd	25,000	5,692	25,000	Site recycles tyres
Bridges Road Transfer Station, Alchem Merseyside Ltd	18,700	11,768	18,700	Site recycles polymers
Chapterhouse Transfer Station, FCC Waste Services (UK) Ltd	125,000	102,000	125,000	
C W & C Canalside Operations Hub, Cheshire West Recycling Ltd	-	37,924	37,924	
Dairy House Farm Holmes Chapel Road, Sproston, Crewe, CJS Construction and Aggregate Ltd	-	17,040	17,040	
Davenham Highways Depot, Ringway Infrastructure Services Ltd	-	2,372	2,372	
Guilden Sutton Depot, Ringway Infrastructure Services Ltd	-	6,614	6,614	
Manisty Wharf, Recresco Ltd	-	251,533	251,533	
Northwich Mini Skip, Thomas Bagley	-	4,456	4,456	
Park Rd, Northwich, A S H Skip Hire	-	4,830	3,945	885t deducted from peak input +20% for recycled aggregates
Shellway Rd, Ellesmere Port, Ash Aggregates Ltd	650,000	204,588	300,000	Planning application indicates up to 54% of input converted to recycled aggregate counted in Table 6[4].
Stanlow Oil Terminal, Argent Energy Holdings Ltd	-	98,771	98,771	
Tattenhall Transfer Station, Tudor Griffiths Ltd	-	14,165	14,165	
Unit 13 Griffiths Park, Rudheath, Northwich Recycle and Demolition Ltd	-	1,281	1,281	
Winsford Depot, Cheshire West Recycling Ltd	-	24,153	24,153	
Total capacity			**1,081,051**	

Table 1 shows a total operational recycling capacity in CWaC (excluding MRSs) of **c1.08M tpa.**

[4] Officer report for permission18/03199/FUL states the site will process up to 650,000 tonnes per year of non-hazardous CDE waste. It is anticipated that the plant will produce up to 350,000 tonnes of recycled / secondary aggregates per year, including: reclaimed sand; grit sand; graded recycled aggregates; and soils. Any residual wastes from the process, including silt, wood and metals will be sent to appropriately permitted disposal and recovery sites. Operator advises that 75% recycling rate actually being achieved.

3.4 Metal Recycling Capacity (MRS)

Scrap metal principally comes from industrial sources along with demolition and construction activity. End of life vehicles (ELVs) come from all sources including domestic. The WDI shows that in CWaC two permitted metal recycling sites (MRS) and three ELV depollution sites (authorised treatment facilities ATF) received waste between 2017 and 2021. As ELVs are classed as hazardous waste until they have been depolluted, the capacities of sites primarily/ exclusively managing these have been accounted for in the separate hazardous waste management requirement report and therefore to avoid double counting, their capacity has not been counted in this assessment.

As metal recycling sites can operate under a T9 exemption for recovering limited amounts of scrap metal instead of an environmental permit, some such sites may not be identified through interrogation of the WDI. To capture these omissions, entries in the online register of scrap metal dealers for CWaC has been compared with the Environment Agency exemption register for T9. Where sites are registered under both, they have been taken to be operational. This found one additional metal recycling site. As exempt facilities do not report waste tonnage received, reference has been made to the estimates included in the original national Reconcile method[5]. This estimated a site's may handle 2,500 tpa under a T9 exemption.

The MRSs and their assessed capacity is shown in Table 2 below.

Table 2: Metal Recycling Capacity in CWaC excluding ELV ATFs

Site Name & Operator	Consented capacity (tpa)	Peak Input +20% (tonnes) (Appendix 1)	Preferred Value (tonnes p.a.)
Cedab Rd, K J Bell Scrapmetal Merchants	-	5,979	5,979
60-64 Chapel St, Wincham, W R Roberts & Sons	-	7,646	7,646
4 Railway Arches, Brook Street, City Metals UK Ltd	-	-	2,500
		Total capacity	**16,125**

Table 2 shows a total operational non-hazardous metal recycling capacity in CWaC of c**16,000** tpa. When combined with the running recycling capacity of c**1,081,000** tpa this gives a total capacity of c**1,097,000** tpa.

3.5 Organic Waste Treatment Capacity

Various types of facility exist for the treatment of organic waste in CWaC ranging from open windrow composting to anaerobic digestion (AD). These are summarised in Table 3.

[5] DEFRA, Commercial and Industrial Waste Survey 2009 Final Report (December 2010).

Table 3: Organic Waste Treatment Capacity in CWaC

Site Name & Operator	Facility Type	Consented capacity (tpa)	Peak Input (tonnes) (Appendix 1)[6]	Preferred Value	Notes
REnescience Northwich, Orsted REnescience Northwich O&M Ltd	MBT	144,000[7]	35,392	70,000	Response to operator survey
Hapsford Composting Site, George Whittaker and Sons (Knutsford) Ltd	Composting		23,907	23,907	
			Total Capacity	**93,907**	

Table 3 shows a total operational organic waste treatment capacity in CWaC of c**94,000** tpa.

Therefore, there is at least c**94,000** tpa of capacity that could receive and process biodegradable waste from C&I and LACW sources. When combined with the running recycling capacity of **c1,097,000 tpa** this gives **a total capacity of c1,191,000 tpa.**

3.6 Household Waste Recycling Centres

There are 7 household waste recycling centres (HWRCs) provided by CWaC.

HWRCs may be regarded as providing transfer capacity since waste delivered by the public to these sites is bulked and then transported on for onward management. However, as c60%[8] of the inputs are segregated on the site to go on for recycling or composting, around 60% of the capacity of each of these sites has been counted as contributing towards the overall recycling capacity. Their assessed recycling capacities are shown in Table 4.

Table 4: HWRC Capacity in CWaC (tonnes)[9]

Site Name	Operational Capacity (tpa)	Peak Input +20% (Appendix 1)	Recycling Rate Achieved (%)	Preferred Value
Chester[10]	13,000	11,733	62	7,274
Ellesmere Port	-	11,685	60	7,011
Frodsham	-	3,266	65	2,123
Neston	-	3,995	71	2,836
Tattenhall	-	2,211	67	1,481
Whitton (Northwich)	-	8,411	66	5,552
Winsford	-	9,858	65	6,408
			Total Capacity	**32,686**

Applying the assessed recycling (60%) capacity in Table 4 gives **c32,500** tpa.

[6] 20% not added to peak input as site processes will have an absolute limit to allow for retention times

[7] The facility may accept and treat up to 144,000 tonnes per annum of municipal solid waste, fines and commercial and industrial wastes according to the Environmental Permit EPR/VP3338RD/V003 2018. However only a proportion of the input is converted into materials suitable for recycling.

[8] All outputs are shown as going for recovery; however, it is assumed that the mixed municipal waste component did not go for recycling. This stood at c40%.

[9] Given the HWRC's are under the control of CWaC, where the stated capacity is greater, this value has been taken as the preferred value.

[10] Site relocated in 2020.

Table 5 shows a total combined recycling/composting capacity of **c1.2M tpa** exists in CWaC.

Table 5: Combined Recycling/Composting Capacity in CWaC

Capacity Type	Assessed capacity (tpa)
Recycling	1,081,051
Metal Recycling	16,125
Organic Waste Treatment	93,907
HWRC	32,686
Total	**1,223,769**

3.7 Recycled Aggregate Facilities

There are a number of sites where inert C, D & E waste is recycled into product such as recycled aggregate and screened soils. Table 6 identifies these sites along with the consented throughput (where available) and peak annual input +20%.

Table 6: Recycled Aggregate Facilities in CWaC cross checked with declared capacity in LAA

(italicised entry has been counted in another table)

Site Name & Operator	Consented capacity (tpa)	Peak Input +20% (Appendix 1)	Preferred value	Notes
Shellway Rd, Ellesmere Port, Ash Aggregates Ltd	650,000	204,588	350,000	Planning application indicates up to 350,000 tonnes of recycled aggregate produced. Remaining capacity counted in Table 1.
Aggregates Yard, D G Cummins & Co Ltd	-	101,875	101,875	
Liverpool Rd, Backford, Cheshire Waste Skip Hire Ltd	-	29,162	29,162	
Park Rd, Northwich, A S H Skip Hire	-	*4,830*	*885*	*885t mass balance value taken. Remaining counted in Table 7.*
		Total Capacity	**481,922**	

Table 6 shows a total assessed operational recycled aggregate production capacity in CWaC of **c482,000** tpa in 2021 at the end of the Plan period.

3.8 Waste Transfer Capacity

Waste transfer refers to the reception and bulking of collected wastes, both residual and separated/co-mingled recyclates, for subsequent management at other facilities. Transfer capacity can be accommodated at dedicated sites or at sites where other waste management activities take place. For example, sites accepting skip waste for recycling may also accept source separated Local Authority Collected Waste (LACW) for onwards recycling. Transfer station capacity that facilitates recycling by providing bulking capacity, is already accounted for as providing recycling capacity in Table 1.

Table 7: Transfer Capacity in CWaC

Site Name & Operator	Consented capacity (tpa)	Peak Input +20% tonnes (Appendix 1)	Preferred Value (tonnes p.a.)
Winsford Rock Salt Mine Waste Disposal Facility, Veolia ES (UK) Ltd	-	24,153	24,153
		Total capacity	**24,153**

Table 7 shows a total transfer capacity facilitating the onward management of waste by a means other than recycling, of **c24,000** tpa. This relates to a transfer facility where EfW plant air pollution control residues may be received in bulk and then bagged for storage in the deep geological cavity identified as Bostock Landfill.

3.9 Final Fate Capacity

The types of facilities assessed thus far primarily[11] provide 'intermediate' capacity where waste is processed/ sorted before being transported on for management at its final destination, or 'final fate' management. This section accounts for the capacity provided by sites where waste meets its final fate (other than where waste is converted into useful materials e.g. compost or recyclate). This includes landfill and recovery to land sites.

Landfill Capacity

The term landfill is also applied by the Environment Agency to underground storage facilities. These are facilities used for the storage of waste underground in deep geological cavities. This include voids created by brine or salt extraction, where waste from chemical works may be stored as a sludge, or air pollution control residues may be stored bagged in dry form. As these facilities are classed as landfill for permitting purposes, the capacity offered by them appears in the Environment Agency Landfill Capacity Dataset. However, as they are often specialist facilities serving specific waste producers their capacity is not always available to accept waste generally and therefore provided the waste managed through them is not counted in a baseline Plan area arising value, the capacity offered by such facilities in CWaC has been excluded from this assessment of available landfill capacity. In this case the Holford Brinefield has been excluded, while the Bostock Landfill operated by Veolia ES (UK) Limited (aka the Minosus facility) taking APCr in bagged form has been counted as it provides merchant capacity, albeit serving Veolia's own fleet of EfW plants.

On the basis of the above there are two operational landfills in CWaC at the time of writing: one is a hazardous waste landfill at Bostock[12] and one is a non-hazardous waste landfill at Gowy.

[11] "Primarily", as organic waste treatment capacity can be a final fate if the resulting residues cease to be classed as waste.

[12] It should be noted that while the void has been counted toward landfill capacity, it has not been counted as providing any inert landfill capacity, as such facilities do not require inert waste to cover other waste to contain or restore it.

Non-Inert Landfill: Relationship between void space and tonnage

Each landfill's remaining capacity has been determined by reference to the Environment Agency annual remaining landfill void dataset. However, the mass of waste does not necessarily directly correspond to its volume i.e. 1 tonne of waste does not necessarily occupy 1 cubic metre of airspace/void. The assessed landfill void requirement therefore needs to account for the density of different wastes under consideration.

For the purposes of this exercise, it has been assumed that 1.5 tonnes of inert waste can be accommodated within one cubic metre of void, while a single tonne of non-inert residual waste may be accommodated within one cubic metre of void[13]. It is also assumed that at least 15% of the input to a non-inert landfill will be inert waste used for operational and restoration purposes as all such sites will have such a requirement and so this is counted towards inert waste management capacity. The tonnage of inert waste used for restoration purposes is taken to be classed as recovery as it involves the use of the waste.

Non-Inert Waste Landfill Capacity

The capacity offered at the only non-inert waste landfill in CWaC at the end of 2021 is shown in Table 8.

Table 8: Remaining landfill void space at Non-inert Landfill in CWaC

Site Name + Operator	EA data end of 2021 permitted Void space (m^3)	End of 2021 capacity (tonnes)	Notes
Gowy Landfill, 3C Waste Ltd	119,336	101,436t for non-inert 26,851 for inert	Inert: 15% for inert = 17,900m^3 *1.5 = 26,851t for inert waste input for restoration

However, at the time of writing (September 2023) the Gowy landfill is approaching completion so the site has not been taken to offer any capacity in the forthcoming Plan period.

A site to be developed by Enovert at Kinderton Lodge was granted planning consent for mineral extraction and restoration by landfilling on appeal in 2012, and holds an environmental permit[14]. This will involve creation of a void capable of accommodating up to 2.1M tonnes of non-hazardous waste over a 12-year period. The site may accept up to 275,000t of non-hazardous waste along with 25,000t of inert waste in each of the 12 years of operation.

[13] This latter value is greater than that of 0.85t/m^3 applied in the past, as very little untreated 'black bag' waste is now sent direct to landfill, most if not all will have undergone some pre-treatment (as required by the Landfill Directive), making it denser than untreated mixed non-inert waste.

[14] Kinderton Lodge Landfill Permit EPR/WP3130XG/V003

Inert Landfill Capacity

There are no sites operating as inert landfills in CWaC at the time of writing.

3.10 Other Recovery

There are two EfW plants capable of dealing with residual waste under construction in CWaC as follows:

- the Protos Energy Recovery Facility, with capacity of up to 500,000tpa; and
- the Lostock Sustainable Energy Plant with consent for 600,000 tpa.

At the time of writing both are in the process of being built out, so the capacity has been counted.

In addition to this, there is the Ince Bio Power biomass power station that takes waste wood only, plus the Ellesmere Port High Temperature Incinerator (HTI) that primarily destroys hazardous waste but does have some energy recovery capability. These plants are listed in Table 9 along with their assessed capacities.

Table 9: Capacity at Consented Energy from Waste plants in CWaC

Site Name & Operator	Consented capacity (tpa)	Peak Input +20% tonnes (Appendix 1)	Preferred Value (tpa)	Notes
Protos Energy Recovery Facility	500,000	-[15]	500,000	Residual waste/RDF.
Lostock Sustainable Energy Plant	600,000	-[16]	600,000	Residual waste/RDF.
Ince Bio Power, Evero Energy Services Ltd	176,500	64,934	176,500	Waste wood primarily from C,D&E waste stream only[17].
Ellesmere Port HTI, Veolia ES Cleanaway Ltd	100,000	82,307	100,000	Primary inputs hazardous waste
		Total Total residual waste/RDF	1,376,500 *(1,100,000)*	

Table 9 shows that there is c1.4M tpa offered by CWaC EfW plants of which 1.1M tpa of capacity will be available for residual waste management.

3.11 Recovery to Land Capacity

The WDI 2021 reports 1 recovery to land site operating in CWaC in 2021. However, this is categorised as a lagoon, therefore has not been counted in this capacity assessment as it only provides interim storage, rather than a final fate.

[15] Currently under construction.

[16] Currently under construction.

[17] Consented capacity taken given the site has the ability to manage this amount of waste (even though current inputs are 30% virgin timber. There is also a permitted mechanical treatment facility where waste is processed into fuel.

3.12 Capacity Summary

Intermediate Site Capacity

In 2021, capacity for managing waste at intermediate sites in CWaC totalled **c1.7 Mtpa.** Table 10 shows a summary of operating capacity of the different type of facilities investigated.

Table 10: Intermediate Waste Management Capacity in CWaC

Capacity Type	Assessed capacity		
	Non-inert waste		Inert waste
	Recycling	Transfer (without recycling)	Recycling
Recycling (Table 1)	1,081,051	-	-
MRS (Table 2)	16,125	-	-
Organic Waste Treatment (Table 3)	93,907	-	-
HWRC Recycling (Table 4)	32,686	-	-
Recycled Aggregate (Table 6)	-	-	481,922
Waste Transfer (Table 7)	-	24,153	-
Total	**1,223,769**	**24,153**	**481,922**

Final Fate Capacity

Table 11 sets out a summary of final fate capacity in CWaC.

Table 11: Final Fate Waste Management Capacity in CWaC (tpa)

Capacity Type	Assessed capacity				
	Non-inert waste		Inert waste	Hazardous waste	
	Recovery	Disposal	Recovery (restoration)	Recovery	Disposal (void m3)
Landfill	-	>275,000	>25,000	-	30,000[18]
Other Recovery Plants	1,100,000	-	-	100,000	
Total	**1,100,000**	**>275,000**	**>25,000**	**100,000**	**30,000**

[18] Based on difference in remaining void for 2021 1,401,500 and 2022 1,373,108.

4 Assessing the Capacity Gap in CWaC

4.1 Waste Management Requirements

The management requirements for waste forecast to arise in CWaC to 2045 by capacity type at the Plan milestone years are set out in Table 12. The progression towards the target milestones is compared with the baseline value for 2021. The management requirements in CWaC have been derived by combining the waste stream specific data presented in the appendices.

Table 12: Forecast Waste Management Requirements in CWaC at Plan Milestone years

Source: Waste stream reports Appendix 2, 3 and 4. Table 8 LACW, Table 22 C&I & Table 21 CDE

	Measured Baseline (Actuals)	Forecast Waste Management Requirements (Tonnes at Plan Milestone)					Peak or Cumulative Capacity Requirement (tonnes)	Trend in projected management requirements as per forecasts set out in Appendix 2, 3 & 4
	2021	**2025**	**2030**	**2035**	**2040**	**2045**		
Recycling/Organic Waste Treatment								
LACW	*106,112*	115,533	123,583	131,513	130,615	129,718	131,513	Rising then falling
C&I	*243,939*	251,590	270,183	270,805	271,427	272,049	272,049	Rising
CDEW	*51,095*	81,873	82,284	82,696	83,110	83,526	83,526	Rising
Total	***401,146***	**448,996**	**476,050**	**485,014**	**485,152**	**485,293**		
Residual waste Other Recovery								
LACW	*72,589*	60,433	51,199	42,084	41,797	41,510	60,803	Falling
C&I	*102,938*	100,636	82,856	83,047	83,238	83,428	100,636	Falling then static
Total	***175,527***	**161,439**	**134,765**	**126,046**	**126,276**	**126,505**		
Residual waste Non-Inert Landfill								
LACW	*0*	1,777	1,765	1,754	1,742	1,730	38,601	Falling
C&I	*11,875*	7,188	7,205	7,221	7,238	7,255	169,542	Rising
CDEW	*54*	<5,458	<5,486	<5,513	<5,541	<5,568	119,051	Rising
Total	***11,929***	**14,434**	**14,481**	**14,526**	**14,572**	**14,618**	**327,194**	
Aggregate recycling/ Recovery to Land and Recovery in Landfill								
Inert CDE	*492,495*	>463,949	>466,273	>468,609	>470,957	>473,317	473,317	Rising

How the waste management capacity requirements identified in Table 12 above might be met is discussed below.

4.2 Recycling & Composting Waste Management

Recycling and organic waste treatment (aka composting) have been taken to sit at the same tier of the waste hierarchy and may therefore be considered interchangeable in terms of the movement of waste up the hierarchy. Therefore, combined targets are proposed.

When the total assessed management capacity for recycling and composting of c1,224,000 tpa shown in Table 10 (reduces to c1,221,500 tonnes in 2025 due to the expiry of the T9 exemption) is compared with the estimated combined recycling and composting requirement as shown in Table 12, it can be concluded that sufficient capacity exists to meet the Plan area need until for the entire Plan period (as shown in Table 13).

It should however be noted that to recycle a tonne of waste does not necessarily require provision of waste management capacity capable of processing a tonne of waste. Much depends on how the waste is presented for collection, plus the proximity to reprocessing sites. So, for example if waste is segregated effectively at source, the resulting materials may be delivered directly to a reprocessing site and not require provision of additional sorting capacity. It is notable in that regard that the Environment Act now requires the separate collection of at least three materials - food waste, dry mixed recyclables and glass - from all homes and business premises. If materials are not separated at source, then they may require processing through a MRF before going on for recycling.

Table 13: CWaC Waste Recycling/Composting Capacity Requirement at Plan Milestone years
Source: Table 10 & 12

	Tonnes at Plan Milestone					Peak Requirement (tonnes)
	2025	**2030**	**2035**	**2040**	**2045**	
Recycling /Composting Requirement	448,996	476,050	485,014	485,152	485,293	485,293
Plan Area Capacity	*1,221,269*	*1,221,269*	*1,221,269*	*1,221,269*	*1,221,269*	
Shortfall	**+772,273**	**+745,219**	**+736,255**	**+736,117**	**+735,976**	

Table 13 shows that there is predicted surplus recycling/ composting capacity of c772,500 tonnes at the start of the Plan period reducing to c736,000 tonnes in 2045. It should be noted that there should be no constraint on recycling and composting capacity, given the need to push for waste management higher in the waste hierarchy.

4.3 Residual Waste Management

CWaC Residual Waste 'Other Recovery' Capacity

When the total assessed management capacity for 'other' recovery of 1,100,000 tpa shown in Table 11 is compared with the estimated combined requirement as shown in Table 12, it can be concluded that sufficient capacity exists to meet the Plan area need for the entire Plan period (as shown in Table 14).

Table 14: CWaC Waste 'Other Recovery' Capacity at Plan Milestone years

Source: Tables 11 and 12

	Tonnes at Plan Milestone					Peak Requirement (tonnes)
	2025	**2030**	**2035**	**2040**	**2045**	
Other Recovery	161,439	134,765	126,046	126,276	126,505	161,439
Plan Area Capacity	1,100,000	1,100,000	1,100,000	1,100,000	1,100,000	
Shortfall	**+938,561**	**+965,235**	**+973,954**	**+973,724**	**+973,495**	

Table 14 shows that there is predicted c938,500 tonne surplus of 'other recovery 'capacity in 2025 rising to c973,500 tonnes in 2035 to the end of the Plan period.

CWaC Residual Waste Landfill Capacity

While there is no obligation in national planning policy for CWaC to achieve net self-sufficiency for non-inert waste management alone throughout the Plan period, the management of mixed municipal waste by disposal or recovery is subject to the proximity principle and hence consideration has been given to the sufficiency of the remaining consented non-inert landfill capacity within CWaC alone. This approach recognises that the proximity principle encourages each WPA to plan for the management of mixed municipal waste through disposal and energy recovery on a more localised basis[19]. Table 15 below shows the predicted depletion profile of non-inert landfill void in CWaC as the projected combined residual non-inert waste landfill requirement is met. The depletion profile takes account the prospective availability of capacity at Kinderton Lodge Landfill which is expected to be operational from 2025.

[19] Waste Management Plan for England (DEFRA, January 2021)

Table 15: Predicted Depletion of Kinderton Lodge Landfill for CWaC Non-Inert Waste (tonnes)
Source: Tables 11 and 12

Year	Annual Non-inert Landfill Requirement[20]	Remaining Capacity for Non-inert	Cumulative Shortfall
		2.1M t	
2023	11,334	[21]	
2024	11,610		
2025	14,424	1,185,576	
2026	14,430	1,171,146	
2027	14,437	1,156,709	
2028	14,443	1,142,266	
2029	14,450	1,127,816	
2030	14,456	1,113,360	
2031	14,462	1,098,898	
2032	14,469	1,084,429	
2033	14,475	1,069,954	
2034	14,482	1,055,472	
2035	14,488	1,040,984	
2036	14,494	1,026,490	
2037	14,501		14,501
2038	14,507		29,008
2039	14,514		43,522
2040	14,520		58,042
2041	14,527		72,569
2042	14,533		87,102
2043	14,540		101,642
2044	14,546		116,188
2045	14,553		**130,741**

Table 15 shows that from 2037 there is a predicted shortfall in non-inert waste landfill capacity. This results in a cumulative shortfall in non-inert waste management capacity of c130,500 tonnes at the end of the Plan period. It should also be noted that were inputs to Kinderton Lodge limited to only those arising in CWaC the site would close before it is full.

[20] Includes C&I, C, D & E and LACW residual waste (Table 12).

[21] Values not included in cumulative total as occur prior to anticipated Plan adoption.

4.4 Inert Waste Management

The adopted CWaC Local Plan (2015) does not make a specific commitment to net-self-sufficiency for the management of inert waste. However, applying the objective of net self-sufficiency to this exercise is a useful way of establishing the extent to which the provision of capacity is adequate.

Inert waste can be managed through two principal routes depending on its nature/composition - recycled to aggregate or soil, or deposited for beneficial purposes on land (backfilling by inert landfill and recovery to land). Inert waste is also used for the restoration of non-inert landfills which is considered to be a beneficial use and hence a 'recovery' operation rather than disposal to landfill. The peak quantity of inert waste requiring management through recovery of one form or another is c473,500 tonnes as shown in Table 16.

Table 6 identifies 4 sites within CWaC reported as producing recycled aggregate. These sites have combined capacity of c**482,000** tpa. This alone is sufficient to meet the predicted peak requirement of c473,500 tonnes in 2045. This does not take account of capacity at facilities that manage inert waste through permanent deposit to land. CWaC has no consented inert waste landfills. However, it is estimated that c25,000 tpa will be required for restoration purposes at Kinderton Lodge landfill from 2025 through to 2037. Therefore, total management capacity for inert waste is estimated to be up to c507,000 tonnes for the period 2025-2037 (c482,000 tpa recycled aggregate plus c25,000 tpa at Kinderton Lodge) falling to 482,000 tpa 2038-2042 as shown in Table 16.

Table 16: CWaC Waste Inert Waste Capacity at Plan Milestone years

Source: Tables 10 and 12

	Tonnes at Plan Milestone					Peak Requirement (tonnes)
	2025	**2030**	**2035**	**2040**	**2045**	
Inert Waste	463,949	466,273	468,609	470,957	473,317	473,317
Plan Area Capacity (recycled aggregate sites + Kinderton Lodge to 2042)	*506,922*	*506,922*	*506,922*	*481,922*	*481,922*	
Shortfall	**+42,973**	**+40,649**	**+38,313**	**+10,965**	**+8,605**	

Table 16 shows that there is predicted c43,000 tonnes of surplus inert waste capacity at the start of the Plan period reducing to c8,500 tonnes in 2045.

4.5 Hazardous Waste Management

The separate hazardous waste report, prepared as part of this WNA, found that combined capacity offered by facilities within CWaC dedicated to managing hazardous waste equates to at least c152,000 tpa, which is a more than the c43,000 tonnes hazardous waste that arose in CWaC in 2021. Moreover, CWaC also has c1,401,500m3 of remaining capacity for certain hazardous wastes (APCr) at Bostock Landfill plus c100,000 tpa for combustible hazardous wastes at the Ellesmere HTI. Both of these facilities would be regarded as strategically important regionally and nationally.

The separate hazardous waste report concluded that the continued availability of capacity over the Plan period at those facilities outside CWaC identified as managing strategically significant quantities of hazardous waste should be confirmed through contact with the host Waste Planning Authorities identified in that report. This exercise is necessary to ensure that the future management of hazardous waste arising in CWaC has been planned for.

5 Capacity Gap Summary

The findings from the preceding discussion on potential future waste management capacity gaps in CWaC are summarised in Table 17 below.

Table 17: CWaC combined Capacity Assessment & Annual Capacity Gap Analysis

Capacity Type	Waste Management Capacity Gap (Tonnes at Plan Milestones)				
	2025	2030	2035	2040	2045
Recycling & Composting (Table 13)	+772,273	+745,219	+736,255	+736,117	+735,976
Non-inert Landfill (Table 14)	0	0	0	-14,520	-14,553
Other Recovery (Table 15)	+938,561	+965,235	+973,954	+973,724	+973,495
Aggregate recycling/ Recovery to Land (Table 16)	+42,973	+40,649	+38,313	+10,965	+8,605

Table 17 shows that there is sufficient capacity throughout the Plan period to meet the projected management requirements for:

- recycling and composting; and
- 'Other Recovery'; and
- the recovery of inert waste

While there is a predicted shortfall in non-inert landfill from 2037, this forecast shortfall will be more than offset by the substantial surplus in 'Other Recovery' capacity offered by the two EfW plants currently under construction.

While there will be some waste that can't be diverted from landfill due to its low combustibility, given that there isn't an expectation that each WPA provides management capacity for every tonne of waste arising within its own boundaries and the significant surplus of other recovery capacity, it is not considered necessary for CWaC to provide for the management of this waste by itself. Therefore, it would not be unreasonable to rely on export of the remaining residual waste to landfill elsewhere. This is considered in the following section.

6 Regional Capacity

Given a projected shortfall in non-inert landfill disposal capacity within the Plan area from 2037, consideration should be given to the national policy expectation of waste planning authorities through National Planning Policy for Waste. In relation to identifying the need for waste management facilities this states that:

> *3. In preparing Local Plans, waste planning authorities should: …*
>
> - *consider the need for additional waste management capacity of more than local significance and reflect any requirement for waste management facilities identified nationally;*
> - *take into account any need for waste management, including for disposal of the residues from treated wastes, arising in more than one waste planning authority area but where only a limited number of facilities would be required;*
> - *work collaboratively in groups with other waste planning authorities, and in two-tier areas with district authorities, through the statutory duty to cooperate, to provide a suitable network of facilities to deliver sustainable waste management;*
> - *consider the extent to which the capacity of existing operational facilities would satisfy any identified need.*

This is intended to ensure that over-provision of capacity does not occur, rather an optimal distribution of capacity is established "*to provide a suitable network of facilities to deliver sustainable waste management*" that may extend beyond the specific plan area. This is particularly the case when facilities provided have substantially greater capacity than required to meet the needs of the Plan area in which it is located. The initial area of search for additional non-inert landfill capacity has been confined to the North West Region which includes the following WPA's[22]:

- Blackburn with Darwen
- Blackpool
- Cheshire East
- Cumberland
- Halton
- Knowsley
- Lancashire
- Liverpool
- Greater Manchester authorities
- Sefton
- St Helens
- Warrington
- Westmorland and Furness
- Wirral

[22] Note that Cumbria's landfills have not been considered given BPP's capacity work indicated all the void offered by its landfills is needed for Cumbria's requirement.

6.1 Non-Inert Landfill Capacity

The capacity analysis presented in Table 15 identifies an emerging predicted shortfall in non-inert landfill capacity from 2037 to the end of the Plan period, resulting in a projected cumulative requirement of c130,500 tonnes. Therefore, consideration has also been given to the availability of non-inert landfill capacity in the North West region that CWaC forms part of. Remaining void data from the Environment Agency in 2022 (the latest available) shows just under 15.3 million cubic metres of non-inert landfill void was available in the North West region. The remaining void at the end of 2022 may be converted into capacity to accommodate the tonnage of non-inert waste shown in Table 18 below.

Table 18: Remaining Capacity at Permitted non-hazardous Landfill in North West region 2022

Site Name	Host WPA	Remaining Void m^3 (at end of 2022)	Estimated Capacity (Tonnes)	
			Inert deduction[23]	Non-inert[24]
Deerplay Landfill	Lancashire	862,216	193,999	732,884
Fletcher Bank Landfill Site		770,000	173,250	654,500
Jameson Road (Phase 2) Landfill Site		1,043,664	234,824	887,114
Clifton Marsh Landfill Site		1,669,783	375,701	≤1,419,316
Westby Landfill Site		300,042	67,509	255,036
Clayton Hall Landfill Site		332,214	74,748	282,382
Whinney Hill (Phase 2) Landfill Site		2,015,397	453,464	1,713,087
Harwood Quarry Landfill Site	Greater Manchester	871,490	196,085	740,767
Whitehead Landfill Site		541,313	121,795	460,116
Rixton Landfill		772,066	173,715	656,256
Pilsworth South Landfill		6,120,000	1,377,000	≤5,202,000
Total		**15,298,185**	**≤3,442,092**	**≤13,003,457**

Table 18 shows that there is just over 13M tonnes of available non-inert landfill capacity was available in the North West region, which would be more than sufficient to manage CWaC predicted cumulative non-inert landfill requirement of c130,500 tonnes.

Given the expectation that non-inert waste will continue to be diverted from landfill due to various pressures including the landfill tax, it may be assumed that the rate of depletion of void in consented landfill will reduce dramatically. This could conserve remaining void capacity, so that CWaC's predicted cumulative non-inert landfill capacity requirement (130,500t), may be accommodated within landfills within the region. That is predicated on other authorities planning to divert their waste from landfills which remains a national policy priority, driven by the landfill tax escalator.

[23] Total exceeds void due to density factor of 1.5 applied.

[24] Note non-inert capacity in Lancashire and Greater Manchester includes landfill with SNRHW cell thus capacity for non-inert waste in these WPA may be less than the remaining capacity for both hazardous and non-inert waste.

The long-term availability of such capacity for CWaC's waste ought to be confirmed with the host WPAs before reliance might be placed on it for the Plan period.

6.2 Recommendations

In light of the above findings the following recommendations are made:

- Initiate enquiries with WPAs within the North West region i.e., Greater Manchester and Lancashire hosting the landfill capacity identified in Table 18. This dialogue would establish the specific facility capacity available to the end of the CWaC Plan period and whether there is any planning impediment, such as a planning condition restricting the life, that would prevent waste from CWaC being managed there from 2037 onwards;
- The above engagement should be documented as part of the evidence base supporting production of a sound Local Plan covering CWaC.
- Such engagement should be undertaken in the context of the substantial surplus capacity the EfW plants under construction in CWaC may offer to the management of residual waste arising in WPA areas within the North West region.

7 Capacity Assessment Conclusion

This Waste Management Needs and Infrastructure Capacity Assessment (WNA) consists of the following documents:

- Local Authority Collected Waste - Assessment of Management Requirements to 2045 (Appendix 2);
- Commercial & Industrial Waste - Assessment of Management Requirements to 2045 (Appendix 3);
- Construction, Demolition & Excavation Waste - Assessment of Management Requirements to 2045 (Appendix 4);
- Hazardous Waste - Assessment of Management Requirements to 2045 (Appendix 5);
- Scoping Review of Other Waste Streams[25] (Appendix 6);
- Review of Waste Flows (Appendix 7); and
- Waste Attribution (Appendix 8).

The combined consideration of the reports above has found that the existing consented capacity within CWaC is sufficient to meet the predicted management requirements for waste requiring recycling and composting, other recovery and inert recovery predicted to arise in CWaC for the whole Plan period. There is a predicted shortfall in non-inert landfill from 2037, however, this forecast shortfall will be more than offset by the substantial surplus in 'Other Recovery' capacity offered by the two EfW plants currently under construction. In , c13M tonnes of non-inert landfill capacity has been identified in the North west region as a whole that might be relied upon, should landfill capacity be needed after 2037.

It should, however, be noted that given there is a policy expectation for waste to be driven up the waste hierarchy and a need to intensify recycling to reach the Government's expectations regarding residual waste reduction by 2042, proposals for capacity that would move waste to tier three (recycling & composting/AD) and above of the hierarchy, should not be constrained by the findings of this WNA.

[25] This concluded that the capacity needs of these streams need not be considered further in this WNA.

Appendix 1: CWaC Intermediate Site Throughput over 5 years reported through WDI tonnes (peak year identified by green cell, N/E = no entry)

Site Name	Operator	2017 input	2018 input	2019 input	2020 input	2021 input	+20%	Notes (permit status & operator capacity value)
Gowy Landfill Site Composting Facility	3 C Waste Ltd	11,289	9,790	10,989	10,565	9,306		site expected to close in 2023, capacity not included
Plot 13, Rear Of Farmers Arms	3 C Waste Ltd	534	N/E	N/E	N/E	N/E	640	no permit, capacity not included
Park Rd, Northwich	A S H Skip Hire Ltd	4,025	3,880	2,768	2,143	2,266	4,830	Operator advises capacity of 5,000tpa
4 Ollershaw Ln, Marston, Northwich	A Vlies Northwich Metals Ltd	2,352	1,594	1,358	2,350	2,560	3,072	
Bridges Road Transfer Station	Alchem Merseyside Ltd	8,042	7,882	7,016	6,789	9,806	11,768	
Argent Biodiesel Stanlow Plant	Argent Energy (UK) Ltd	N/E	82,097	95,022	92,878	104,247	125,097	
Stanlow Oil Terminal	Argent Energy Holdings Ltd	N/E	24,793	50,811	82,309	42,481	98,771	
Shellway Rd, Ellesmere Port	Ash Aggregates Ltd	N/E	N/E	N/E	63,848	170,490	204,588	Operator advises capacity of 200,000tpa. Permit issued on 23/04/2019
Ashfield House, Dunkirk Way	Ash Metal Recycling Ltd	7,629	6,424	6,243	6,260	9,519	11,423	Operator advises capacity of 20,000 tpa (site can process this volume, but not store)
Canalside, Oil Sites Rd	Big Atom Ltd	N/E	2,825	3,790	4,743	4,572	5,692	Tyre recycling facility. Website advises 25,000tpa
Liverpool Rd, Backford	Cheshire Waste Skip Hire Ltd	11,252	8,421	14,508	19,549	24,302	29,162	Operator advises capacity of 30,000tpa
C W & C Canalside Operations Hub	Cheshire West Recycling Ltd	27,930	27,896	27,910	29,249	31,603	37,924	
Winsford Depot	Cheshire West Recycling Ltd	19,266	21,053	18,888	19,063	23,456	28,147	
Dairy House Farm Holmes Chapel Road, Sproston, Crewe	CJS Construction and Aggregate Ltd	N/E	N/E	N/E	N/E	14,200	17,040	no permit
Aggregates Yard	D G Cummins And Co Ltd	43,916	57,642	84,896	74,032	74,431	101,875	Operator advises capacity of 80,000tpa
The Recycling Yard	Dig And Shift Ltd	7,787	18,006	120	N/E	N/E	21,607	no permit, capacity not included
Ottersbank Farm	Dig And Shift Ltd	5,324	488	N/E	N/E	N/E	6,389	no permit, capacity not included
Land at Brunner-Mond Works	ECO-Option (UK) Ltd	14,225	26,700	32,030	24,170	26,183	38,436	
Ellesmere Port Transformer Oil Regeneration Plant	Electrical Oil Services Ltd	8,564	8,123	N/E	7,459	5,643	10,277	
Ince Bio Power - Marsh Lane Ince	Evero Energy Services Ltd	N/E	N/E	N/E	26,782	54,112	64,934	
Ince Park Renewables Ltd - Marsh Lane Ince	Evero Energy Services Ltd	N/E	15,717	N/E	20,356	20,303	24,427	
Ince Bio Power	Evero Energy Services Ltd	N/E	N/E	40,865	63,983	N/E	76,780	
Chapterhouse Transfer Station	FCC Waste Services (UK) Ltd	73,101	71,453	N/E	82,981	85,000	102,000	
Hapsford Composting Site	George Whittaker And Sons (Knutsford) Ltd	21,326	19,014	22,543	23,633	23,907	n/a	
Merseyside Works	Greif UK Ltd	N/E	1,092	1,267	702	N/E	1,520	Operator advises capacity of 22,000tpa
Holme Farm, Marsh Lane	John & David Willis	1,519	1,222	1,483	721	N/E	1,823	permit issued on 12/12/1996
Cedab Rd, Ellesmere Port	K J Bell Scrapmetal Merchants	4,983	4,940	4,321	4,051	4,903	5,979	Operator advises capacity of 5,000tpa
Haznortra Farm	Normans Farm Gas Power Ltd	1,800	N/E	9,312	15,938	39,857	n/a	Operator advises capacity of 36500tpa. Agricultural waste only
Griffiths Industrial Estate, Middlewich Road, Northwich	Thomas Bagley	1,094	449	1,553	1,934	3,713	4,456	
Unit 13 Griffiths Park, Rudheath, Northwich	Northwich Recycle And Demolition Ltd	N/E	N/E	N/E	N/E	1,067	1,281	Operator advises that capacity is lower than estimated. Permit issued on 25/05/2021
REnescience Northwich	Orsted REnescience Northwich O&M Ltd	31,981	27,977	N/E	16,122	35,392		Operator advises capacity of 70,000 tpa
Town Farm Quarry	P Casey Enviro Ltd	24,226	6,630	N/E	N/E	N/E	29,071	Quarry closed in 2018 – site now fully restored. Capacity not included

Manisty Wharf	Recresco Ltd	191,082	142,801	150,189	191,141	209,611	251,533	Operator advises capacity of 250,000tpa
Davenham Highways Depot	Ringway Infrastructure Services Ltd	1,353	1,240	1,003	1,977	1,182	2,372	
Guilden Sutton Depot	Ringway Infrastructure Services Ltd	5,512	4,287	2,894	2,363	1,733	6,614	
Ince Resource Recovery Park, Elton	Stantec Treatment Ltd	N/E	N/E	25,300	N/E	N/E	30,360	no permit
Rd Three, Winsford	Synetiq Ltd	N/E	N/E	969	1,214	2,642	3,170	
Lostock Sodium Carbonate Manufacturing Site	Tata Chemicals Europe Ltd	1,572	1,677	424	581	1,338	2,012	
Cheshire Waste Management Centre	Tradebe North West Ltd	2,898	2,804	N/E	1,898	5,502	6,603	
Tattenhall Transfer Station	Tudor Griffiths Ltd	11,804	11,615	9,104	9,526	8,678	14,165	
Winsford Rock Salt Mine Waste Disposal Facility	Veolia ES (UK) Ltd	17,052	17,904	17,261	18,114	20,127	24,153	
Ellesmere Port Incinerator	Veolia ES Cleanaway (UK) Ltd	N/E	N/E	64,865	68,590	58,470	82,307	Operator advises capacity of 100,000tpa
60-64 Chapel St, Wincham	W R Roberts & Sons	N/E	N/E	6,277	5,683	6,372	7,646	

Cheshire West & Chester

Waste Needs Assessment 2023

Appendix 2:Local Authority Collected Waste Management Requirements for Cheshire West & Chester to 2045

Report: Final

Version: v1.1

Issued: 28th December 2023

BPP Consulting Document Control

Project: Cheshire West and Chester Waste Needs Assessment 2023

Report: Local Authority Collected Waste Management Requirements for Cheshire West & Chester to 2045

Version Description: Final

Version No: v1.1

Date: 28th December 2023

Version No.	Version Description	Author	Date	Reviewed	Date
1.0	Draft for Client review	Alan Potter (Partner)	21.06.2023	Roshnee Chavda *(Client Reviewer)*	24.06.2023
1.1	Final Issue	Alan Potter (Partner)	28.12.2023		

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Abbreviations

AD	Anaerobic Digestion
C & I	Commercial & Industrial Waste
C, D & E / CDEW	Construction, Demolition & Excavation Waste
CWaC	Cheshire West and Chester
DEFRA	Department for Environment, Food and Rural Affairs
DMR	Dry mixed recyclables
EA	Environment Agency
EfW	Energy from Waste
EWC	European Waste Catalogue
HWRCs	Household Waste Recycling Centres
LACW	Local Authority Collected Waste
MBT	Mechanical Biological Treatment
MRS	Metal Recycling Site
MRF	Material Recycling Facility
MWMS	Municipal Waste Management Strategy
PPG	Planning Practice Guidance
RDF	Refuse Derived Fuel
WCA	Waste Collection Authority
WDA	Waste Disposal Authority
WDF	WasteDataFlow
WDI	Waste Data Interrogator
WNA	Waste Need Assessment
WPA	Waste Planning Authority
WTS	Waste Transfer Station

Glossary of Terms

Anaerobic Digestion	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.
Biodegradable waste	Waste that can break down over time due to natural biological action/processes, such as food, garden waste and paper.
Commercial Waste	Waste from factories or premises used for the purpose of trade or business, sport, recreation or entertainment
Construction, Demolition & Excavation Waste	Waste arising from the building process comprising demolition and site clearance waste and builders' waste from the construction/demolition of buildings and infrastructure. Includes masonry, rubble and timber.
Defra	The UK Government department responsible for developing national waste management policy for England.
Energy from Waste	The conversion of the calorific value of waste into energy, normally heat or electricity through applying thermal treatment of some sort. May also include the production of gas that can be used to generate energy.
Environment Agency	The body responsible for the regulation of waste management through issuing permits to control activities that manage waste in England. It provides waste management data and also deals with matters such as water and flood protection.
European Waste Catalogue (EWC)	Comprehensive listing of wastes divided into 20 chapters, most of which are industry-based, although some are based on materials and processes. Each waste type is assigned a unique six-digit code. Otherwise referred to as List of Waste (LoW).
Green waste	Plant waste from gardens and parks such as grass and hedge trimmings, from domestic and commercial sources suitable for composting as biodegradable.
Hazardous Waste	Waste requiring special management under the Hazardous Waste Regulations 2005 due to 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 characteristics of the waste.
Household Waste	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.
Incineration	The controlled combustion of waste. Energy may also be recovered in the form of heat (see Energy from Waste).
Industrial Waste	Waste arising from a factory and premises used for industrial purposes (excluding mines and quarries).
Kerbside Collection	The collection of recyclate and waste from households, or occasionally industrial and commercial premises.
Landfill (including land raising)	The disposal of waste to land by permanent deposit. Includes filling of voids and the construction of landforms above ground level (land-raising).
Local Authority Collected Waste	Waste collected by or on behalf of a local authority. Includes household waste and business waste where collected by a local authority and non-municipal fractions such as construction and demolition waste delivered to HWRCs. LACW is the definition used in statistical publications, which previously referred to municipal (solid) waste (MSW).
Materials Recycling Facility (MRF)	A facility for sorting recyclable materials from the incoming waste stream.

Mechanical Biological Treatment (MBT)	A waste facility that combines a sorting facility with a form of biological treatment such as composting or anaerobic digestion.
Municipal Solid Waste (MSW) (from 2010)	Local Authority Collected Waste plus any wastes similar in nature and composition including that collected from businesses by private waste collection companies. (Term used for reporting against retained EU Directives only).
Non-Hazardous Waste Landfill	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.
Open Windrow Composting	A process in which biodegradable waste (such as green waste) is broken down in an open air environment (aerobic conditions) by naturally occurring micro-organisms to produce a material suitable for use as a soil improver.
Other Recovery	Processes such as energy from waste that recover value from waste other than recycling or composting. Sits below recycling in the waste hierarchy, but above disposal.
Recovery	Subjecting waste to processes that recover value including recycling, composting or thermal treatment to recover energy.
Recycling	The reprocessing of materials extracted from the waste stream either into the same product or a different one.
Refuse Derived Fuel	A fuel produced to a contract specification by processing the combustible fraction of waste.
Residual Waste	Waste remaining after materials for re-use, recycling and composting/organic waste treatment e.g. anaerobic digestion have been removed.
The Plan area	The area subject to the Waste Local Plan to which this study relates. In this case the county of Cheshire West and Chester.
Waste Collection Authority (WCA)	A local authority that has a duty to collect household waste. WCAs also have a duty to collect commercial waste if requested to do so and may also collect industrial waste. In this case Cheshire West and Chester Council. In two tier areas the District or Borough Council is the WCA.
Waste Disposal Authority (WDA)	A local authority responsible for managing the waste collected by waste collection authorities and the provision of household waste recycling centres. In this case Cheshire West and Chester Council. In two tier areas the County Council is the WDA.
Waste Minimisation / Reduction	The most desirable way of managing waste according to the Waste Hierarchy, by avoiding the production of waste in the first place.
Waste Planning Authority	The authority responsible for planning for waste within a specific administrative area. In this case Cheshire West and Chester Council.
Waste Transfer Station	A site to which waste is delivered for sorting or baling prior to transfer to another place for recycling, treatment or disposal.

1. Introduction

CWaC County Council has contracted BPP Consulting to produce an updated Waste Needs Assessment (WNA) to underpin the preparation of waste related policies to form part of its Local Plan.

The WNA consists of the following documents:

1. Review of Management Requirements for Local Authority Collected Waste;
2. Review of Management Requirements for Commercial & Industrial Waste;
3. Review of Management Requirements for Construction, Demolition & Excavation Waste;
4. Review of Management Requirements for Hazardous Waste;
5. Scoping Review of Management Requirements for Other Waste;
6. Review of Waste Flows;
7. Overview of Capacity Requirements.

This report is concerned with producing an updated Local Authority Collected Waste (LACW) forecast to assess its projected management requirements to 2045.

a. Advice on Data

The principal source of advice with respect to the use of data to inform production of a Plan evidence base is the national Planning Practice Guidance (PPG) available at https://www.gov.uk/guidance/waste. This states that:

"*Assessing waste management needs for Local Plan making is likely to involve:*

- *understanding waste arisings from within the planning authority area, including imports and exports*
- *identifying the waste management capacity gaps in total and by particular waste streams*
- *forecasting the waste arisings both at the end of the period that is being planned for and interim dates*
- *assessing the waste management capacity required to deal with forecast arisings at the interim dates and end of the plan period."*

Paragraph: 022 Reference ID: 28-022-20141016

It includes a section entitled "Using data to monitor and forecast waste needs", which articulates the following principles, should waste planning authorities adopt, when using data to plan for the management of waste arising in their respective administrative i.e. Plan area:

- *Make clear assumptions on how data were handled, as well as their impact (including on forecasting)*
- *Provide data to an appropriate level of significance, based on their explicit assumptions. In practice, data quoted to more than 2 or 3 significant figures will not be helpful and spurious accuracy stemming from precise figures should be avoided*
- *Plan for a range of each type of waste rather than a specific single figure."*

Paragraph: 036 Reference ID: 28-036-20141016 Revision date: 16 10 2014

b. Data Presentation

In order to respect the need to avoid "spurious accuracy", the following approach has been taken:

1. Where actual tonnage data has been accessed, this has been used in the computations.
2. Where data has been subject to computation, this has been rounded to the nearest 500.
3. Where percentages have been used to generate data, the percentages are presented as whole numbers, however the computations actually use the full value. This means that values presented may not always precisely correspond to the values computed when applying the percentage value presented in this report.
4. A threshold of >500 tonnes has been applied to certain computations.

c. Principal Data Sources

PPG states in connection with how waste planning authorities are to assess the need for additional waste installation infrastructure "*···using the best available information from a number of sources."* (Paragraph: 026 Reference ID: 28-026-20141016)

The principal data sources used to generate this report are as follows:

Waste Data Interrogator

Operators of sites permitted to manage waste, submit returns on the quantities, types and origin of waste received and, where applicable, fate and destination of waste removed from their sites to the Environment Agency. These returns are collated by the Environment Agency and are included in a national dataset known as the Waste Data Interrogator (WDI). This is released approximately nine months after the end of the calendar year to which the data relates. The 2021 WDI (version 3 released Jan 2023) consisting of data for the calendar year 2021 is the most current version available at the time of writing.

Wastedataflow

Wastedataflow (WDF) is a web based data entry portal for local authorities to report on local authority waste management arrangements to central Government on a quarterly basis. The data input is used to report on national recycling and landfill diversion performance as well as local authority league tables on recycling rates etc following independent quality checking. While Councils normally report in financial years, as the EA WDI reports for calendar year the data for CWaC covering the four quarters of 2021 has been used to ensure comparability between datasets.

2. Assessing LACW Arisings

i. Introduction

This section of the report is concerned with assessing arisings of Local Authority Collected Waste (LACW) in CWaC in 2021. From this, future arisings can be forecast for which appropriate targets can be proposed. This is then assessed against current LACW management capacity, with a view to identifying potential future capacity needs for which the forthcoming CWaC Local Plan may need to provide.

ii. Definition

In the UK, until 2010, the term Municipal Solid Waste (MSW) was taken as meaning waste collected by local authorities (mainly from households). However, to ensure consistency with the EU definition of municipal waste, in 2010, the UK expanded the definition to include not just waste from households but any wastes similar in nature and composition and so now the term 'municipal waste' includes wastes (of a similar type) collected from businesses by private waste collection companies as well as waste formerly referred to as MSW.

In light of this, a new term to only cover waste for which local authorities have responsibility to collect/manage was adopted. This term is “Local Authority Collected Waste” (LACW). LACW includes ‘household waste’ (waste produced by householders collected from their homes (collected household waste) and waste deposited at Household Waste Recycling Centres (HWRCs), plus commercial waste collected by councils, street sweepings, litter and fly tipped materials. In general, the non-household waste fraction of LACW represents around 5% of total LACW arisings.

iii. CWaC waste management arrangements

As a unitary authority, CWaC Council has responsibility as the Waste Collection Authority (WCA) and the Waste Disposal Authority (WDA) for the collection and final management of LACW arising in CWaC. Kerbside waste is collected by the council owned company Cheshire Waste Recycling Ltd, established in March 2020. There are seven Household Waste Recycling Centres (HWRC’s) which are managed in partnership with HW Martin Ltd.

3. CWaC LACW Management Profile

The management profile of LACW arising in CWaC over the last decade is shown in Figure 1 below.

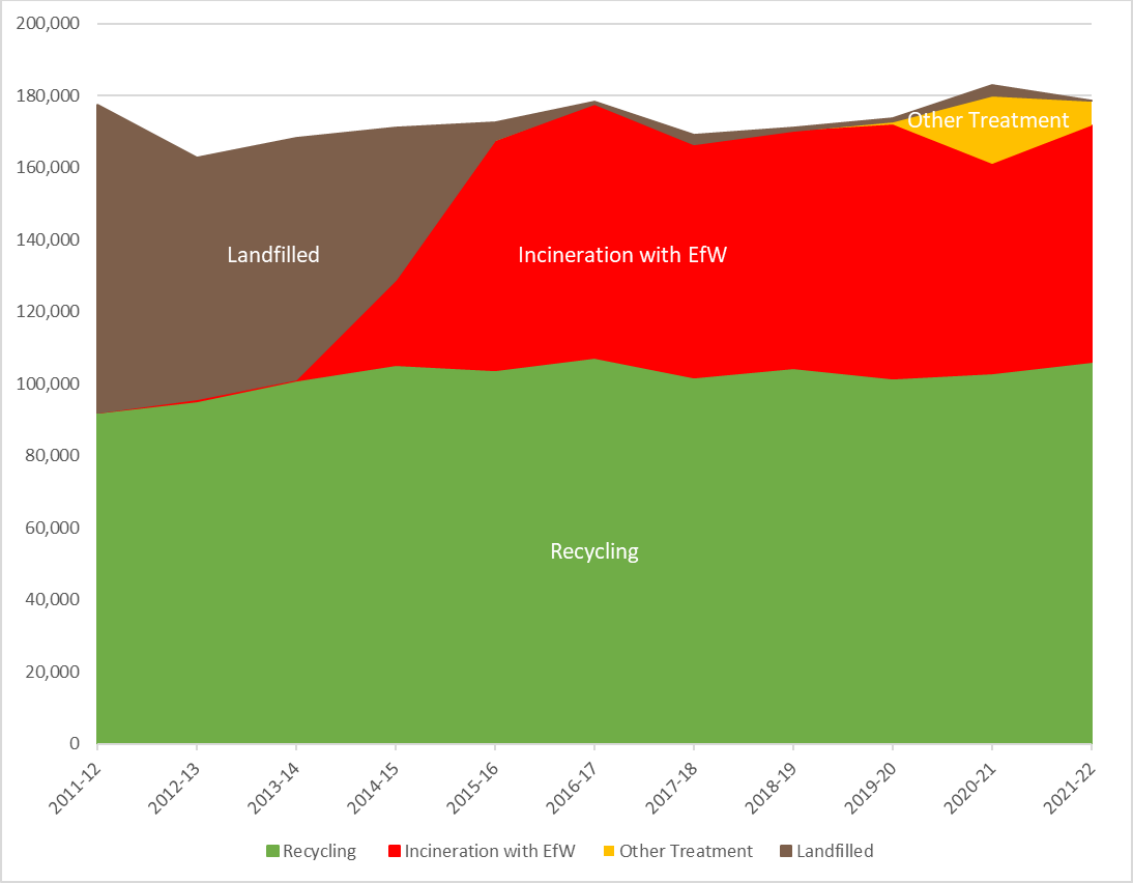

Figure 3: Management Profile for CWaC LACW 2011/12 – 2021/22 (tonnes)
Source: DEFRA

Figure 1 shows that the LACW management profile is underpinned by recycling and composting which peaked in the latest year 2021/22 with an average rate of c59% (c102,000 tpa) over the decade. It also shows the sudden transition in final management method for residual waste (waste remaining after recycling/ composting), from landfill to incineration with landfill reducing from a peak of c85,500 tonnes in 2011/12 to c5,000 tonnes in 2015/16.

4. CWaC LACW forecast

1. Previous WNA Forecast

The previous WNA forecast LACW arisings based on assumed population growth using demographic modelling carried out for the Local Plan (requirement to build 1,100 new dwellings each year). This equated to c0.5% increase in population per year. This assumed that the waste arisings per resident remains constant over the Plan period.

2. Context in CWaC

The following sources have been considered in projecting future LACW arisings in CWaC over the Plan period:

- National Planning Practice Guidance (nPPG)
- Historical pattern of LACW arisings in CWaC
- National forecast of LACW growth in England

These are discussed below.

3. National Planning Practice Guidance

The national Planning Practice Guidance (nPPG)[26] sets out the following in relation to forecasting future MSW arisings (now referred to as LACW):

> "***How should waste planning authorities forecast future municipal waste arisings?***
> *Forecasts of future municipal waste arisings are normally central to the development of Municipal Waste Management Strategies.*
> *It will be helpful to examine municipal waste arisings according to source (i.e. household collections, civic amenity site wastes, trade waste etc.). This may allow growth to be attributed to particular factors and to inform future forecasts.*
> *A 'growth profile' , setting out the assumed rate of change in waste arisings may be a useful starting point for forecasting municipal waste arisings. The growth profile should be based on two factors:*
> - *household or population growth; and*
> - *waste arisings per household or per capita.*
>
> **How is a growth profile prepared?**
> *A growth profile is prepared through a staged process:*
> - *calculate arisings per head by dividing annual arisings by population or household data to establish short- and long-term average annual growth rates per household and*
> - *factor in a range of different scenarios, e.g. constant rate of growth, progressively lowering growth rates due to waste minimisation initiatives.*
>
> *The final forecast can then be modelled with scenarios based on the long- and short-term rate of growth per household, together with household forecasts."*

[26] Ref.: Revision date: 16 10 2014 Paragraph: 029 & 30 Reference ID: 28-029-20141016

It is notable that the examples of growth scenarios given in nPPG refer to either a constant rate or lowering of growth rates i.e. there is no mention of the possibility of a rising growth rate, suggesting that the Government does not see increasing growth in LACW as a scenario to be modelled.

While a Municipal Waste Management Strategy 2021 (MWMS) does exist for CWaC, the MWMS does not include any local forecast of LACW.

4. Historical Pattern of LACW Arising in CWaC

The observed pattern of LACW arisings in CWaC over the past decade is shown in Figure 2 and Table 1 below.

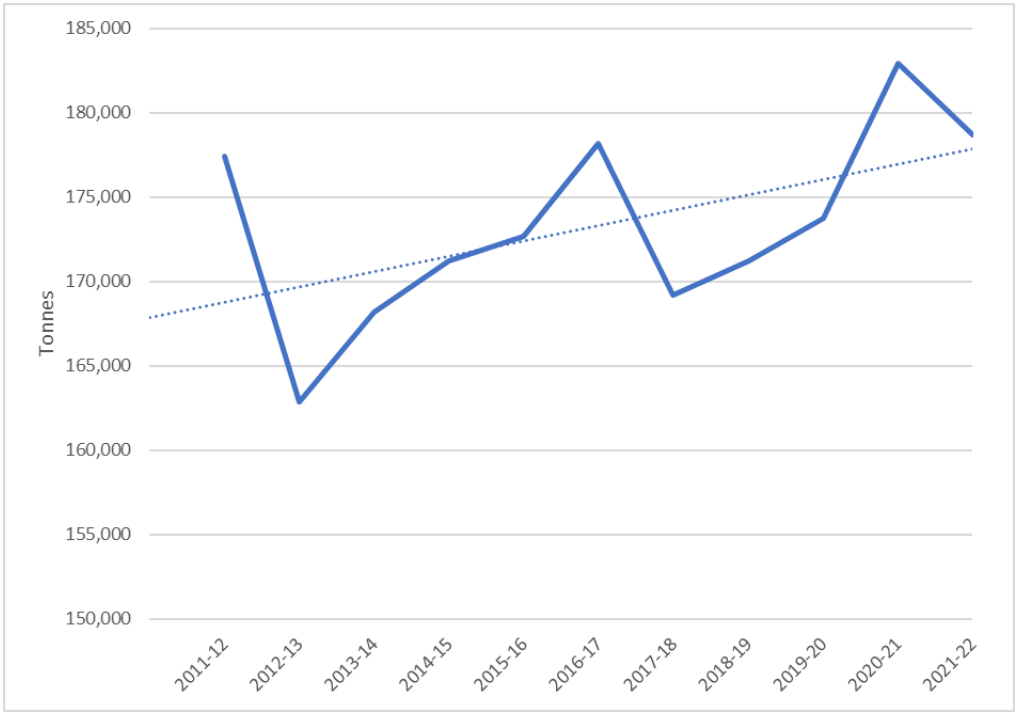

Figure 4: Trend in LACW Arisings in CWaC 2011/12 to 2021/22
(y axis not set to zero, blue dotted line is trend line)

Table 19: CWaC LACW arisings between 2011/12 and 2021/22 including 5yr growth rates

Year	Total	Annual growth rate	5-year growth rate
2011-12	177,424		
2012-13	162,854	-8.21%	
2013-14	168,172	3.27%	+0.18%
2014-15	171,194	1.80%	
2015-16	172,638	0.84%	
2016-17	178,190	3.22%	
2017-18	169,182	-5.06%	
2018-19	171,195	1.19%	
2019-20	173,720	1.47%	+0.12%
2020-21	182,900	5.28%	
2021-22	178,701	-2.30%	
	Average annual growth rate over decade	0.15%	

Historical data for LACW arisings (Figure 2 and Table 1) shows an overall increasing trend in arisings from 2011/12 to 2021/22 with an average annual growth rate over the decade of 0.15%. However, over the decade LACW arisings have fluctuated significantly, with a significant drop in arisings from 2011/12 to 2012/13[27] followed by a period of growth to 2016/17. Arisings then dropped in 2017/18[28] before another period of growth to a second peak in arisings in 2020/21. The most recent LACW baseline has seen a drop from 2020/21 levels by -2.30%. Given the 2020/21 value coincides with the Covid-19 pandemic lock down it has been excluded as anomalous. Its exclusion produces a revised growth rate of minus 0.42% (as compared with 0.15% shown in Table 1 above) over a 9-year period.

As shown in Figure 3 (overleaf), CWaC's population has increased steadily between 2011/12 and 2020/21 by an average of +0.47% per annum, spiking in 2021/22. As explained above there have been significant fluctuations in LACW arisings during the period which do not appear to correlate with the constant steady rise in population over the period. At the very least this suggests that, a growth profile based on the assumption that the relationship between growth in population and growth in LACW is linear would not be robust, given the multiple variables at play.

[27] Attributed to the introduction of seperate food waste collection.

[28] Attributed to further enforcement measures applied at HWRCs reducing commercial waste inputs.

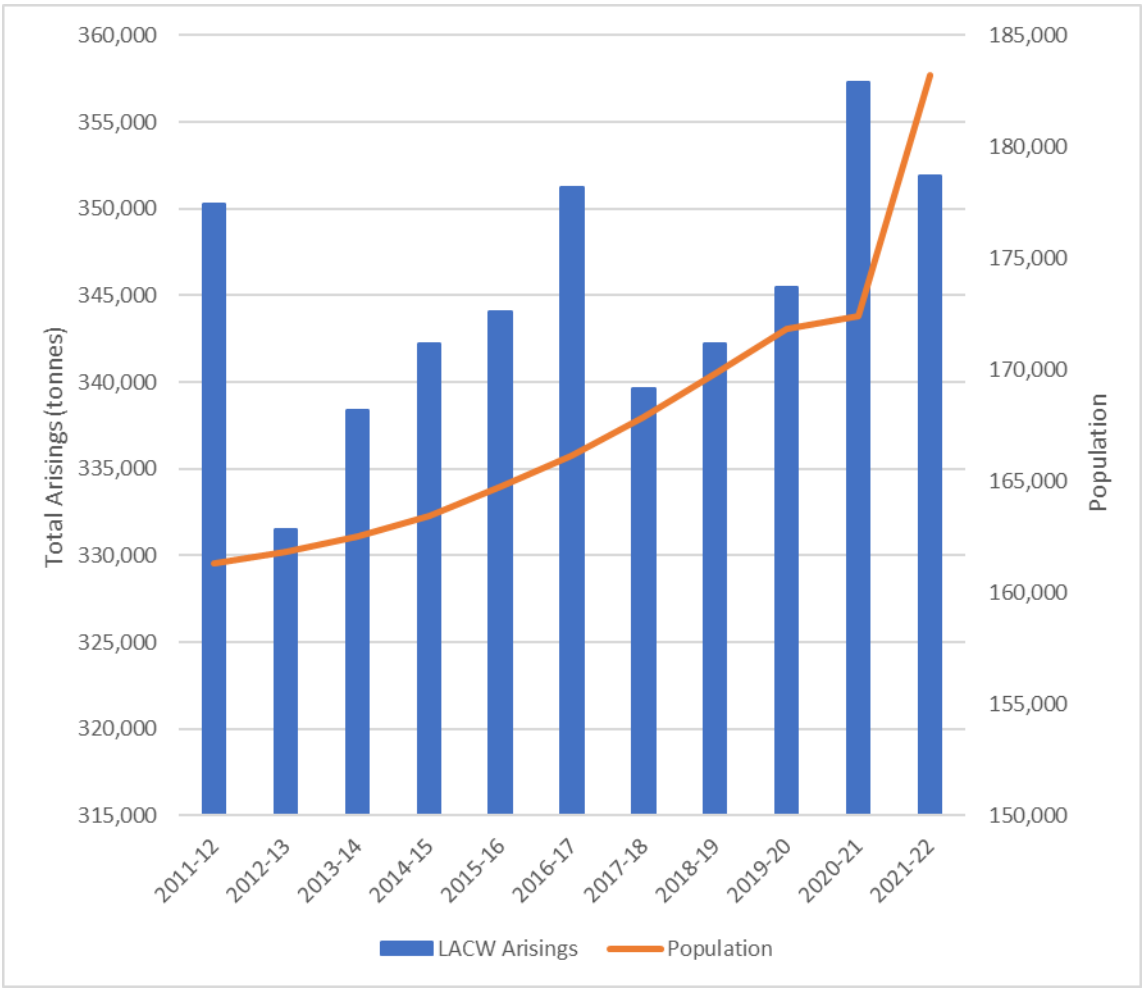

Figure 5: Total LACW arising (bar chart) vs population (orange line) 2011/12 to 2021/22
(y axis not set to zero)

5. National forecast of LACW growth in England

DEFRA published a study of Future Waste Arisings in England[29] in 2021. This includes the most current national growth forecast published by Government for the LACW waste stream (amongst others). The method used to produce a forecast for LACW waste nationally involved the development of a model[30] using external variables such as population growth and Regional Gross Disposable Household Income trends (GDHI) to project LACW growth. Three scenarios were constructed (central, lower and upper) but for the purposes of this exercise the central forecast is referred to. The graph resulting from the forecast produced is reproduced as Figure 4 below.

Figure 4 shows that the central national forecast for LACW predicts arisings would increase slightly

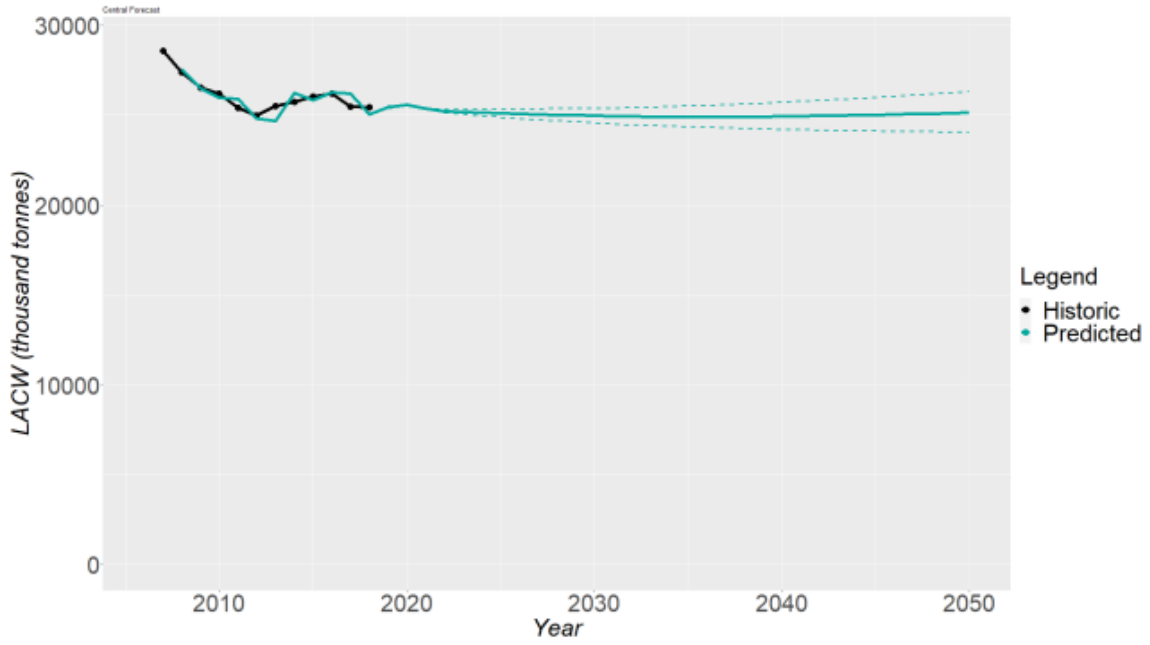

Figure 6: Central Local Authority Collected Waste Arisings Forecast for England (2020-2050)
Source: Reproduced from Future Waste Arisings, for DEFRA (2021)

in 2020 and then decrease marginally from 2022 to 2035, followed by a slight upswing from 2035 to 2050[31]. The growth rate indicated at 5-year intervals from 2020 is shown in Table 2 below.

Table 20: Defra National LACW Forecast 5-year Growth Rates

	2020	2025	2030	2035	2040	2045	2050
5-year growth rate	-	-2.12%	-0.18%	-0.54%	+0.37%	+0.18%	+0.54%

[29] 'Future Waste Arisings' Eunomia for Defra, April 2021.

[30] This is different to a standard time-series forecast as it includes lagged dependent variables.

[31] It is noted this appears to be contrary to nPPG advice published in 2016 cited above.

The DEFRA 2021 report provides a feel for the direction in which growth in LACW in CWaC may be expected to be headed , but it should of course be noted that the report is intended to provide a national picture, and so presents an average of what is predicted to happen across England. Thus, it masks any regional or local differences, such as varying levels of prosperity and associated consumption. It should be noted that the forecasts presented in the DEFRA 2021 report are being used as the basis for modelling of the achievement of targets related to the policy goals of national Resources & Waste Strategy published in 2018[32] and the Environment Act, and so represents the forecast of LACW that is driving national policy that can reasonably be expected to impact LACW arising in CWaC locally.

[32] *Our Waste, Our Resources: A Strategy for England*, Department for Environment, Food & Rural Affairs, December 2018.

5. Generating a Forecast for LACW

The method set out in the nPPG to generate a Plan area level LACW forecast proposes that a growth profile be based on household growth and waste arisings per household and/or population growth to generate waste arisings per household/ capita. This can then be modelled with a range of different scenarios e.g. constant rate of growth and progressively lowering growth rates due to factors such as waste minimisation/dematerialisation.

5.1 Building a Growth Profile

Following the guidance in nPPG on a step-by-step basis a growth profile can be established by:

- Step 1 – Establish short-term average annual growth rates per household/population
- Step 2 – Establish long-term average annual growth rates per household/population

This is done (as indicated by nPPG) by dividing annual LACW arisings by population or household numbers data. Figure 5 below plots the output of this exercise by population for CWaC.

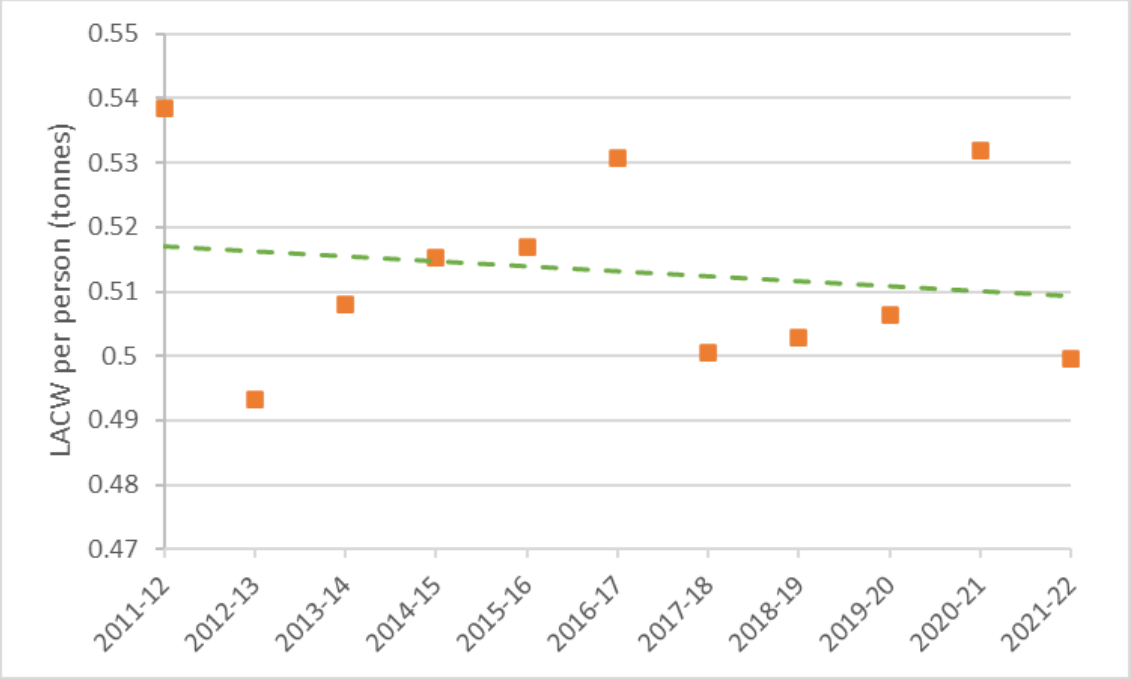

Figure 5 yields the following:

Figure 7: LACW per person in CWaC 2011/12 to 2021/22
Green dashed line is a trendline NB: y axis not at zero.

- the average compound annual growth rate for LACW arisings per person for the period 2011/12 to 2019/20[33] (excluding 2020/21 due to Covid) is minus 0.05% (the long-term growth rate);
- the average compound annual growth rate for LACW arisings per person for the period 2016/17 to 2019/20 is 0.13% (short-term growth rate).

[33] To 2019/20 as there is no data for 2022/23 from which to calculate the Compound Average Growth Rate (2021/22 excluded).

The long- and short-term growth rates in LACW arisings per person arrived at, were then applied to the baseline LACW arisings value for 2021/22 to the end of the Plan period.

The next step is to add the compound average growth rates (for both the short and long-term) for LACW arisings per person per annum by the annual population growth forecast for CWaC, as forecast by ONS[34].

The outcome is plotted along with the following set of growth factors to create a cone of possibilities:

- DEFRA National Forecast of LACW at 5-year intervals;
- Historical LACW Growth of minus 0.42% per annum (see commentary under Table 1). The predicted arisings applying the above growth rates to the most recent LACW arisings value for 2021/22 i.e. baseline, are plotted in Figure 6 below.

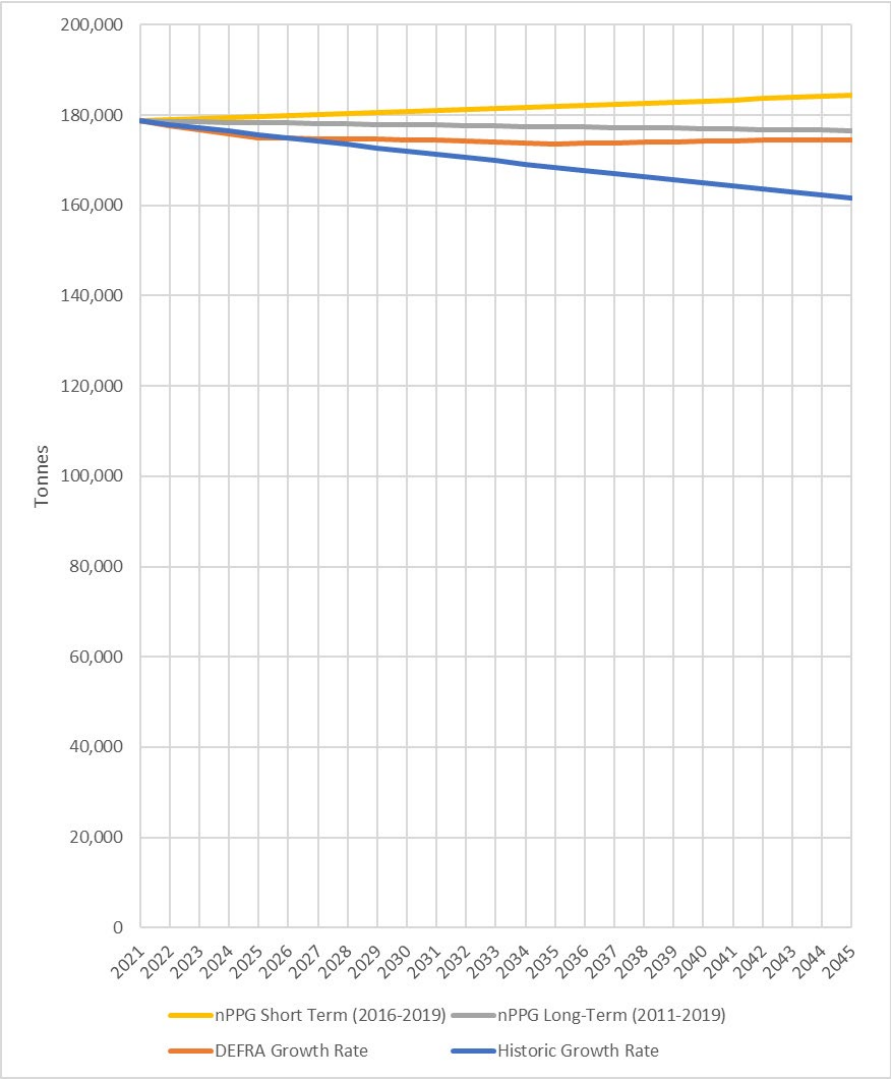

Figure 8: CWaC LACW arisings forecasts (using 2021/22 baseline)

[34] Population projections 2018 to 2043 (population & household level) (Office for National Statistics. https://www.CWaCi.gov.uk/dataset/2r1zw/population-projections-2018-to-2043-population-and-household-level

Three out of the four scenarios are showing a falling LACW arisings trajectory. This includes the long-term forecast in which the forecast fall in waste arisings per person more than counteracts this growth in population in CWaC over the Plan period. The DEFRA growth forecasts an initial fall in LACW arisings before a slight upswing in the final years of the Plan period. The corresponding values are presented in Table 3.

Table 21: Forecast values for CWaC LACW arisings (Tonnes)

	Historic Growth Rate projection	DEFRA Growth Rate	nPPG Long-Term arisings forecast	nPPG Short-Term arisings forecast
2021/22	178,701	178,701	178,701	178,701
2022/23	177,951	177,754	178,616	178,934
2023/24	177,205	176,807	178,531	179,166
2024/25	176,461	175,860	178,447	179,400
2025/26	175,721	174,913	178,362	179,633
2026/27	174,983	174,850	178,277	179,867
2027/28	174,249	174,787	178,193	180,101
2028/29	173,518	174,724	178,108	180,335
2029/30	172,790	174,661	178,024	180,570
2030/31	172,065	174,598	177,939	180,805
2031/32	171,343	174,409	177,855	181,040
2032/33	170,624	174,221	177,770	181,276
2033/34	169,908	174,032	177,686	181,512
2034/35	169,195	173,843	177,602	181,748
2035/36	168,485	173,655	177,517	181,985
2036/37	167,778	173,783	177,433	182,222
2037/38	167,074	173,912	177,349	182,459
2038/39	166,373	174,040	177,265	182,696
2039/40	165,675	174,169	177,181	182,934
2040/41	164,980	174,297	177,096	183,172
2041/42	164,288	174,360	177,012	183,410
2042/43	163,598	174,423	176,928	183,649
2043/44	162,912	174,486	176,844	183,888
2044/45	162,228	174,548	176,761	184,127
2045/46	161,548	174,611	176,677	184,367

Figure 6 suggests that the most likely zone within which the actual trajectory will fall will be bounded by the nPPG short-term growth (yellow line) and historic growth (blue line). Taking the average of the projected LACW arisings at 2045 for the nPPG short-term and historic growth rates, would equate to a fall in arisings of minus 3.21% over the Plan period.

5.2 Relating forecasts to waste per person arisings

In order to gauge how realistic the proposed forecasts might be, the waste per person factors implied by each scenario at 2045 have been calculated and then compared against the actual waste per person factor in 2021 of 500kg per person. This is shown in Table 4 below.

Table 22: Waste per person factors implied by the chosen scenarios at 2045 compared to 2021 actual and the percentage change year on year implied (tonnes)

Forecast	Historic	DEFRA[35]	Long-Term Growth[36]	Short-Term Growth	Central value from cone of possibilities
Waste arisings per person factor at 2045 (t/pp)	0.41	0.445	0.450	0.47	0.44
Difference from actual in 2021 over 24 years (t/pp)	-0.09	-0.054	-0.049	-0.03	-0.06
Percentage annual change	-0.40%	-0.10%	-0.05%	0.13%	-0.13%

5.3 Findings

The findings from the comparison shown in Table 4 are as follows:

- The historic forecast implies a reduction of 90kg per person over the Plan period against a starting arising of 500kg. This equates to a 3.75kg fall per person year on year;
- the national DEFRA central forecast implies a reduction of 54kg per person over the Plan period against a starting arising of 500kg. This equates to a 2.25kg fall per person year on year;
- the long-term growth scenario implies a reduction of 49kg per person over the Plan period against a starting arising of 500kg. This equates to a 2.04kg fall per person per year;
- the short-term growth scenario implies a reduction of 30kg per person[37] over the Plan period against a starting arising of 500kg. This equates to a 1.25kg fall per person year on year;
- the central value from the cone of possibilities forecast implies a reduction of 60kg per person over the Plan period against a starting arising of 500kg. This equates to a 2.50kg fall per person year on year.

The above analysis suggests falls in waste arisings per person year on year could vary between 1.25 – 3.75kg. The cone of possibilities central forecast predicts a fall in waste per person per year of 2.50kg giving an overall fall of c3.21% of total LACW arisings over the Plan period. This is considered to be the most realistic scenario[38]. This yields the preferred scenario (Central Scenario – green) shown in Figure 7.

[35] DEFRA and Long-Term from cone of possibilities values rounded to 3 decimal places for clarity as rounding to 2 decimal places means there is no difference between them as both round to -0.05.

[36] As in footnote 8.

[37] Although a positive growth in LACW is forecast, the forecast growth in population counteracts this growth leading to a reducing in LACW per person.

[38] Note the residual waste long-term target in the Environment Act is that by the end of 2042 the total mass of residual waste per person does not exceed 280kg – a reduction from the 2019 level of 560kg per person, i.e. a residual waste reduction per capita by 50%.

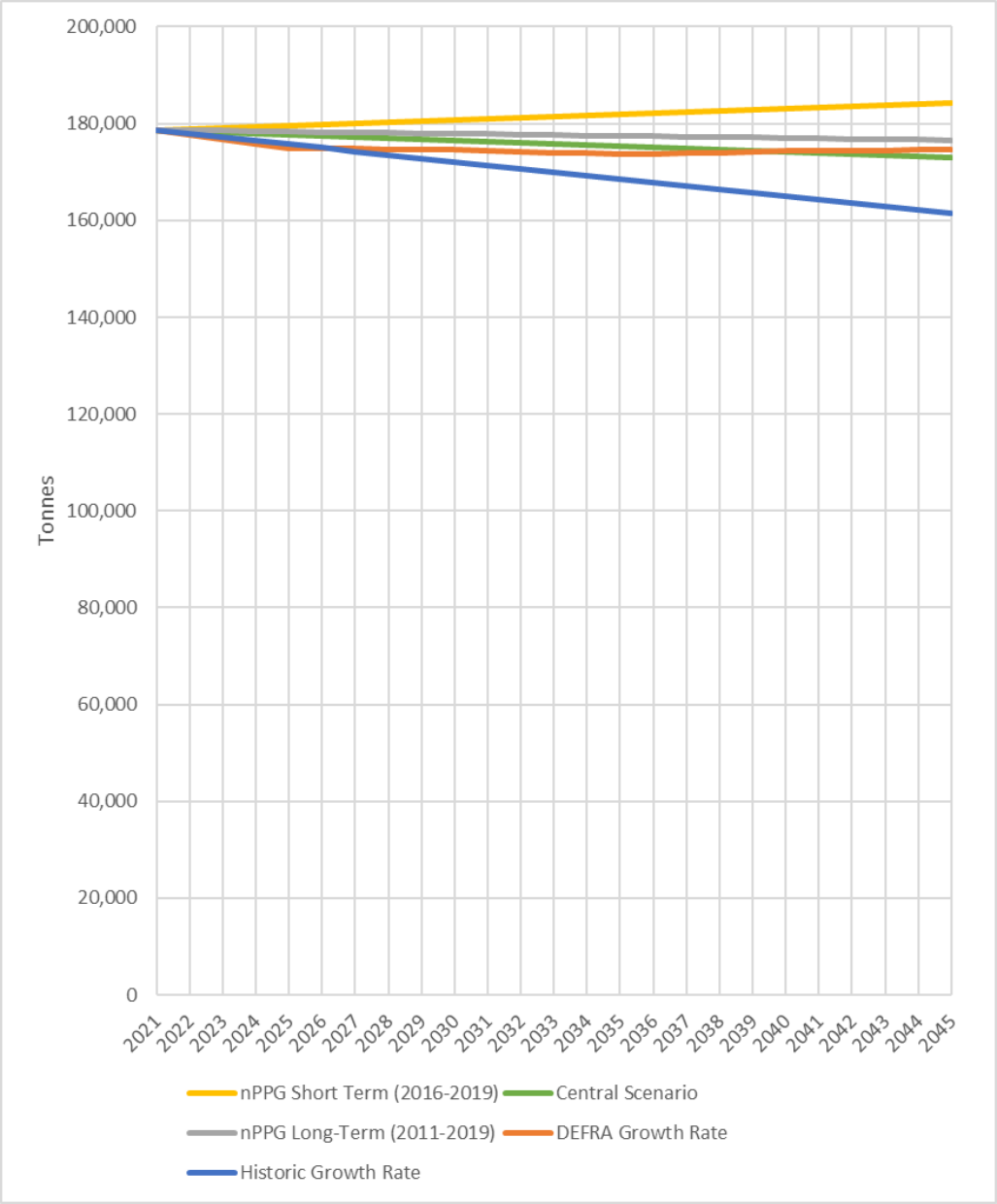

Figure 9: 'Cone of Possibilities' for LACW forecast with Central Scenario
(tonnes per annum)

5.4 Forecast Conclusion

Using the baseline arising value for 2021/22 and a 'cone of possibilities' central waste growth scenario generates a trajectory that tracks a path between the DEFRA growth rate forecast (orange line) and nPPG short-term trends in arisings forecast (yellow line). It is recommended to apply this minus 0.13% per annum growth rate when considering future LACW capacity needs.

Using this scenario results in projected LACW arisings in 2045 of c173,000 tonnes, a decrease of c5,500 tonnes on the 2021/22 value. The forecast arisings each year are shown in Table 5 below.

Table 23: Forecast LACW arisings each year using the preferred Central Scenario (tonnes)

	Preferred Central Scenario
2021/22	*178,701*
2022/23	178,462
2023/24	178,222
2024/25	177,983
2025/26	177,744
2026/27	177,504
2027/28	177,265
2028/29	177,026
2029/30	176,786
2030/31	176,547
2031/32	176,308
2032/33	176,069
2033/34	175,829
2034/35	175,590
2035/36	175,351
2036/37	175,111
2037/38	174,872
2038/39	174,633
2039/40	174,393
2040/41	174,154
2041/42	173,915
2042/43	173,675
2043/44	173,436
2044/45	173,197
2045/46	172,957

6. CWaC LACW Future Management Capacity Needs

Having identified a preferred forecast, the next step is to establish the current LACW management profile. This may then be used to establish realistic future management targets which then informs identification of any future capacity requirements to ensure net self-sufficiency is met.

6.1 Existing LACW Management Profile

Table 6 below shows the management profile of CWaC LACW in 2021/22.

Table 24: LACW Management Profile in CWaC

Source: DEFRA

Route	Tonnes	%
Total Arisings	178,701	
Recycling/ Composting	106,112	59%
Energy from Waste[39]	72,589	41%
Landfill	0	<1%

[39] Note that this includes c7,000 tonnes of process loss from MBT pre-treatment.

7. Waste Management Targets

Having established the 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. LACW is all classed as municipal waste (along with waste of a similar nature from commercial sources) and therefore, the municipal waste targets discussed below relate to LACW.

7.1 Current Targets

The CWaC Waste Management Strategy 2021-2031[40] does not include any LACW targets but does reference the targets for municipal waste set by the recently adopted EU Circular Economy Plan[41], to which the UK government has confirmed its commitment[42], as follows:

- 55% recycling floor by 2025; and
- 60% recycling floor by 2030; and
- 65% recycling floor by 2035; plus
- 10% ceiling limit on landfilling by 2035.

The recently adopted Environment Act target of 50% reduction in residual waste per person by 2042 with an interim target of 21% reduction by tonnage by January 2028, would require going beyond the above national recycling target reaching c72% at 2042. In addition, the Government has stated a desire to eliminate the landfilling of biodegradable municipal waste by 2028.

Considering the above targets, the targets set out in Table 7 below are proposed.

Table 25: Proposed Targets for LACW Management in CWaC
Italicised entries are actual values

	Milestone Year					
	2021	**2025**	**2030**	**2035**	**2040**	**2045**
Recycling/composting (floor)	*59%*	*≥65%*	≥70%	≥75%	≥75%	≥75%
Other Recovery inc EfW	*41%*	*34%*	29%	24%	24%	24%
Landfill (ceiling)	0%	≤1%	≤1%	≤1%	≤1%	≤1%

Applying the proposed targets to the preferred forecast gives the capacity requirements set out in Table 8 below.

[40] Cheshire West and Chester Council Waste Management Strategy 2021 -2031 (Wood Group Ltd., July 2021)

[41] New Circular Economy Action Plan The European Green Deal adopted in March 2020

[42] https://www.gov.uk/government/publications/circular-economy-package-policy-statement/circular-economy-package-policy-statement

Table 26: Future Management Profile for Forecast CWaC LACW Arisings (tonnes)

	Milestone Year					Plan Period Peak/Cumulative Capacity Requirement
	2025	**2030**	**2035**	**2040**	**2045**	
Recycling/Composting Target (Floor)	115,533	123,583	131,513	130,615	129,718	131,513 (peak)⇧⇩
Remainder to Landfill Target (Ceiling)	1,777	1,765	1,754	1,742	1,730	38,601 (cumulative)
Other Recovery Remainder	60,433	51,199	42,084	41,797	41,510	60,803 (peak) ⇩

This results in a cumulative non-inert landfill requirement for residual waste of c38,500 tonnes over the Plan period (to 2045) as shown in Table 9 below.

Table 27: Cumulative Landfill Requirement in CWaC to 2045

	Landfill Requirement pa	Cumulative Landfill Requirement
2023/24	711	711
2024/25	1,066	1,777
2025/26	1,777	3,555
2026/27	1,775	5,330
2027/28	1,773	7,103
2028/29	1,770	8,873
2029/30	1,768	10,641
2030/31	1,765	12,406
2031/32	1,763	14,169
2032/33	1,761	15,930
2033/34	1,758	17,688
2034/35	1,756	19,444
2035/36	1,754	21,198
2036/37	1,751	22,949
2037/38	1,749	24,697
2038/39	1,746	26,444
2039/40	1,744	28,188
2040/41	1,742	29,929
2041/42	1,739	31,668
2042/43	1,737	33,405
2043/44	1,734	35,140
2044/45	1,732	36,871
2045/46	1,730	**38,601**

The implications of this requirements are considered further in the Capacity Assessment Overview Report.

Cheshire West & Chester Waste Needs Assessment 2023

Appendix 3:Commercial & Industrial Waste Management Requirements in Cheshire West & Chester to 2045

Report: Final

Version: 1.1

Issued:28th December 2023

BPP Consulting Document Control

Project: Cheshire West & Chester Waste Needs Assessment 2023

Report: Commercial & Industrial Waste Management Requirements in CWaC to 2045

Version Description: Final

Version No: 1.1

Date: 28th December 2023

Version No.	Version Description	Author	Date	Reviewed	Date
1.0	Draft for Client review	Alan Potter (Partner)	25.05.2023	*Roshnee Chavda (Client Reviewer)*	09.06.2023
1.1	Final Issue	Alan Potter (Partner)	28.12.2023		

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Abbreviations

AD	Anaerobic Digestion
C & I	Commercial & Industrial Waste
C, D & E / CDEW	Construction, Demolition & Excavation Waste
CWaC	Cheshire West and Chester
DEFRA	Department for Environment, Food and Rural Affairs
EA	Environment Agency
EEFM	East of England Forecasting Model
EfW	Energy from Waste
EWC	European Waste Catalogue
GVA	Gross Value Added
HWRCs	Household Waste Recycling Centres
LACW	Local Authority Collected Waste
MRS	Metal Recycling Site
MRF	Material Recycling Facility
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

Agricultural Waste	Waste produced on a 'farm' in the course of 'farming'. Agricultural waste takes both 'natural' (or organic) and 'non- natural' forms e.g. plastics and metal.
Anaerobic Digestion	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.
Bio waste	Waste that can break down over time due to natural biological action/processes, such as food, garden waste and paper.
Commercial Waste	Waste from factories or premises used for the purpose of trade or business, sport, recreation or entertainment.
Construction, Demolition & Excavation Waste	Waste arising from the building process comprising demolition and site clearance waste and builders' waste from the construction/demolition of buildings and infrastructure. Includes masonry, rubble and timber.
Defra	The UK Government department responsible for developing national waste management policy.
Energy from Waste	The conversion of the calorific value of waste into energy, normally heat or electricity through applying thermal treatment of some sort. May also include the production of gas that can be used to generate energy.
Environment Agency	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.
European Waste Catalogue (EWC)	Comprehensive listing of wastes divided into 20 chapters, most of which are industry-based, although some are based on materials and processes. Each waste type is assigned a unique six-digit code. Otherwise referred to as List of Waste (LoW).
Exemptions	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.
Green waste	Biodegradable plant waste from gardens and parks such as grass and hedge trimmings, from domestic and commercial sources suitable for composting.
Hazardous Waste Landfill	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.
Hazardous Waste	Waste requiring special management under the Hazardous Waste Regulations 2005 due to 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 characteristics of the waste.
Household Waste	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.
Incineration	The controlled combustion of waste. Energy may also be recovered in the form of heat (see Energy from Waste).
Industrial Waste	Waste arising from any factory and from any premises occupied by an industry (excluding mines and quarries).
Landfill (including land raising)	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).

Local Authority Collected Waste	Waste collected by or on behalf of a local authority. Includes household waste and business waste where collected by a local authority and non-municipal fractions such as construction and demolition waste delivered to HWRCs. LACW is the definition used in statistical publications, which previously referred to municipal waste.
Mass Balance	Method of assessing the quantity of waste that may be converted to recycled aggregate by comparing inputs and outputs for sites reporting through the WDI.
Materials Recycling Facility (MRF)	A facility for sorting recyclable materials from the incoming waste stream.
Mining Waste	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 extracted from the ore. Management subject to control through EU Directive 2006/21/EC.
'Next step' Site	Some waste to intermediate sites may not undergo any processing, thus are reported as leaving the site leave under the same EWC and are accounted for again at the 'next step' site where it is to be managed.
Non-Hazardous Waste Landfill	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.
Recovery	Subjecting waste to processes that recover value including recycling, composting or thermal treatment to recover energy.
Recycling	The reprocessing of materials extracted from the waste stream either into the same product or a different one.
Refuse Derived Fuel	A fuel produced to a contract specification by processing the combustible fraction of waste.
Residual Waste	Waste remaining after materials for re-use, recycling and composting/organic waste treatment e.g. anaerobic digestion have been removed.
The Plan area	The area subject to the Waste Local Plan to which this study relates. In this case the Borough of Cheshire West & Chester.
Waste Planning Authority	The authority responsible for planning for waste within a specific administrative area. In this case Cheshire West & Chester Council
Waste Transfer Station	A site to which waste is delivered for sorting or baling prior to transfer to another place for recycling, treatment or disposal.

1 Introduction

Cheshire West and Chester (CWaC) Council has contracted BPP Consulting to produce an update to the Cheshire West & Chester Waste Needs Assessment (WNA) to underpin the preparation of its Local Plan policies relating to waste which is to be updated to cover a Plan period to 2045.

The WNA consists of the following sections:

8. Management Requirements for Local Authority Collected Waste to 2045.
9. Management Requirements for Commercial & Industrial Waste to 2045.
10. Management Requirements for Construction, Demolition & Excavation Waste to 2045.
11. Management Requirements for Hazardous Waste to 2045.
12. Scoping Review of Management Requirements for Other Waste.
13. Review of Waste Flows.
14. Waste Attribution (for C, D & E waste and C&I waste).
15. Waste Technology Review.
16. Overview of Management Requirements.

This section is concerned with assessing the projected management requirements for Commercial and Industrial (C&I) waste arising in CWaC to 2045. It incorporates the relevant findings of the waste attribution exercise reported in section 7.

1.1 Advice on Data

The principal source of advice with respect to the use of data to inform production of a Plan evidence base is the national Planning Practice Guidance (nPPG) available at https://www.gov.uk/guidance/waste. This states that:

"*Assessing waste management needs for Local Plan making is likely to involve:*

- *understanding waste arisings from within the planning authority area, including imports and exports*
- *identifying the waste management capacity gaps in total and by particular waste streams*
- *forecasting the waste arisings both at the end of the period that is being planned for and interim dates*
- *assessing the waste management capacity required to deal with forecast arisings at the interim dates and end of the plan period."*

Paragraph: 022 Reference ID: 28-022-20141016

It includes a section entitled "Using data to monitor and forecast waste needs", which articulates the principles waste planning authorities are to adopt when using data to plan for the waste management arising in their respective administrative i.e. Plan area:

- *Make clear assumptions on how data were handled, as well as their impact (including on forecasting)*
- *Provide data to an appropriate level of significance, based on their explicit assumptions. In practice, data quoted to more than 2 or 3 significant figures will not be helpful and spurious accuracy stemming from precise figures should be avoided*
- *Plan for a range of each type of waste rather than a specific single figure."*

Paragraph: 036 Reference ID: 28-036-20141016 Revision date: 16 10 2014

1.2 Principal Data Sources

The principal data sources used to generate this report are as follows:

Waste Data Interrogator

Operators of sites subject to an environmental permit to manage waste, submit returns on the quantities, types and origin of waste received and, where applicable, destination of waste removed from their sites to the Environment Agency. These returns are collated by the Environment Agency and are included in a national database known as the Waste Data Interrogator (WDI). This is released approximately nine months after the end of the calendar year to which the data relates. The 2021 WDI (version 3 released Jan 2023) consisting of data for the calendar year 2021 is the most current version available at the time of writing and hence is taken to represent the 'best available data'.

Wastedataflow

Wastedataflow[43] (WDF) is a web-based data entry portal for local authorities to report on local authority waste management arrangements to central Government on a quarterly basis. The data input is used to report on national recycling and landfill diversion performance as well as local authority league tables on recycling rates etc following independent quality checking. While Councils normally report in financial years, as the EA WDI reports for calendar year the data for CWaC covering the four quarters of 2021 has been accessed to ensure comparability between datasets.

1.3 Data Presentation

In order to respect the need to avoid "spurious accuracy", the following approach has been taken:

5. Where actual tonnage data has been accessed, this has been used in the computations.
6. Where data has been subject to computation, this has been rounded to the nearest 500.
7. Where percentages have been used to generate data, the percentages are presented as whole numbers, however the computations actually use the full value. This means that values presented may not always precisely correspond to the values computed when applying the percentage value presented in this report.
8. A threshold of >500 tonnes has been applied to certain computations.

43 http://www.wastedataflow.org/

2 Estimating CWaC C&I Waste Baseline Arisings

2.1 Context

There is no requirement on businesses to submit records of waste produced and hence estimating quantities of Commercial and Industrial waste arisings for a specific waste planning area such as CWaC, with any degree of accuracy, is a challenge. Two different approaches can be taken to estimate a baseline for C&I waste as follows:

- 'Point of management' using data related to the management of C&I waste. This is primarily based on records of waste delivered to, and removed from, permitted waste facilities submitted by operators to the Environment Agency (EA). The EA collates this data in its 'Waste Data Interrogator' (WDI) on an annual (calendar year) basis.. This data now forms the basis for the 'Reconcile' method used to estimate C&I waste arisings at national level[44].
- 'Point of production' using data based on the profile of businesses within an Area and applying waste production factors (related to the different business profiles). This method was used in the national survey undertaken in 2009 that informed the previous approach to national estimates[45].

The method used to generate the updated baseline C&I waste arisings value in this report applies the 'point of management' approach adapted to reflect local circumstances and accounting for any double counting.

Terminology

While this report is concerned with the management of C&I waste arisings it should be noted that waste arising from businesses that is similar in nature and composition to household waste is included under the term 'municipal waste'. National analysis of waste composition studies indicates that a significant proportion of waste generated by businesses not collected by Local Authorities falls within this definition. Most recent estimates for England as a whole found that around 43% of the total C&I waste stream may be waste of a type that falls under the definition of municipal[46] and this may amount to 60% of the commercial waste stream. This means that national targets set for municipal waste encompass both LACW and a significant proportion of the C&I waste stream. LACW and C&I waste may be managed at the same facilities and hence consideration of management requirements have been combined in the subsequent assessment.

[44] DEFRA 2014, New Methodology to Estimate Waste Generation by the Commercial and Industrial Sector in England as amended by Commercial and Industrial Waste Arisings Methodology Revisions for England October 2018

[45] 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

[46] National Municipal Waste Composition, England 2017 WRAP January 2020

3 Methodology

The methodology used to estimate an updated baseline C&I waste arisings value (to be used as a starting point for forecasting C&I waste arisings in CWaC) is based on the national 'Reconcile' methodology, adapted to reflect local circumstances. This national methodology considers a number of datasets, in totality, to capture quantities of C&I waste that are managed rather than produced through:

(1) Permitted waste management facilities (reporting through Environment Agency Waste Data Interrogator (WDI) which since 2019 includes data for waste sent to Energy from Waste plants);

(2) taking into account the proportion sent directly for export outside the UK.

Deductions are made to eliminate:

(3) Non-relevant waste streams such as Agricultural, Mining, Construction, Demolition & Excavation Waste (C, D & E), wastewater, and hazardous waste included in the datasets; and

(4) Local Authority Collected Waste (LACW) as reported through WasteDataFlow (WDF).

In summary the methodology applies the following calculation:

C & I waste arising = (Inputs to permitted facilities + inputs to energy from waste + exports) **-** *(C, D & E waste + mining + agricultural + wastewater + hazardous waste + LACW)*

For the purposes of estimating the baseline arisings for CWaC C&I waste, the above method has been adapted to reflect a local approach including computations to avoid double counting of waste inputs to 'intermediate' facilities[47] within CWaC as well as interrogation of anomalous values.

47 Intermediate facilities are those where waste does not meet its final fate. 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

3.1.1 Inputs to permitted facilities

Step 1: Waste Data Interrogator quantity of waste from CWaC with deductions to eliminate non-C&I waste streams.

Data relating to all types of waste identified as coming from CWaC in the Environment Agency Waste Data Interrogator (WDI) is displayed by management route in Table 1 below[48]. This shows that the total quantity of waste for 2021 stood at just under 1.5 million tonnes.

Table 28: Waste Attributed as Arising from CWaC (tonnes)
Source WDI 2021

	Landfill	Metal Recycling Sites	Recovery to Land	Transfer	Treatment	Grand Total
Managed within CWaC	232,404	17,333	14,240	112,835	375,743	**752,555**
Managed outside CWaC	53,544	13,514	660	136,778	447,961	**652,457**
Totals	**285,948**	**30,847**	**14,900**	**249,613**	**823,704**	**1,405,012**

Waste identified under waste codes considered to represent C, D & E Waste (Chapter 17 plus EWC 19 12 09 & 20 02 02) and therefore accounted for in the separate estimates of C, D & E waste (in Section 3) are deducted from this total. The quantities remaining after this deduction are displayed by management route in Table 2 below. This shows that the quantity of waste identified as arising from CWaC is reduced by c400,500[49] tonnes to c1,004,500 tonnes.

Table 29: Waste Arising from CWaC minus C, D & E Waste (tonnes).
Source: WDI 2021

	Landfill	Metal Recycling Sites	Recovery to Land	Transfer	Treatment	Grand Total
Managed within CWaC	228,757	17,333	0	87,962	304,397	**638,449**
Managed outside CWaC	6,786	10,863	652	58,853	288,982	**366,136**
Totals	**235,542**	**28,196**	**652**	**146,815**	**593,380**	**1,004,585**

Waste identified under waste codes considered to represent agricultural waste (Chapter 02 01), mining (Chapter 01) and hazardous waste (All codes with *) are accounted for separately 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 identified as arising from CWaC is reduced by c57,000 tonnes to c947,500 tonnes.

[48] While waste inputs to a number of other categories of facility are reported through the WDI since 2019, but for the sake of comparability these have been excluded from the above table. They are accounted for as appropriate at subsequent steps of the methodology.

[49] The deduction of C, D & E waste at this stage does not include the c82,500 tonnes unattributed below regional level, attributed to CWaC subsequently.

Table 30: Waste Arising from CWaC minus C, D & E Waste, agricultural, mining & hazardous waste.
Source: WDI 2021

	Landfill	Metal Recycling Sites	Recovery to Land	Transfer	Treatment	Grand Total
Managed within CWaC	228,753	11,201	0	87,442	278,884	**606,280**
Managed outside CWaC	2,020	6,743	652	55,414	276,470	**341,299**
Totals	**230,773**	**17,944**	**652**	**142,856**	**555,355**	**947,579**

3.1.2 Accounting for Local Authority Collected Waste

While LACW is not distinguishable from C&I by reference to EWC Codes, it is possible to ascertain the quantities of LACW managed at specific sites by cross referencing data with that from WasteDataFlow (WDF). Cross checking between the sites identified and the category assigned where listed in the WDI enables attribution to specific routes, as follows:

Table 31: LACW Received at Permitted Facilities included in WDI Count for Waste Arising from CWaC.
Source: WDF 2021 Cross checked with WDI 2021

	Metal Recycling Sites	Transfer	Treatment	Grand Total
Managed within CWaC	0	47,473	133,762	**181,234**
Managed outside CWaC	64	4,026	8,702	**12,792**
Totals	**64**	**51,499**	**142,464**	**194,026**

When values displayed in Table 4 are deducted from the values in Table 3 the remaining value is c753,500 tonnes as shown in total Table 5 below. This may be referred to as the 'gross C&I waste arising' value.

Table 32: Gross C&I Waste Arising from CWaC.
Source: Table 3 minus Table 4.

	Landfill	Metal Recycling Sites	Recovery to Land	Transfer	Treatment	Grand Total
Managed within CWaC	228,753	11,201	0	39,969	145,123	**425,046**
Managed outside CWaC	2,020	6,679	652	51,388	267,768	**328,507**
Totals	**230,773**	**17,880**	**652**	**91,357**	**412,891**	**753,553**

Step 2: Deduct specific wastes accounted for separately (rather than complete streams)

Landfill leachate and sludges from waste water treatment plants are expressly excluded from the national Reconcile reporting method, as Defra considers counting wastes generated by waste management facilities from processes handling wastes generated elsewhere in the economy to be double counting under this overall waste stream. Based on this, the value for leachate and wastewater sludges from CWaC managed at permitted facilities has also been deducted. This is calculated to be 247,736 tonnes of waste, of which 71,258 tonnes was managed at treatment sites within CWaC.

Septic tank sludge has also been included in the deduction process at this stage on the basis that it will be managed through waste water treatment facilities rather than conventional waste management facilities. This is calculated to be 29,535 tonnes, of which 24,969 tonnes was managed at CWaC waste water treatment sites.

Inputs to the Holford Brinefield site have also been deducted given the capacity for this site is not merchant and therefore is not counted in the CWaC capacity assessment. This is 31,046 tonnes.

Deducting these values gives a revised headline value of c445,000 tonnes as shown in Table 6.

Table 33: Gross C&I Waste Arising from CWaC
Source: Table 5 minus Step 2 values

	Landfill	Metal Recycling Sites	Recovery to Land	Transfer	Treatment	Grand Total
Managed within CWaC	197,707	11,201	0	39,969	48,895	**297,772**
Managed outside CWaC	1,551	6,679	652	51,388	87,194	**147,464**
Totals	**199,258**	**17,880**	**652**	**91,357**	**136,089**	**445,236**

It was also discovered that a site called Huntington Water Treatment Works had been incorrectly classified as a landfill in the WDI 2021[50]. As such the input tonnage of 189,289 should be reassigned to the treatment category. Moreover, comparison of the input tonnage with the output of 18,340 tonnes of sludge from water clarification suggests that inputs are in the form of an effluent or sludge which isn't a true measure of the tonnage requiring onward management. Therefore, the output value has been taken instead. This results in a revised headline value of c274,500 tonnes shown in Table 7.

Table 34: Gross C&I Waste Arising from CWaC
Source: Table 6 minus revised Huntington Water Treatment Works tonnage

	Landfill	Metal Recycling Sites	Recovery to Land	Transfer	Treatment	Grand Total
Managed within CWaC	8,418	11,201	0	39,969	67,235	**126,823**
Managed outside CWaC	1,551	6,679	652	51,388	87,194	**147,464**
Totals	**9,968**	**17,880**	**652**	**91,357**	**154,429**	**274,287**

[50] Direct contact with the EA confirmed that the site is in fact a treatment site managing effluent waste

Step 3: Account for any double counting subtracting value for intermediate sites (inc. waste transfer stations).

Adjustments may be needed to address recording waste at intermediate sites to account for:

- Double counting - the same waste being recorded once as an input from CWaC to an initial facility in CWaC, and then again as an input from CWaC to a further or 'next step' facility if it goes for onward management; and
- Loss of some waste - as a consequence of residues from the processing of waste arising at intermediate sites like MRFs where some outputs may be recoded from the original source of inputs i.e., the original source identity gets lost.

3a. Deduct movements of waste arising in CWaC to WTS and MRS within CWaC

The national methodology (the 'Reconcile' method) discounts inputs to all types of transfer facility recorded in the WDI on the basis that if the waste is only being transferred there is no processing of the waste hence there is in theory no loss of waste in the movement of waste into and out of the site and a risk of double counting the same tonnage of waste managed through the site at the 'next step' site. This is illustrated in Figure 1 below:

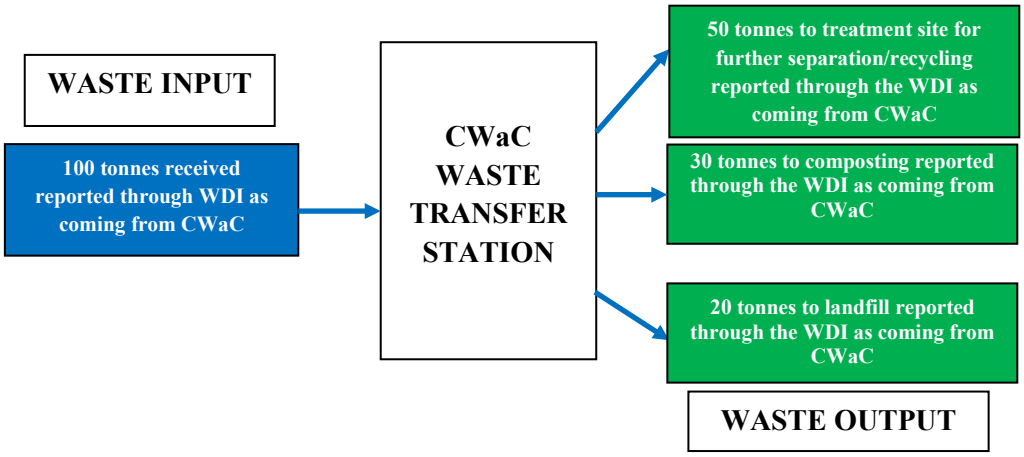

Figure 10: Schematic of Flows for Waste Transfer Stations Showing Potential Double Counting of Wastes in WDI for CWaC

However, relatively few sites classed as transfer stations under the Environment Agency permitting classification actually only operate purely as waste transfer stations, i.e. sites at which waste is solely received and bulked up for onward management, plus inputs to metal recycling sites may be managed through routes that do not report through the WDI, e.g. exported to steel works abroad or delivered directly to reprocessing sites in England. While the national method includes estimates for exports and movements to reprocessors, it is not possible to disaggregate this data down to Plan Area level. Therefore, the outputs to both transfer and MRS within CWaC that received waste from CWaC in 2021 have been further analysed to determine whether outputs do in fact go to destinations that would otherwise be captured in the WDI or not. This step applies to all sites falling under the classification of transfer/ treatment in the WDI.

Firstly, the values of Plan area C&I waste managed at Plan area WTS and MRS are set to zero. Then the following steps are undertaken to identify any 'lost' tonnage not reported at a 'next step' site:

1. The principal sites within the Plan Area classed as WTS and Metal Recycling Sites receiving significant tonnages (>500 tonnes) of C&I waste were identified.
2. Then the principal outputs of these sites were analysed by EWC code and destination WPA.
3. For each tonnage of output waste over 500 tonnes, the input data listed in the WDI by receiving WPA and EWC was cross checked to confirm if a comparable or greater tonnage of that waste type was declared as being received in the destination WPA area from the Plan area.
4. Where a greater or comparable tonnage did not appear as an input to a specific WPA area, the difference between any input value and the Plan Area site output value was recorded on the basis that a shortfall in the WDI entry means the tonnage needs to be counted at the source site i.e. WTS, otherwise it will be lost as a false deduction (unless it appears in another dataset e.g. incineration).
5. Where a greater or comparable tonnage did appear as an input, the WTS and MRS site input was taken as having been accounted at the 'next step' site and therefore was not counted, to avoid double counting of this waste.

Tables 8 and 9 presents the outcome of the analysis for each waste type (EWC) and named destination (WPA) in turn.

Where the receiving WPA is not codeable below regional level a review of entries for destination WPAs within the specified region has been conducted to identify possible destination. If no WPA within the region is named then it is assumed that none of the waste has been counted as an input to a site within that region. For waste identified as going outside the UK it is assumed that this travels directly from CWaC and hence hasn't been counted at a 'next step' site and therefore, the whole value has been taken. The same applies for waste that has travelled to Wales because the WDI only relates to England.

Table 35: Destinations & Fates for Principal Outputs (500t or more) of CWaC sites classified as Waste Transfer Stations identified as taking C&I waste

Source: WDI 2021

EWC Code	Named Destination (WPA)	WDI Cross check shortfall (tonnes)
15 01 01 Paper and cardboard packaging	Outside UK	6,380
	Stockport	1,933
19 12 02 Ferrous metal	Doncaster	228
19 12 04 Plastic and rubber	Wigan	901
19 12 07 Wood	Cheshire East	831
19 12 12 Processing residues	Cheshire East	346
	Wales	2,276
20 01 01 Paper and cardboard	Norfolk	1,496
20 01 02 Glass	Sheffield	2,035
20 01 08 Biodegradable kitchen and canteen waste	Dudley	6,701
20 03 01 Mixed municipal waste	Wigan	612
20 03 03 Street cleaning residues	Staffordshire	176
Total shortfall between output and declared inputs		**23,914**

Table 36: Destinations & Fates for Principal Outputs (500t or more) of CWaC sites classified as Metal Recycling Sites identified as taking C&I waste

EWC Code	Named Destination (WPA)	WDI Cross check shortfall (tonnes)
19 12 02 Ferrous metal	Liverpool	4,344
	Merseyside WPA not codeable	610
	Trafford	5,570
19 12 13 Non-ferrous metal	Liverpool	504
Total shortfall between output and declared inputs		**11,028**[51]

The above exercise indicates that some of the output waste from CWaC WTS and MRS do not appear to be accounted for at 'next step' sites. Therefore, instead of completely disregarding the inputs to these sites by zeroing the values displayed (on the basis that the tonnages are managed through 'next step' facilities reporting through WDI as per the national method), the shortfall tonnages derived from the above computation exercise, i.e. 23,914 tonnes for WTS & 11,028 tonnes for MRS have been used instead. This gives a revised gross C&I waste headline value of c239,500 tonnes as shown in Table 10.

[51] Note that the total inputs to MRS in CWaC shown in Table 7 is 11,201, therefore the majority of inputs are not apparently accounted for at a 'next step' site.

Table 37: Gross C&I Waste Arising from CWaC
Source: Table 6 minus step 3a values

	Landfill	Metal Recycling Sites	Recovery to Land	Transfer	Treatment	Grand Total
Managed within CWaC	8,418	11,028	0	23,914	48,895	**92,255**
Managed outside CWaC	1,551	6,679	652	51,388	87,194	**147,464**
Totals	**9,968**	**17,708**	**652**	**75,302**	**136,089**	**239,719**

3b. Deduct waste from intermediate facilities coded under 19 12 12 and 19 12 10
Outputs from facilities that treat waste prior to its final fate such as Material Recovery Facilities (MRF) and Mechanical Biological Treatment (MBT) plant, for example, was deducted from the national estimates. These are likely to be coded under EWC Chapter 19 (Wastes from Waste Management Facilities). For the purposes of applying this method to CWaC, it is deducted for intermediate sites.

The principal wastes of concern are those coded as refuse derived fuel (RDF) under EWC code 19 12 10 and residues from mechanical treatment coded under EWC 19 12 12. Analysis of the waste removals data in the WDI for intermediate sites within CWaC indicates that the net output of these waste types in 2021 was 109,676 tonnes. The % inputs of C, D & E waste to intermediate sites within CWaC was then applied to the net output of 19 12 12 and 19 12 10. The remainder was taken to represent C&I waste. This was then apportioned by the proportion of inputs from CWaC going to intermediate sites within CWaC. The calculations are shown in Table 11 and is illustrated by Figure 2 below:

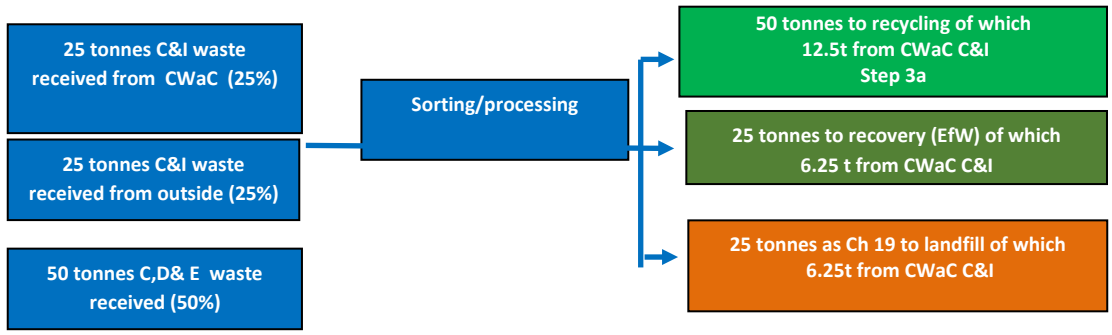

Figure 11: Schematic of CWaC Intermediate site outputs

Table 38: Net output of 19 12 12 + 19 12 10 attributed to CWaC C&I waste to deduct

	Net output of 19 12 12 and 19 12 10	% CDE inputs	19 12 12 Attributed to CDE	19 12 12 attributed to C&I	% inputs from CWaC	CWaC C&I 19 12 12 + 19 12 10
Transfer	12,522	63%	7,916	4,606	64%	2,940
Treatment	97,154	29%	28,203	68,951	32%	22,293
					Total	**25,234**

Table 11 shows the result of this calculation is 25,234 tonnes of 19 12 12 and 19 12 10 output being attributed to C&I waste. Given this value is taken to be a double count it has been deducted from the total arisings value split across transfer and treatment sites, bringing the total arising value to c214,500 tonnes as shown in Table 12.

Table 39: Gross C&I Waste Arising from CWaC

	Landfill	Metal Recycling Sites	Recovery to Land	Transfer	Treatment	Grand Total
Managed within CWaC	8,418	11,028	0	20,974	26,601	**67,021**
Managed outside CWaC	1,551	6,679	652	51,388	87,194	**147,464**
Totals	**9,968**	**17,708**	**652**	**72,362**	**113,795**	**214,485**

Step 4: Deduct incineration or pyrolysis of waste EWC sub chapter

Non-hazardous residues from the thermal treatment of waste (EWC code 19 01 02 + 19 01 12) needs to be deducted to avoid double counting of waste managed through EfW which is accounted for in Step 5. However, no significant tonnage (>500 tonnes) of this waste type was reported as being managed at intermediate sites[52] from CWaC in the WDI 2021, so no further computation has been undertaken.

3.1.3 Additions

Step 5: Add Inputs to Energy from Waste (EfW)

Examination of WDI 2021 for inputs to EfW facilities indicates that 313,463 tonnes of waste attributed to CWaC was sent to 5 EfW plants in England[53] as shown in Table 13 below:

Table 40: EfW facilities receiving >1,000t of CWaC Waste
Source: WDI 2021

Facility WPA	Site Name + Operator	Tonnes
Halton	Runcorn, Viridor Energy Ltd	243,282
Wakefield	Ferrybridge 1, Enfinium Ferrybridge 1 Ltd	44,264
Cheshire West and Chester	Ince Bio Power, Bioenergy Infrastructure Services Ltd	21,615
Sheffield	Holbrook Community Renewable Energy Centre, Equitix ESI CHP (SHEFF) Ltd	2,466
Shropshire	Wood Lane Landfill Site, Tudor Griffiths Ltd	1,837
	Total	**313,463**

The 243,282 tonnes received at the Runcorn EfW facility was further interrogated given the significant contribution the tonnage represents. This revealed that although a substantial amount of the total inputs were reported as coming from CWaC, waste from CE was also received, but not declared. This was discovered as the WDF data reported 80,271 tonnes of LACW from CE was sent to the Runcorn EfW facility in 2021. Given the correspondence between CWaC and CE and the lack of an

[52] Note that 3,233 tonnes were sent for incineration, this is accounted for in Step 5.
[53] Note that 1 site received tonnages of <1,000 tonnes. Given it was <20 tonnes it has been discounted.

obvious alternative declared source, 80,271 tonnes has been deducted from the CWaC Runcorn tonnage along with 20,072 tonnes of LACW from CWaC. This leaves 142,939 tonnes of C&I waste believed to come from both CWaC and CE applying the same thinking.

In order to apportion the remaining tonnage a spatial analysis has been undertaken by applying a 45-minute travel isochrone (or 'catchment') around the site. Given the relatively high value nature of waste a 45 minute isochrone is considered conservative. It is worth noting that the bulk of CE residual LACW travels there. This generates the isochrone shown in Figure 3.

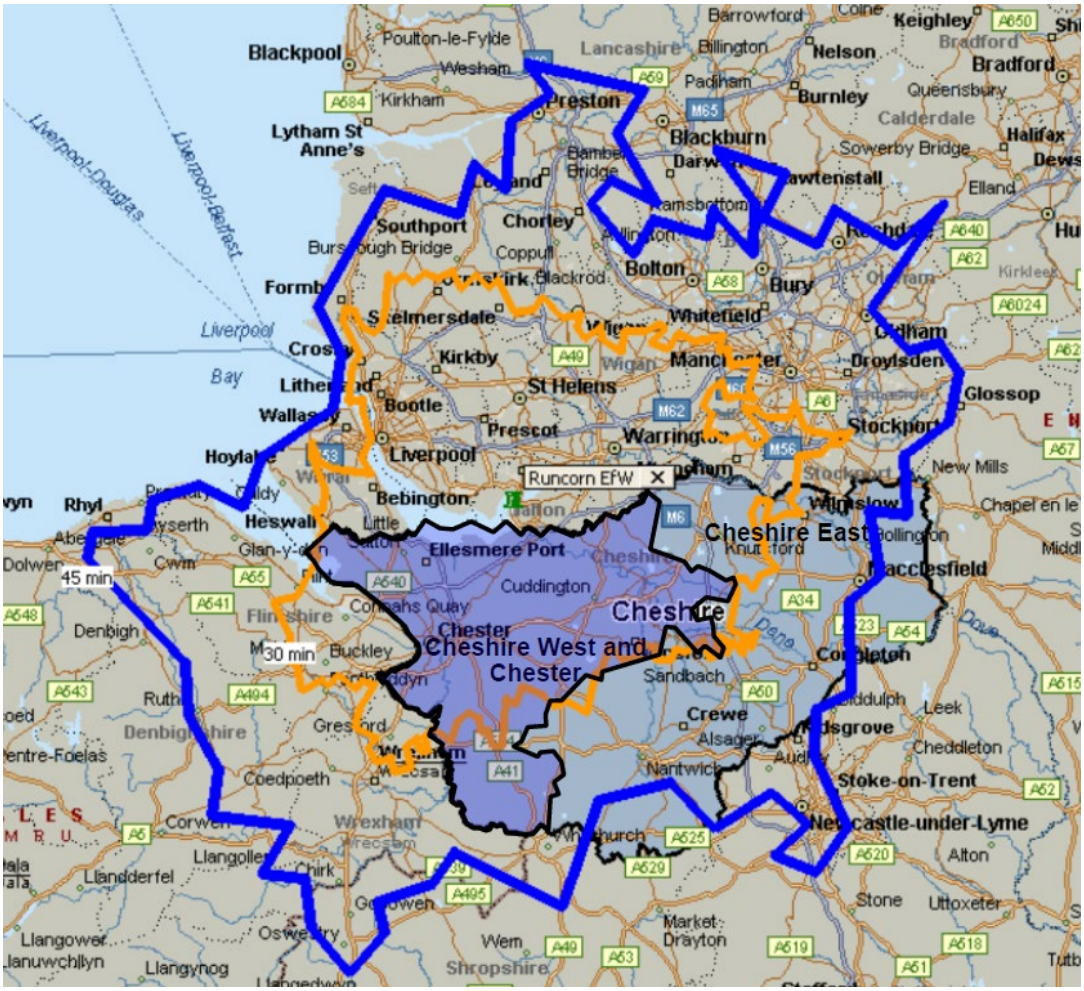

Figure 12: 30 minute and 45-minute travel isochrone from Runcorn EfW facility showing CWaC and CE area

Figure 3 shows that both boroughs are virtually completely included in the 45-minute travel isochrone from the Runcorn EfW facility. Therefore, a 50:50 split has been applied to the remaining 142,939 tonnes, leaving 71,470 tonnes attributed to CWaC C&I waste.

Since the WDF reported 39,735 tonnes of CWaC LACW went to one other EfW facility listed in Table 13 in 2021, this has also been deducted leaving 101,916 tonnes of C&I waste from CWaC going to EfW to be added to the total arising value bringing the total arising value to c316,500 tonnes as shown in Table 14.

Table 41: Gross C&I Waste Arising from CWaC

	Landfill	Metal Recycling Sites	Recovery to Land	Transfer	Treatment	EfW	Grand Total
Managed within CWaC	8,418	11,028	0	20,974	26,601	21,615	88,636
Managed outside CWaC	1,551	6,679	652	51,388	87,194	80,301	227,765
Totals	9,968	17,708	652	72,362	113,795	101,916	316,401

Step 6: Account for waste managed in Wales

Given CWaC's close proximity to Wales and the fact that the WDI only reports waste received and removed from permitted waste management sites located in England, there is a risk of underreporting of CWaC C&I waste if the waste from CWaC was delivered directly to a site in Wales for management. Therefore, the C&I type waste from CWaC reported as being received at sites in Wales, as reported in the Wales Waste Permit Returns Data Interrogator (WPRDI) 2021, has been analysed and compared with WDI CWaC site output data to determine whether inputs to Welsh sites from CWaC came direct from CWaC and hence was not reported in the WDI. Where a greater or equivalent tonnage of waste by EWC code reported in the WDI as an output of CWaC sites appeared as an input to Welsh sites it was taken to have already been counted as an input to the CWaC sites, and where the amount reported by the CWaC sites was less, the difference was taken as being a direct delivery from CWaC to Wales. Any LACW from CWaC that was sent to Wales for management was also deducted. The following steps have been undertaken to identify any directly delivered tonnage:

1. The principal C&I waste codes (>500 tonnes) received at sites in Wales from CWaC reporting in the WPRDI 2021 were identified;
2. For each tonnage of input waste over 500 tonnes, the output data listed in the WDI of CWaC sites was cross checked by EWC and destination to confirm if an equivalent or greater tonnage of that waste type was declared as an output going to Wales (from CWaC);
3. Where a greater or equivalent tonnage did not appear as an output from CWaC sites, the difference between the Welsh site input value and the CWaC site output value was recorded as a direct delivery to Wales and the shortfall value from the WPRDI entry was taken;
4. Where a greater or equivalent tonnage did appear as an output of a CWaC site, the Welsh site inputs was ignored as it was taken to already be accounted for at the intermediate site in CWaC.

Table 15 presents the outcome of the analysis for each waste type (EWC).

Table 42: Principal Inputs (>500 tonnes) of C&I Waste to permitted Welsh sites from CWaC (WPRDI 2021) and Shortfall with Outputs of CWaC site reporting through WDI 2021

EWC Waste Description	Inputs to Wales (WPRDI)	Outputs from CWaC site to Wales (WDI)	Shortfall
Salt slags from secondary production	591	0	591
Plastics shavings and turnings	751	0	751
Paper and cardboard packaging	6,688	1,631	5,057
Ferrous metal	2,937	0	2,937
Spent fluid catalytic cracking catalysts	1,550	0	1,550
Screenings	956	0	956
Paper and cardboard	2,681	806	1,875
Metals	820	0	820
Mixed municipal waste	30,677	661	30,017
Total shortfall between input and declared outputs			**44,553**

The above exercise indicates that a significant tonnage of CWaC waste is delivered directly to sites in Wales and hence goes un reported in the WDI. A further computation to deduct any potential LACW has been undertaken which reveals 2,203 tonnes of paper and cardboard was sent to Wales in 2021[54]. Therefore, this has been deducted from the 5,057 tonnes shortfall shown in Table 15. Therefore, a value of 42,350 tonnes has been added to the CWaC C&I waste baseline and apportioned by site category. This gives a final C&I waste value of c359,000 tonnes as shown in Table 16.

Table 43: Estimated C&I Waste Arising from CWaC in 2021

	Landfill	Metal Recycling Sites	Recovery to Land	Transfer	Treatment	EfW	Grand Total
Managed within CWaC	8,418	11,028	0	20,974	26,601	21,615	88,636
Managed outside CWaC	3,457	10,436	652	84,188	90,711	80,671	270,115
Totals	11,875	21,464	652	105,162	117,313	102,286	358,751

3.2 Comparison to previous baseline arisings estimates

The C&I waste baseline arisings value generated of c359,000 tonnes for 2021, is some c98,500 tonnes less than the WNA 2016 value of 457,300 tonnes for 2014. This suggests a growth of minus 3.07% per annum. However, given the 2014 value was generated using a point of production method[55], it is unsurprising that the 2021 value generated using a point of management method is lower as some waste produced will be managed without going to a permitted facility. Given the values were generated using different methodologies they are not considered comparable for trend analysis for forecasting purposes.

[54] Value confirmed by CWaC WDA.

[55] Note that the WNA 2016 estimated C&I waste arisings using results from the Northwest Commercial and Industrial Waste Survey (2009) and 2014 ONS data for CWaC business structure and population statistics.

4 Forecasting Future C&I Waste Growth

The nPPG states when looking to forecast C&I waste:

> *"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*

Hence the nPPG anticipates the application of a positive growth rate.

4.1 Updating the Plan Forecast

When updating the C&I waste forecast for CWaC, the following have been considered:

- the preferred forecast used in the previous WNA; and
- national forecast of C&I waste in England.

4.2 Previous WNA Forecast

The approach taken in the previous WNA 2016 supporting the adopted Local Plan policies relating to waste was to forecast C&I waste arisings using projected employment growth rates from the Cheshire & Warrington Economic Model (CWEM) (2013). When applied to the 2014 C&I waste baseline, this resulted in a C&I waste growth rate of -1.26% per annum being taken at the start of the Plan period (2014-2015) followed by +1.01% (2015-2020), -0.11% (2020-2025) and -0.29 (2025-2030) per annum rate through to 2030. This results in an average C&I waste growth per annum of -0.16% over the previous Plan period (2014-2030). Given that this Plan period is now 2025– 2045 only the C&I waste growth rates from the latter two periods have been counted and then an average of -0.20% taken to the end of the Plan period. This has been applied to the 2021 C&I waste baseline value to forecast arisings to 2045 as shown in Table 17 below.

Table 44: CWaC C&I waste forecast applying CWEM employment forecast as per previous WNA 2016 to 2021 baseline

	2021	2025	2030	2035	2040	2045
Tonnes	*358,751*	357,155	352,045	348,545	345,080	341,649

Table 17 shows that applying the growth factors applied in the previous WNA 2016 to the 2021 baseline value, C&I waste arisings are expected to fall by c15,500 tonnes over the Plan period.

This fall is in contrast to the trajectory projected nationally considered in the next section.

4.3 DEFRA Analysis of Future C&I Waste Growth

Defra commissioned a Future Waste Arisings report in 2020[56] published in 2021. This includes the most current national growth forecast for the C&I waste stream in England. The method used to produce a forecasting model for C&I waste included development of a time-series forecast for gross value added (GVA) for the commercial sector and separately for the industrial sector, which was then used to generate C&I waste arisings forecasts. The forecasts also incorporate the impact of growth in the number of businesses nationally on C&I waste arisings by combining data on waste generated per business size and sector and adjusting the GVA to waste ratios using the growth in the number of businesses in each sector by size respectively. Two forecasts were modelled for England from 2019 to 2050: one for commercial waste arisings (refer to Figure 4) and the other for industrial waste arisings (refer to Figure 5). The resultant graphs are reproduced as Figures 4 and 5 respectively.

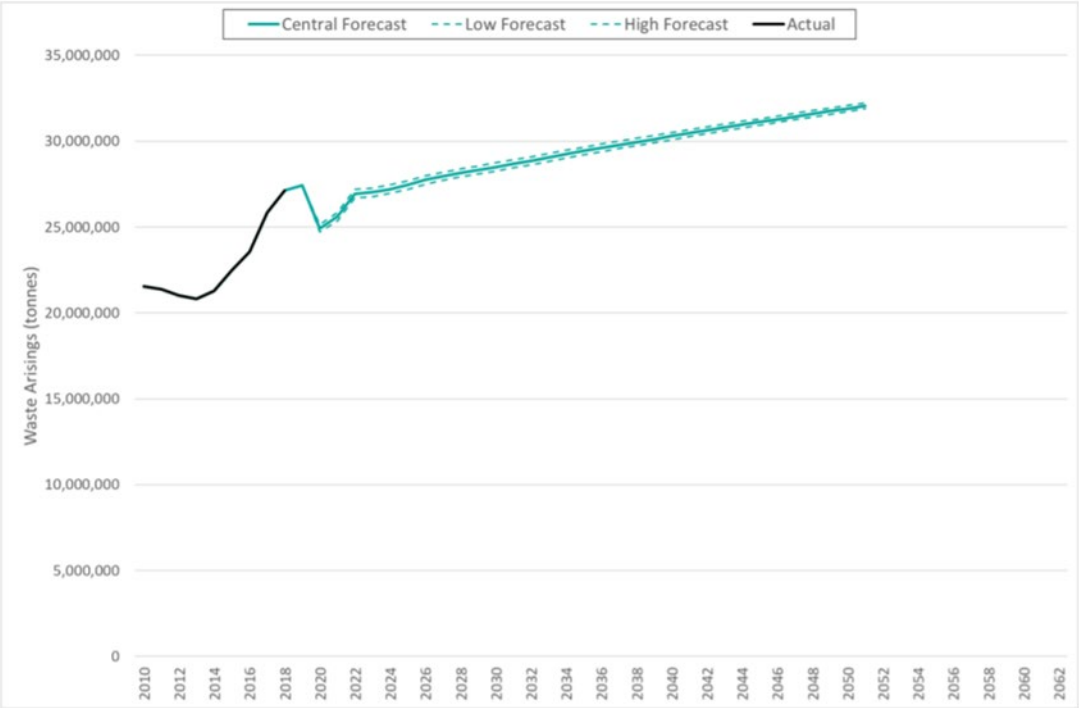

Figure 13: Commercial Waste Arisings Forecasts for England (2019-2050)
Source: Future Waste Arisings, produced for DEFRA (2021)

[56] '*Future Waste Arisings*' Eunomia for DEFRA, April 2021

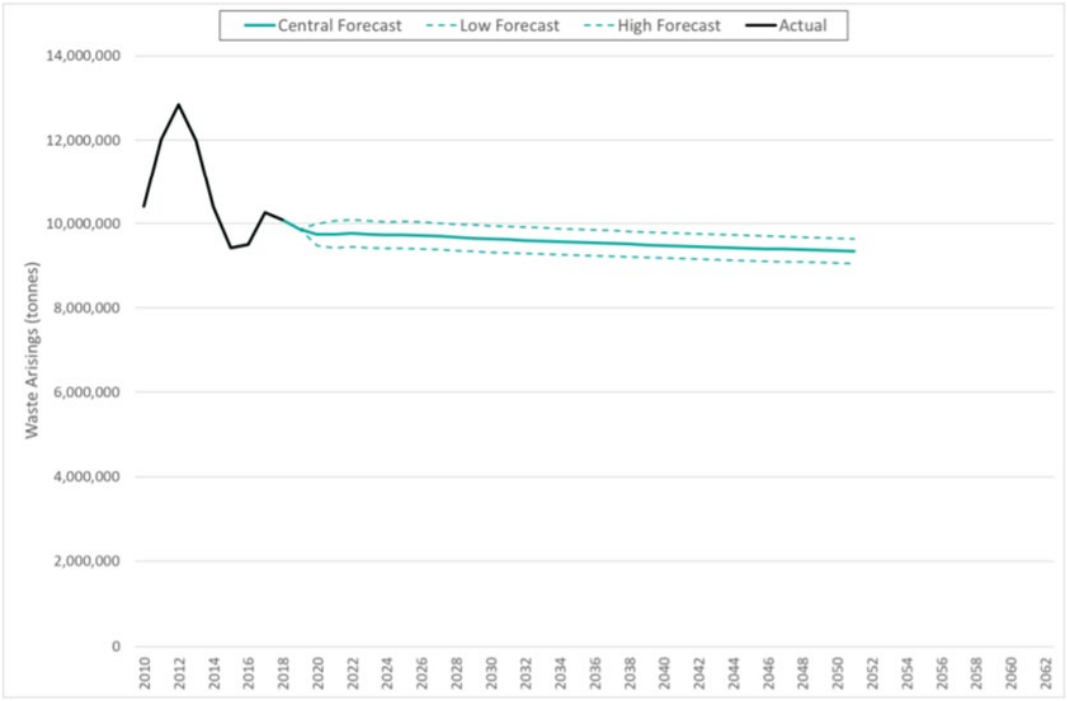

Figure 14: Industrial Waste Arisings Forecasts for England (2019-2050)
Source: Future Waste Arisings, produced for DEFRA (2021)

Figures 4 and 5 present central, low and high forecast waste arisings for the commercial and industrial sectors respectively albeit within a narrow range. Commercial waste arisings are projected to increase steadily from 2022 to 2050, whilst industrial waste arisings are projected to progressively fall from 2022 to 2050.

In order to assess how the national forecasts may be taken into account when forecasting CWaC's C&I waste arisings, data points have been extracted for the 2022-2045 period as that is the new Plan period which this WNA covers. For the purpose of this exercise, the national central forecast values were used. See Appendix 1 for how the growth rates were ascertained using national central forecast values.

The average annual growth rate generated in the period 2022 to 2045 was +0.64% per annum for commercial waste and -0.22% per annum for industrial waste respectively. These can now be weighted according to the percentage contribution waste from commercial sources and that from industrial sources are considered to make to the overall baseline arising value for CWaC.

The previous combined WNA for CE and CWaC report produced in 2011 provides the most current data for a split of C&I arisings between commercial and industrial waste. The report projects a split of 42% industrial vs 58% commercial waste.

Applying the projected split produces a combined C&I waste growth rate calculated as follows:

- Commercial waste represents 58% of C&I waste arisings: 58% of +0.64% = +0.37%
- Industrial waste represents 42% of C&I waste arisings: 42% of -0.22% = -0.09%

0.37 + -0.09 = +0.28%

Therefore, +0.28% growth rate per annum has been applied to the 2021 C&I baseline value to forecast an alternative arisings scenario to 2045 as shown in Table 18 below.

Table 45: CWaC C&I waste forecast applying Growth Factor derived from Defra to 2021 baseline

	2021	2025	2030	2035	2040	2045
Tonnes	*358,751*	362,812	367,953	373,166	378,454	383,816

Table 18 shows that applying the growth factor of +0.28% per annum to the 2021 baseline value, C&I waste arisings are expected to rise by c21,000 tonnes to c384,000 tonnes over the Plan period. The DEFRA 2021 report provides a feel for the direction in which growth in C&I waste in CWaC may be headed, but it should of course be noted that the report is intended to provide a national picture, and so presents an average of what is predicted to happen across England.

4.4 Generating a Forecast for C&I Waste

The method set out in the nPPG to generate Plan area level C&I waste forecast proposes that a growth profile be based on different assumptions to produce a range of values. Therefore, as per the discussions above the following set of growth factors have been applied to the 2021 baseline arisings value of c359,000 tonnes and extrapolated to 2045 to create a cone of possibility plotted in Figure 6:

- Previous WNA growth factor of -0.2% per annum;
- Composite DEFRA National Forecast of 0.28% per annum.

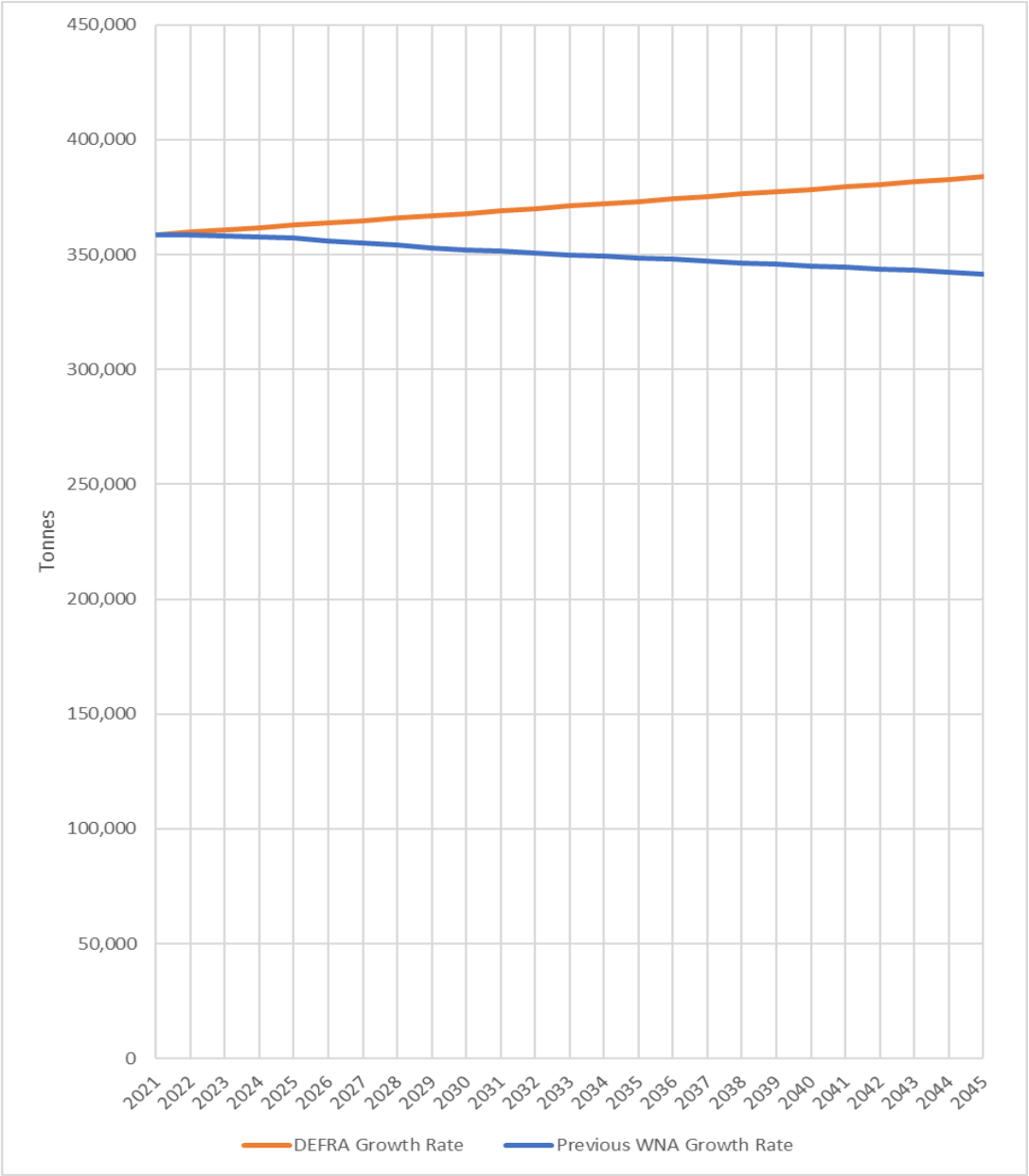

Figure 15: CWaC C&I Waste Arisings Forecasts (using 2021 baseline) Tonnes per annum

The
cone of possibility plotted in Figure 6 suggests that the actual trajectory for CWaC C&I waste arisings might fall somewhere between the DEFRA (orange line) and previous WNA forecast (blue line). Taking the average of the projected C&I waste arisings at 2045 for the DEFRA and previous WNA forecast, produces a forecast arisings value of c362,500 tonnes at 2045 which would equate to an increase in arisings of 0.92% over the Plan period (% p.a.). This yields the preferred scenario (Central Scenario – green) shown in Figure 7.

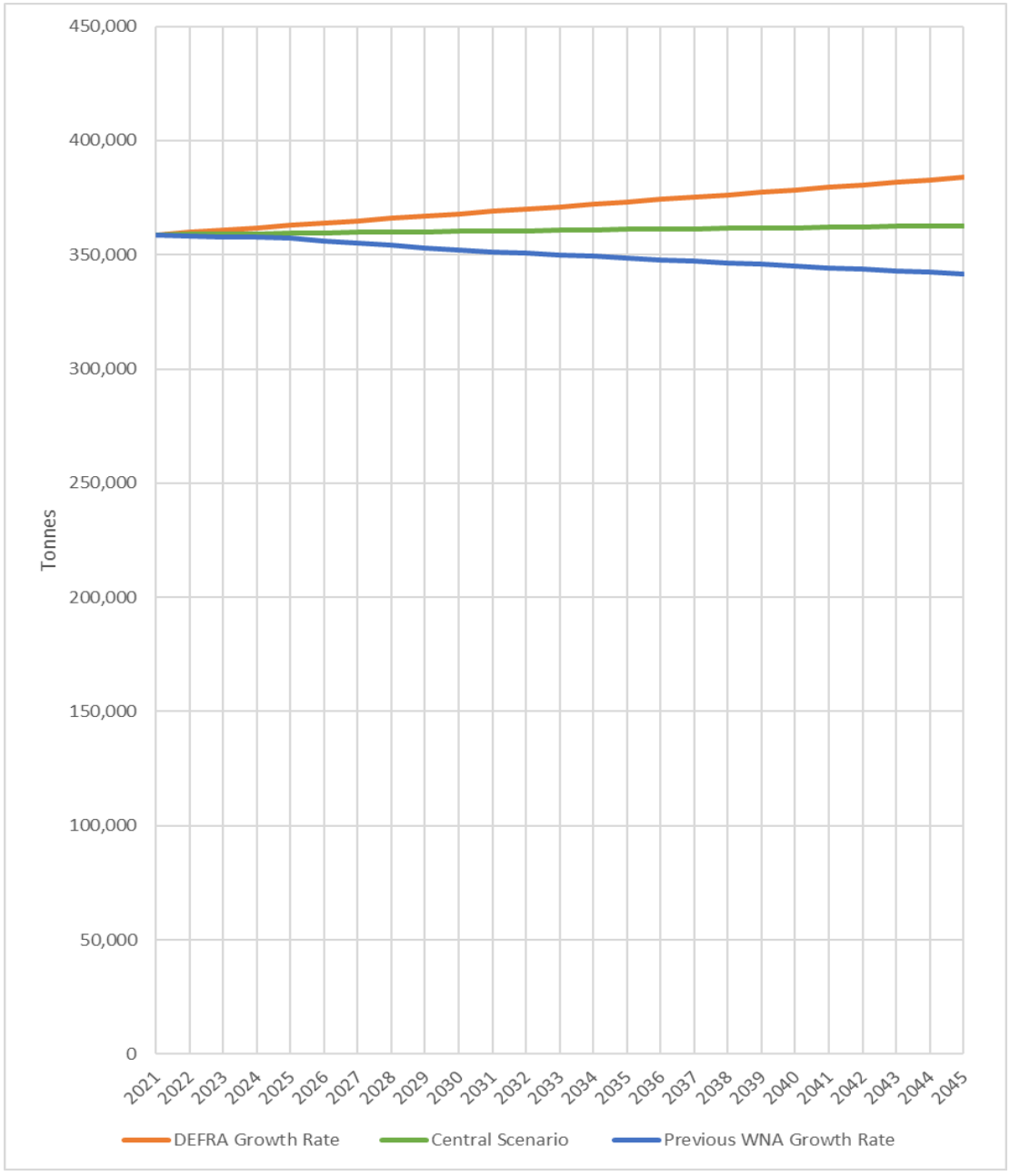

Figure 16: CWaC C&I Waste Forecast with Central Scenario

4.5 Forecast Conclusion

Using the baseline arising value for 2021 and a central waste growth scenario generates a trajectory that tracks a path between the previous WNA growth rate forecast (blue line) and DEFRA growth forecast (orange line). This produces a growth rate of 0.05% per annum.

Using this scenario results in projected C&I waste arisings in 2045 of c359,000 tonnes, an increase of c3,500 tonnes over the Plan period. The forecast arisings in CwaC each year are shown in Table 19.

Table 46: Forecast C&I Waste Arisings each year using the preferred Central Scenario (tonnes)

	Preferred Central Scenario
2021	*358,751*
2022	358,917
2023	359,083
2024	359,249
2025	359,415
2026	359,581
2027	359,747
2028	359,913
2029	360,078
2030	360,244
2031	360,410
2032	360,576
2033	360,742
2034	360,908
2035	361,074
2036	361,240
2037	361,405
2038	361,571
2039	361,737
2040	361,903
2041	362,069
2042	362,235
2043	362,401
2044	362,567
2045	362,732

5 Projected Management Requirements

Determination of how waste might be managed requires assessment of how the waste in the Plan area is currently managed and then projecting how any future Plan intends waste to be managed through exerting influence on the types of capacity developed during the Plan period.

5.1 Baseline Profile

The management profile presented in Table 20 below is based on the management data available through the WDI 2021. Since the WDI does not have an exclusive 'recycling' category it is not possible to establish how much of the waste managed goes on for recycling. Therefore, the principal known fates considered are those management types that would represent a final fate reported in the WDI as follows. That is:

- Composting and AD
- Landfill
- EfW and Recovery to Land (together combined as 'other' recovery)

5.2 Composting and AD

Of the total quantity of waste sent to composting and AD reported in the WDI 2021, c14,000 tonnes was C&I waste (c8,500 tonnes to AD sites and c5,500 tonnes to composting sites).

5.3 Landfill

As shown in Table 16, in 2021, c12,000 tonnes of C&I waste arising in CWaC was sent to landfill.

5.4 'Other' Recovery

As shown in Table 16, in 2021, c103,000 tonnes of C&I waste arising in CWaC was recovered of which almost all went to EfW facilities (102,286 tonnes) and the remaining 652 tonnes was sent to a recovery to land site.

5.5 Recycling

The difference between the sum of the tonnages of waste managed through the above categories of facilities and the baseline value has been taken to represent the tonnage that went on for recycling via permitted facilities. In 2021 this amounted to c230,000 tonnes.

Table 47: Computed C&I Waste Management Profile

Route	Tonnes	%
Total Arisings	358,751	
Landfill	11,875	3%
'Other' Recovery	102,938	29%
Composting and AD	13,995	68%[57]
Recycling & Reuse (remainder)	*229,944*	

[57] Recycling and composting combined as at the same level of the Waste Hierarchy.

6 Management Targets

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.

The previous WNA cites the following targets for C&I waste:

- 75% recycling by 2020
- 25% landfill by 2020

There are no express national government targets for the management of C&I waste alone. However, the recently adopted EU Circular Economy Plan[58], to which the UK government has confirmed its commitment[59], includes the following targets for municipal waste[60].:

- 55% recycling floor by 2025; and
- 60% recycling floor by 2030; and
- 65% recycling floor by 2035; plus
- 10% ceiling limit on landfilling by 2035.

The CWaC C&I waste management profile arrived at for 2021 in Table 19 indicates that a 68% recycling rate is being achieved for CWaC's C&I waste. While this falls short of the 75% C&I recycling target by 2020 set in the current adopted CWaC Waste Local Plan it exceeds the Circular Economy Package target set for municipal waste as a whole which includes up to 60% of commercial waste. Given commercial waste represents c58% of C&I waste arisings this suggests that around 130,000 tonnes of C&I waste would be subject to these targets, and c85,000 tonnes ought to be recycled by 2035, which represents c23% of arisings.

Table 19 also indicates only 3% of CWaC C&I waste was sent to landfill in 2021, therefore exceeding the expectation of the previous WNA target of 25% by 2020 and the Circular Economy Package ceiling for municipal waste as a whole for 2035 which given the above would allow c13,000 tonnes. Furthermore, given the Environment Act target for a reduction of residual waste of 50% by 2042, going beyond the current Circular Economy package recycling target is likely to be necessary estimated at 72% by 2042. Based on this, the targets for C&I waste in Table 21 below are proposed.

Table 48: Proposed Targets for C&I Waste Management in CWaC

	Milestone Year					
	2021	**2025**	**2030**	**2035**	**2040**	**2045**
Recycling/composting (floor)	*68%*	≥70%	≥75%	≥75%	≥75%	≥75%
Remainder to Landfill (ceiling)	*3%*	≤2%	≤2%	≤2%	≤2%	≤2%
Other Recovery (remainder)	*29%*	28%	23%	23%	23%	23%

[58] A new Circular Economy Action Plan, European Commission December 2015

[59] https://www.gov.uk/government/publications/circular-economy-package-policy-statement/circular-economy-package-policy-statement

[60] Municipal waste is LACW plus waste of a similar nature.

6.1 Projected Management Requirement for CWaC C&I Waste

Applying the proposed target values in Table 21 to the C&I waste forecast shown in Table 19 gives the management requirements displayed in Table 22 below.

Table 49: Proposed targets (floors & ceilings) for C&I Waste Management

	Milestone Year					Plan Period Peak/Cumulative Capacity Requirement
	2025	**2030**	**2035**	**2040**	**2045**	
Recycling/Composting Target (Floor)	251,590	270,183	270,805	271,427	272,049	272,049 (peak - rising)
Remainder to Landfill Target (Ceiling)	7,188	7,205	7,221	7,238	7,255	169,542 (cumulative)
Other Recovery inc Recovery to Land Remainder	100,636	82,856	83,047	83,238	83,428	100,636 (peak - falling then static)

Table 22 shows recycling and composting capacity for C&I waste will be required to manage a peak of c272,000 tonnes by the end of the Plan period for the proposed target/floor to be met. The application of the proposed targets would mean a cumulative non-inert landfill requirement of c169,500 tonnes over the Plan period as shown in Table 23 below.

Table 50: Projected Residual C&I Waste Non Haz Landfill Requirement (tonnes)

Year	Tpa	Tonnes Cumulative
2023	9,531	9,531
2024	8,360	17,891
2025	7,188	25,080
2026	7,192	32,271
2027	7,195	39,466
2028	7,198	46,664
2029	7,202	53,866
2030	7,205	61,071
2031	7,208	68,279
2032	7,212	75,491
2033	7,215	82,705
2034	7,218	89,924
2035	7,221	97,145
2036	7,225	104,370
2037	7,228	111,598
2038	7,231	118,829
2039	7,235	126,064
2040	7,238	133,302
2041	7,241	140,544
2042	7,245	147,788
2043	7,248	155,036
2044	7,251	162,288
2045	7,255	**169,542**

Appendix 1: Data from National forecast and annual growth rates applied

Year	Commercial	Growth rate	Industrial	Growth rate
2022	26,885,177		9,857,143	
2024	27,031,316	0.27%	9,821,429	-0.18%
2026	27,635,753	1.12%	9,750,000	-0.36%
2028	28,036,798	0.73%	9,714,286	-0.18%
2030	28,437,563	0.71%	9,642,857	-0.37%
2032	28,787,095	0.61%	9,607,143	-0.19%
2034	29,187,580	0.70%	9,571,429	-0.19%
2036	29,588,484	0.69%	9,535,714	-0.19%
2038	29,956,522	0.62%	9,500,000	-0.19%
2040	30,378,261	0.70%	9,464,286	-0.19%
2042	30,789,655	0.68%	9,451,327	-0.07%
2044	31,098,372	0.50%	9,398,235	-0.28%
2046	31,350,000	0.40%	9,352,941	-0.24%
Average growth rate p.a.		**+0.64%**		**-0.22%**

Cheshire West & Chester Waste Needs Assessment 2023

Appendix 4: Management Requirements for Construction, Demolition & Excavation Waste in Cheshire West and Chester to 2045

Report: Final

Version: 1.2

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Project: Cheshire West and Chester Waste Needs Assessment 2023

Report: Management Requirements for Construction, Demolition & Excavation Waste in Cheshire West and Chester to 2045

Version Description: Final

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1.2	Final Issue	Alan Potter (Partner)	28.12.2023		

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Abbreviations

AD	Anaerobic Digestion
C & I	Commercial & Industrial Waste
C, D & E / CDEW	Construction, Demolition & Excavation Waste
CWEM	Cheshire & Warrington Economic Model
CWaC	Cheshire West and Chester
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
MRS	Metal Recycling Site
MRF	Material Recycling Facility
PPG	Planning Practice Guidance
WDF	WasteDataFlow
WDI	Waste Data Interrogator
WNA	Waste Needs Assessment
WPRDI	Waste Permit Returns Data Interrogator
WPA	Waste Planning Authority
WTS	Waste Transfer Station

Glossary of Terms

Agricultural Waste	Waste produced on a 'farm' in the course of 'farming'. Agricultural waste takes both 'natural' (or organic) and 'non- natural' forms e.g. plastics and metal.
Anaerobic Digestion	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.
Bio waste	Waste that can break down over time due to natural biological action/processes, such as food, garden waste and paper.
Commercial Waste	Waste from factories or premises used for the purpose of trade or business, sport, recreation or entertainment.
Construction, Demolition & Excavation Waste	Waste arising from the building process comprising demolition and site clearance waste and builders' waste from the construction/demolition of buildings and infrastructure. Includes masonry, rubble and timber.
Defra	The UK Government department responsible for developing national waste management policy.
Disposal	A deposit of waste to landfill that is for disposal rather than recovery (for restoration or operational purposes).
Energy from Waste	The conversion of the calorific value of waste into energy, normally heat or electricity through applying thermal treatment of some sort. May also include the production of gas that can be used to generate energy.
Environment Agency	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.
European Waste Catalogue (EWC)	Comprehensive listing of wastes divided into 20 chapters, most of which are industry-based, although some are based on materials and processes. Each waste type is assigned a unique six-digit code. Otherwise referred to as List of Waste (LoW).
Exemptions	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.
Green waste	Biodegradable plant waste from gardens and parks such as grass and hedge trimmings, from domestic and commercial sources suitable for composting.
Hazardous Waste Landfill	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.
Hazardous Waste	Waste requiring special management under the Hazardous Waste Regulations 2005 due to 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 characteristics of the waste.
Household Waste	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.
Incineration	The controlled combustion of waste. Energy may also be recovered in the form of heat (see Energy from Waste).
Industrial Waste	Waste arising from any factory and from any premises occupied by an industry (excluding mines and quarries).
Landfill (including land raising)	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).

Local Authority Collected Waste	Waste collected by or on behalf of a local authority. Includes household waste and business waste where collected by a local authority and non-municipal fractions such as construction and demolition waste delivered to HWRCs. LACW is the definition used in statistical publications, which previously referred to municipal waste.
Mass Balance	Method of assessing the quantity of waste that may be converted to recycled aggregate by comparing the inputs and outputs for the Plan area sites reporting through the WDI. Where a shortfall exists between the inputs and the outputs this is taken to be the quantity of C, D & E waste that has been converted to recycled aggregate.
Materials Recycling Facility (MRF)	A facility for sorting recyclable materials from the incoming waste stream.
Mining Waste	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 extracted from the ore. Management subject to control through EU Directive 2006/21/EC.
'Next step' Site	Some waste to intermediate sites may not undergo any processing, thus are reported as leaving the site leave under the same EWC and are accounted for again at the 'next step' site where it is to be managed.
Non-Hazardous Waste Landfill	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.
Recovery	Subjecting waste to processes that recover value including recycling, composting or thermal treatment to recover energy.
Recycling	The reprocessing of materials extracted from the waste stream either into the same product or a different one.
Residual Waste	Waste remaining after materials for re-use, recycling and composting/organic waste treatment e.g. anaerobic digestion have been removed.
The Plan area	The area subject to the Waste Local Plan to which this study relates. In this case the Borough of Cheshire West & Chester.
Waste Planning Authority	The authority responsible for planning for waste within a specific administrative area. In this case Cheshire West & Chester Council
Waste Transfer Station	A site to which waste is delivered for sorting or baling prior to transfer to another place for recycling, treatment or disposal.

1. Introduction

Cheshire West and Chester (CWaC) Council has contracted BPP Consulting to produce an update to the Cheshire West & Chester Waste Needs Assessment (WNA) to underpin the preparation of its Local Plan policies relating to waste which is to be updated to cover a Plan period to 2045.

The WNA consists of the following sections:

17. Review of Management Requirements for Local Authority Collected Waste;
18. Review of Management Requirements for Commercial & Industrial Waste;
19. Review of Management Requirements for Construction, Demolition & Excavation Waste;
20. Review of Management Requirements for Hazardous Waste;
21. Scoping Review of Management Requirements for Other Waste;
22. Review of waste flows.
23. Waste Attribution (for C, D & E waste and C&I waste)
24. Overview of Management Requirements

2. Estimating C, D & E Waste Arisings Baseline

2.1. Introduction

This section is concerned with estimating arisings of Construction, Demolition and Excavation (C, D & E) waste in CWaC in 2021, the most recent year for which data is available and also incorporates the findings of the Waste Attribution exercise reported in section 7. From this, future arisings are forecast for which appropriate targets are proposed. The current C, D & E waste management capacity available within the Plan area is then assessed, with a view to identifying potential future capacity needs for which the Local Plan waste policies may need to provide.

2.2. Definitions and Context

The most recent CWaC Waste Needs Assessment published in 2016, using data for 2014, defined Construction, Demolition and Excavation (C, D & E) waste as follows:

"Controlled waste arising from the construction, repair, maintenance and demolition of buildings and structures." (Glossary)[61].

Currently there is no requirement on businesses to submit records of waste produced and hence estimating quantities of C, D & E waste arisings for a specific Plan Area is a challenge. Two different approaches can be taken to estimate a baseline for C, D & E waste as follows:

- **'Point of production'** method which uses data based on the construction activity within an area and applying waste production factors (related to the different types of activity such as new build and refurbishment) derived from Site Waste Management Plans (SWMP). However, as construction activity statistics data is no longer produced at a sub-regional i.e. county level it is not possible to reliably replicate this method.
- **'Point of management'** using data related to the quantity of C, D & E waste managed. This largely relies on records of waste delivered to, and removed from, permitted waste management facilities being reported with accuracy. The Environment Agency (EA) collates this data submitted by operators in its 'Waste Data Interrogator' (WDI) on an annual (calendar year) basis. This data is supplemented by data for wastes managed at unpermitted sites that don't report through the WDI, such as the Environment Agency's exemption register and responses to surveys conducted by Minerals Planning Authorities of the quantity of recycled aggregate sold by producers within their respective Plan area.

[61] Although the definition doesn't specifically refer to excavation waste, it does appear that excavation waste has been included in calculations.

3. Methodology

The national methodology for estimating annual waste generation from the Construction, Demolition and Excavation (C, D & E) Sectors for England, (the 'Point of Management' method), uses information from four key management routes:

(1) Waste managed at transfer and treatment facilities (reporting through the Agency WDI).

(2) Waste managed by landfill (reporting through the Agency WDI).

(3) Waste managed under exemptions (derived from an Environment Agency register and estimated tonnage managed).

(4) Waste recycled as aggregate (from a national estimate prepared by the Mineral Products Association).

In order to assess C, D & E waste arisings in the Plan area, the national methodology has been modified to reflect local circumstances, in particular the following modifications have been made:

- Values for Plan area waste classed as C, D & E waste managed through permitted sites in 2021 as reported in the WDI with steps taken to avoid possible double counting and to capture wastes that may have been reclassified as a consequence of processing through intermediate sites.
- The population of exempt sites registered in CWaC has been established through the Environment Agency held exempt register. Then the estimated value for the quantity of waste managed at the key exemption managing C, D & E waste ('U1')[62] from a government funded study[63] was applied.
- The quantity of waste converted into recycled aggregate has been based on the WDI 2021 'mass balance' method as per the method included in the recently released national guidance developed by Aggregate Working Parties in England for estimating recycled aggregate production[64], rather than from the Mineral Products Association national estimate.

For the purposes of this exercise C, D & E waste has been taken to include the following waste as per the List of Waste/European Waste Catalogue:

(1) All of Chapter 17 (Construction & Demolition Waste)

(2) 19 12 09 (minerals such as sand, stones)

(3) 20 02 02 (soil and stones).;

A check has also been undertaken for any waste classified under EWC 19 13 as this includes remediated soils which should be included in the C, D & E waste arisings total[65].

[62] Note the Government has recently announced the proposed revision and tightening of conditions of U1 exemption in its response to the 2018 consultation on "*proposals to tackle crime and poor performance in the waste sector and introduce a new fixed penalty for the waste duty of care*"

[63] See footnote 2

[64] *Recycled Aggregates Data: Guidance on Assessing Levels of Recycled Aggregates* (May 2022)

[65] No significant amount of waste of this type was reported as arising in the Plan area in the WDI 2021

3.1.1. Inputs to permitted waste management facilities

Step 1: Calculate the tonnage of C, D & E waste from CWaC in the Environment Agency WDI sent to permitted sites.

The total amount of C, D & E waste reported through the WDI in 2021 as coming from CWaC managed at permitted sites (located within CWaC and elsewhere in England[66]) was c400,500 tonnes. This comprised c114,000 tonnes managed within CWaC, and c286,500 tonnes managed outside CWaC. The breakdown and management routes are shown in Table 1 below.

Table 51: Management of C, D & E Waste from CWaC through Permitted Sites (tonnes)
Source: WDI 2021

	Landfill			Recovery to Land	Metal Recycling Sites	Transfer	Treatment	Grand Total
	Haz	Non-haz	Inert					
Managed within CWaC	0	3,647	0	14,240	0	24,873	71,346	**114,106**
Managed outside CWaC	3,162	14,664	28,933	8	2,651	77,925	158,979	**286,321**
Totals	**3,162**	**18,311**	**28,933**	**14,248**	**2,651**	**102,799**	**230,325**	**400,428**

Step 2: Deduct EWC codes relating to hazardous component of C, D & E waste

Requirements for management of hazardous waste arising in CWaC are accounted for separately in this report[67]. Therefore, the hazardous component of the C, D & E waste stream is deducted to avoid double counting. Of the inputs from CWaC shown in Table 1, a total of 5,478 tonnes was identified as hazardous waste. When deducted this gives a revised total of c395,000 tonnes. The revised values are shown in Table 2.

Table 52: Management of non-hazardous C, D & E Waste from CWaC through Permitted Sites (tonnes)
Source: WDI 2021

	Landfill		Recovery to Land	Metal Recycling Sites	Transfer	Treatment	Grand Total
	Non-haz	Inert					
Managed within CWaC	3,647	0	14,240	0	24,844	71,346	**114,077**
Managed outside CWaC	14,441	28,933	8	2,651	77,745	157,095	**280,873**
Totals	**18,088**	**28,933**	**14,248**	**2,651**	**102,590**	**228,441**	**394,950**

[66] The WDI only reports on permitted sites in England. Waste managed at facilities outside England such as Wales or Scotland will be reported separately.

[67] See section 4

Step 3: Quantify waste going to its final fate or leaving the Plan area

Step 3a. C, D & E waste from CWaC managed at permanent deposit sites.

As inputs to Landfill and Recovery to Land involve the permanent deposit of the waste, they are regarded as final points of management (or fate), so these values are taken as final as follows: 47,021 tonnes (combined landfill values in Table 2) + 14,248 tonnes (Recovery to Land value from Table 2) = 61,269 tonnes. Table 3 shows the CWaC C, D & E waste baseline 2021 arising running total as a cumulative value.

Table 53: Non-hazardous (including inert) C, D & E waste from CWaC – Step 3a (tonnes)

Component	Value	Cumulative Total
Permanent Deposit	61,269	**61,269**

Step 3b. C, D & E waste from CWaC managed at intermediate sites outside CWaC

As shown in Figure 1 waste from CWaC managed at intermediate sites outside CWaC ceases to be identified as coming from CWaC following receipt at the intermediate management facility ('next step' site).

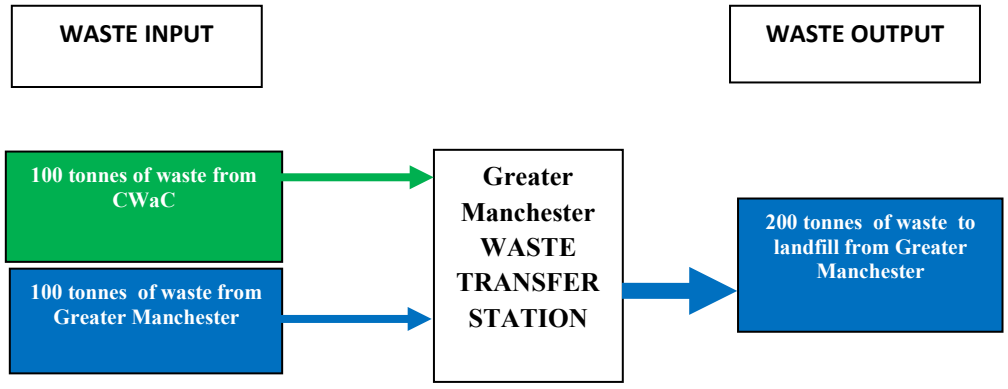

Figure 17: Schematic of how flows of CWaC waste to sites outside CWaC are reported in the WDI.

Hence the tonnage of CWaC waste accepted at intermediate sites outside CWaC for management is also taken to be a 'final value' as follows:

2,651 tonnes (out of Plan area MRS from Table 2) + 77,745 tonnes (out of Plan area transfer from Table 2) + 157,095 tonnes (out of Plan area treatment from Table 2) = 237,491 tonnes.

Table 4 shows the CWaC C, D & E waste baseline arising running total is now c299,000 tonnes.

Table 54: Table 3 plus CWaC waste managed at intermediate sites outside of CWaC (tonnes) – Step 3b

Component	Value	Cumulative Total
Permanent Deposit	61,269	61,269
Managed out of CWaC	237,491	**298,760**

Step 4: Calculate the tonnage of C, D & E waste from CWaC treated in CWaC that may have been subject to reclassification

Having established the quantity of CWaC C, D & E waste going to a final fate or leaving the Plan area as c299,000 tonnes (Table 4), the quantity of inputs to intermediate sites within CWaC which may be included in the arisings value also needs to be accounted for.

This value needs to be further interrogated to ensure that it does not:

1. Double count inputs to intermediate sites in CWaC that subsequently get managed at a 'next step' site as CWaC waste and hence over report arisings; nor,
2. misses C, D & E waste that may have been reclassified following processing through these sites and hence under-report arisings. This is because waste leaving an intermediate site may be reclassified as a waste from a waste management process (the relevant waste chapter is 'Chapter 19') rather than Chapter 17 (the code normally applied to C,D& E waste). This is explained by the following example:

'Intermediate' Site 1 in CWaC receives 100 tonnes of CWaC C, D & E waste.

Following treatment e.g. sorting and some processing, the 100 tonnes gets split into:

- 25 tonnes of soil (classed as Chapter 17 waste) which goes for Recovery to Land at Site 2; The 25 tonnes of soil is therefore also recorded at the point of input to the Recovery to Land site as waste arising in CWaC (regardless of whether Site 2 is within or outside CWaC).
- 50 tonnes of recycled aggregate, sold directly for use as an aggregate; this is counted under the recycled aggregate value obtained by the 'mass balance' method as it is not explicitly reported in the WDI as it ceases to be waste[68];
- 25 tonnes of waste sent to landfill classed as Chapter 19 waste due to the incoming waste having been processed and then reclassified as 'waste from waste management processes'.

[68] Providing it is produced in accordance with a Factory Production Control Manual that fulfills the Aggregate Quality Protocol requirements.

This is illustrated in Figure 2 below:

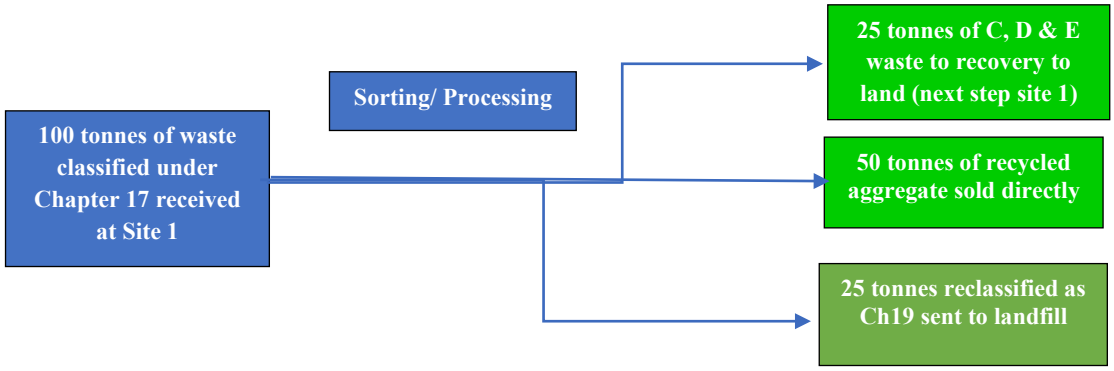

Figure 18: Schematic of intermediate site outputs to track Cheshire West & Chester C, D & E waste fate.

As it is not possible to distinguish inputs to next step/final fate sites as whether they have gone direct from source or via an intermediate site from input data, that element of Chapter 19 waste that came from intermediate sites in the Plan area that may have originated from C, D & E waste from the Plan area is estimated. This is done by identifying each intermediate site within the Plan area that received C, D & E waste from CWaC that also reported Chapter 19 waste as an output.

The proportion of the Chapter 19 output that might be attributed to the input Plan area C, D & E waste was determined as follows:

1) Did the site have a shortfall between the C, D & E waste received and removed?
2) Did the site have outputs classed under Chapter 19?
3) If yes then the percentage of total inputs attributed to CWaC is applied to the outputs of Chapter 19 to give a Chapter 19 'makeup'.

NB: Where the Ch 19 output is greater than the shortfall, only the shortfall value is used. Where the shortfall can't be made up this may be taken to indicate that tonnages of C, D & E Waste have been converted into recycled aggregate which is not generally declared on the permit waste returns and hence reported in the WDI, as it has ceased to be waste.

Applying this method to the Plan area Intermediate sites (Metal Recycling Sites[69], Waste Transfer Stations & Waste Treatment sites) identified as both receiving C, D & E waste from the Plan area and producing Chapter 19 waste in 2021 yields the following:

Q1: 4 intermediate waste sites within CWaC were identified as having a shortfall between the inputs and outputs of C, D & E waste of greater than 500 tonnes[70].

Q2: Of these sites, none had net[71] outputs of waste classified as Chapter 19 of over 500 tonnes.

[69] No shortfall over 500 tonnes between CDE inputs and outputs was found for any MRS sites.

[70] 500 tonnes is taken to be a tonnage regarded as significant for the purposes of this exercise.

[71] "Net" being the difference between any inputs of Ch19 and outputs of Ch19 waste.

Therefore, there are no further additions of potentially missed C, D & E waste reclassified under Chapter 19 at this stage in the computation, hence the entry for this component in Table 5 is zero.

Table 55: Table 4 plus Chapter 19 – Step 4

Component	Value	Cumulative Total
Permanent Deposit	61,269	61,269
Managed out of CWaC	237,491	298,760
CWaC intermediate site net Ch 19 output	0	**298,760**

Step 5: Account for C, D & E waste converted into Recycled Aggregate

This section sets out the calculation to quantify C, D & E waste arising in CWaC used to produce recycled aggregate. This has been calculated using methods included in the recently released national guidance developed by Aggregate Working Parties in England for estimating recycled aggregate production[72].

Each year CWaCC prepares a Local Aggregates Assessment[73] (LAA) which reports how much aggregate is sold from CWaC sites and how this relates to the demand for aggregate. In order to establish the contribution made by recycled aggregate to sales of aggregate overall in CWaC, the Council conducts an annual monitoring survey of recycled aggregate producers located at fixed sites within the Plan area.

The value presented for combined sales of recycled and secondary aggregate production for 2020 from the most recent survey reported in the latest LAA (published 2022)[74] is c37,500 tonnes. However, the LAA value for recycled aggregate production may not correspond directly to C, D & E waste arising in CWaC for the following reasons:

- The LAA expresses the "*low number of respondents to the survey and this difficulty retrieving data from operators has presented challenges to understanding the exact level of contribution that secondary and recycled materials make to the supply of minerals.*" Resulting in under-reporting of arisings;
- a proportion of the aggregates sold from CWaC sites may have been produced from C, D & E waste arising from outside CWaC, resulting in over-reporting of arisings; and
- the method includes aggregates produced from secondary aggregates derived from non-C, D & E waste, resulting in possible over-reporting of arisings if there are secondary aggregate producers operating within CWaC.

It should also be noted that for permitted sites it is a legal requirement under a permit to submit accurate input and output data to the Agency used to compile the WDI, whereas, it is not a legal requirement to respond to Council surveys used to compile LAAs.

[72] *Recycled Aggregates Data: Guidance on Assessing Levels of Recycled Aggregates* (May 2022)

[73] Local Aggregates Assessment 2021

[74] The survey for 2020 was conducted in 2021 and reported in the LAA 2021 published in 2022.

Given the above and the fact that this report is updating C, D & E waste arisings for 2021, the value obtained using the WDI 'mass balance' method (see glossary) was taken in preference to the LAA survey response where a site both responded to the survey and reported through the WDI. The breakdown is shown in Table 6 below.

Table 56: Summary of Recycled Aggregate Production Estimates (tonnes)

Site + Operator	Response to 2021 survey (LAA 2022)	% Inputs from CWaC in WDI	Recycled Aggregate attributed to CWaC C, D & E waste	WDI 2021 Mass Balance[75]	Preferred Value
Land at Brunner Mond, A S H Skip Hire Ltd	-	100%	-	885	885
Liverpool Road, Cheshire Waste Skip Hire Ltd	37,500	50%	18,750	8,659	8,659
Shellway Road, Ash Aggregates Ltd	-	41%	-	35,200	35,200
				Total	**44,743**

Table 6 shows that 44,743 tonnes of C, D & E waste reported as arising from CWaC was converted into recycled aggregate using the 'mass balance' method. This value has been included in the calculation of C, D & E waste arising running total in Table 7. This gives a CWaC C, D & E baseline 2021 arising running total of c343,500 tonnes.

Table 57: CWaC C, D & E waste after Step 5

Table 5 results plus Recycled Aggregates

Component	Value (tonnes)	Cumulative Total
Permanent Deposit	61,269	61,269
Out of CWaC Intermediate	237,491	298,760
In Plan Area Intermediate Chapter 19	0	298,760
Recycled Aggregate	44,743	**343,504**

[75] Adjusted for CWaC where data is available.

3.1.2. Plan area C, D & E Waste managed at Exempt sites

Step 6: Estimate the quantity of C, D & E waste managed by exempt waste management activities in CWaC.

The national Planning Practice Guidance (nPPG) advises that: "*..when forecasting construction and demolition waste arisings, the following may be relevant:*

- *the fact that a sizeable proportion of construction and demolition waste arisings are managed or re-used on-site, or exempt sites, so it is critical that some provision is made for unseen capacity in this way*." (emphasis added)

Paragraph: 033 Reference ID: 28-033-20141016

Regulations were introduced in 2011 which dramatically reduced the maximum quantities of waste that could be managed by activities for which exemptions, rather than environmental permits, could be relied upon, and so the quantity of C, D & E waste managed through exempt activities has reduced substantially. However, as a quantity of C, D, & E waste is still expected to be managed at exempt activities, it is still appropriate to give consideration to the contribution some activities may make to management of this stream, and hence to the calculation of arisings.

Exempt activities registered under Paragraph U1 (use of waste in the construction) generally account for the management of the most significant quantities of C, D & E waste by exempt activities. A government funded report[76] estimated a mean value for the quantity of waste managed by an activity registered under U1 as 600 tonnes.

The following steps ensure that management of C, D & E waste managed by activities registered under paragraph U1 is taken into account in the assessment of C, D & E waste arisings in CWaC.

Table 58: Number of activities in CWaC registered as exempt under paragraph U1 2019 to 2021

	2019	2020	2021	Total	3-yr Average
Paragraph U1	32	27	13	72	24

Exemption registrations are valid for 3 years, and hence the total population of exempt activities identified in Table 8 above includes any site registered between January 2019 and December 2021. However, a survey of exempt activities undertaken by Surrey County Council in 2017[77] indicated that those registered under paragraph U1 tend to be used on a 'one-off' basis. While in theory, it is possible that all the exempt activities registered between January 2019 and December 2021 were utilised in 2021 and so the total number could be used to estimate arisings, this is considered unlikely and so instead the total number registered was divided by three to generate a mean annual value of 24 for the number of U1 exempt activities considered to be active in CWaC during 2021.

From the mean number of exempt activities registered under paragraph U1, and applying the WRAP report value of 600 tonnes per exemption, it is estimated that the total quantity of C, D & E waste managed by such activities in CWaC in 2021 was 14,400 tonnes. This value has been included in the

[76] Refer to footnote 3

[77] Waste Permitting Exemption Survey by Surrey County Council with support from BPP Consulting (unpublished)

CWaC C, D & E baseline arising running total. As shown in Table 9, this results in a CWaC C, D & E baseline 2021 arising running total of c358,000 tonnes.

Table 59: CWaC C, D & E waste after Step 6

Table 7 plus Exemptions

Component	Value (tonnes)	Cumulative Total
Permanent Deposit	61,269	61,269
Out of CWaC Intermediate	237,491	298,760
In Plan Area Intermediate Chapter 19	0	298,760
Recycled Aggregate	44,743	343,504
Exemptions	14,400	**357,904**

Step 7: Account for tonnages not attributed below regional level

The WDI 2021 reports a significant tonnage of waste not coded below the Northwest region managed through sites reporting through the WDI that may actually originate from CWaC. As a result, a further computation process has been undertaken to apportion that tonnage. This is presented in detail in the Section 7 of this report relating to Waste Attribution. This process arrived at a value of 82,329 tonnes of the C, D & E waste reported as arising from the North West being attributed to CWaC. The breakdown by management route is shown in Table 10 below.

Table 60: Waste not attributed below NW region attributed to CWaC

	Transfer	Treatment	Total
Managed within CWaC	0	33,494	33,494
Managed outside CWaC	47,739	1,096	48,835
Totals	**47,739**	**34,590**	**82,329**

This value has been included in the CWaC C, D & E waste baseline arising for 2021 and has been reassigned as waste attributed to CWaC giving the running total shown in Table 11. That is the 48,835 tonnes managed outside CWaC has been added to Out of CWaC total while the 33,494 tonnes has been added to the recycled aggregate total given this site was included in the list of sites identified as selling recycled aggregates that was sent the LAA survey. This results in a CWaC C, D & E baseline arising running total for 2021 of c440,000 tonnes.

Table 61: CWaC C, D & E waste after Step 7

Table 9 plus unattributed

Component	Value (tonnes)	Cumulative Total
Permanent Deposit	61,269	61,269
Out of CWaC Intermediate	286,326	347,595
In Plan Area Intermediate Chapter 19	0	347,595
Recycled Aggregate	78,237	425,833
Exemptions	14,400	**440,233**

Step 8: Account for waste managed in Wales

Given CWaC's close proximity to Wales and the fact that the WDI only reports waste received and removed from permitted waste management sites located in England, there is a risk of underreporting of CWaC waste if the waste from CWaC was sent directly to a site in Wales for management. Therefore, the C, D & E type waste reported as being received at sites in Wales, as reported in the Wales Waste Permit Returns Data Interrogator (WPRDI) 2021, has been analysed and compared with WDI CWaC site output data to determine whether inputs to Welsh sites from CWaC came direct from CWaC and hence was not reported in the WDI. Where a greater or equivalent tonnage of waste by EWC code reported in the WDI as an output of a CWaC site appeared as an input to a Welsh site it was taken to have already been counted as an input to the CWaC site, and where the amount reported by the CWaC was less, the difference was taken as being a direct delivery from CWaC to Wales. The following steps have been undertaken to identify any directly delivered tonnage:

1. The principal C, D & E waste codes (>500 tonnes) received at sites in Wales from CWaC reporting in the WPRDI 2021 were identified;
2. For each tonnage of input waste over 500 tonnes, the output data listed in the WDI of CWaC sites was cross checked by EWC and destination to confirm is an equivalent or greater tonnage of that waste type was declared as an output going to Wales (from CWaC);
3. Where a greater or equivalent tonnage did not appear as an output from CWaC sites, the difference between the input value and the CWaC site output value was recorded as a direct delivery to Wales taking the shortfall value from the WPRDI entry;
4. Where a greater or equivalent tonnage did appear as an output of a CWaC site, the Wales site inputs was ignored as it was already accounted at the intermediate site in CWaC, hence avoiding double counting of this waste.

Table 12 presents the outcome of the analysis for each waste type (EWC).

Table 62: Principal Inputs (>500 tonnes) of C, D & E Waste to permitted Welsh sites from CWaC (WPRDI 2021) and Shortfall with Outputs of CWaC site reporting through WDI 2021

EWC Code	Inputs to Wales (WPRDI)	Outputs from CWaC site to Wales (WDI)	Shortfall
17 01 01 Concrete	5,954	0	5,954
17 01 02 Bricks	1,438	0	1,438
17 01 07 Mixtures of concrete, bricks, tiles and ceramics	21,660	7,861	13,799
17 02 01 Wood	3,731	1,109	2,621
17 05 04 Soils and stones	54,286	336	53,950
17 05 06 Dredging spoil	8,201	0	8,201
17 09 04 Mixed CDE	17,449	0	17,449
19 12 09 Minerals	36,290	75,144	0
Total Shortfall between input and declared outputs			**103,412**

The above exercise indicates that a significant tonnage of CWaC C, D & E waste goes direct to sites in Wales and hence goes un reported in the WDI. Therefore, the value of 103,412 as shown in Table 11 has been added to the CWaC C, D & E waste baseline. This gives a final C, D & E waste value of c543,500 tonnes as shown in Table 13.

Table 63: CWaC C, D & E waste after Step 8
Source: Table 11 plus waste to Wales

Component	Value (tonnes)	Cumulative Total
Permanent Deposit	61,269	61,269
Out of CWaC Intermediate	286,326	347,595
In Plan Area Intermediate Chapter 19	0	347,595
Recycled Aggregate	78,237	425,833
Exemptions	14,400	440,233
To Wales	103,412	**543,645**

3.2. Comparison with previous baseline arisings estimates

The C, D & E waste baseline arising value generated of c543,500 tonnes for 2021[78], is some c208,500 tonnes greater than the WNA 2016 value of 335,000 tonnes in 2014[79]. However, given the level of omission in the 2016 derived value, it is not considered comparable for forecasting purposes.[80].

3.3. Comparison over 3-year period

Instead, a review of the last 3-years WDI data has been undertaken given the possible impact of the Covid-19 pandemic on construction activity and resultant C, D & E waste arisings.

Table 14 below shows a top-level analysis of C, D & E waste arisings data from the WDI (i.e. Chapter 17 codes plus 19 12 09 and 20 02 02, minus hazardous waste) plus a comparison of C, D & E waste baselines including waste that was managed in Wales.

[78] This compares with 353,000 tonnes predicted to be produced in 2021 in the WNA 2016 forecast.

[79] Note that the WNA 2016 did not make an attempt to account for waste coded to 'Cheshire' or waste managed in Wales.

[80] It should be noted that the WNA 2016 used only Chapter 17 codes to estimate C, D & E waste arisings, whereas this methodology also includes code 19 12 09 and 20 02 02. A check of the WDI 2014 reveals c5,500 tonnes of these waste codes were reported as arising from CWaC and Cheshire uncodeable, a proportion of which is likely to have arisen from CWaC and hence the WNA 2016 value was an under-report albeit by a small margin.

Table 64: CWaC C, D & E top level waste arisings

Year	2019	2020	2021	Average growth p.a
Without Wales	428,727[81]	519,468	394,950	
Growth p.a		21.17%	-23.97%	-1.40%
With Wales	529,264	605,899	498,362	
Growth p.a		14.48%	-17.75%	-1.63%

Table 14 shows C, D & E waste arisings in 2020 increased from 2019 levels with a drop below 2019 levels in 2021 for top level C, D & E waste arisings (with or without waste to Wales adjustment). Given there does not appear to be a fall in arisings in 2020 the principal year affected by Covid-19, a comparison of arisings against house building activity in CWaC during the period has been undertaken to determine whether there is a correlation between construction activity and arisings. Figure 3 below plots CWaC C, D & E top level waste arisings plus WNA 2016 C, D & E waste arisings value against house building activity in CWaC.

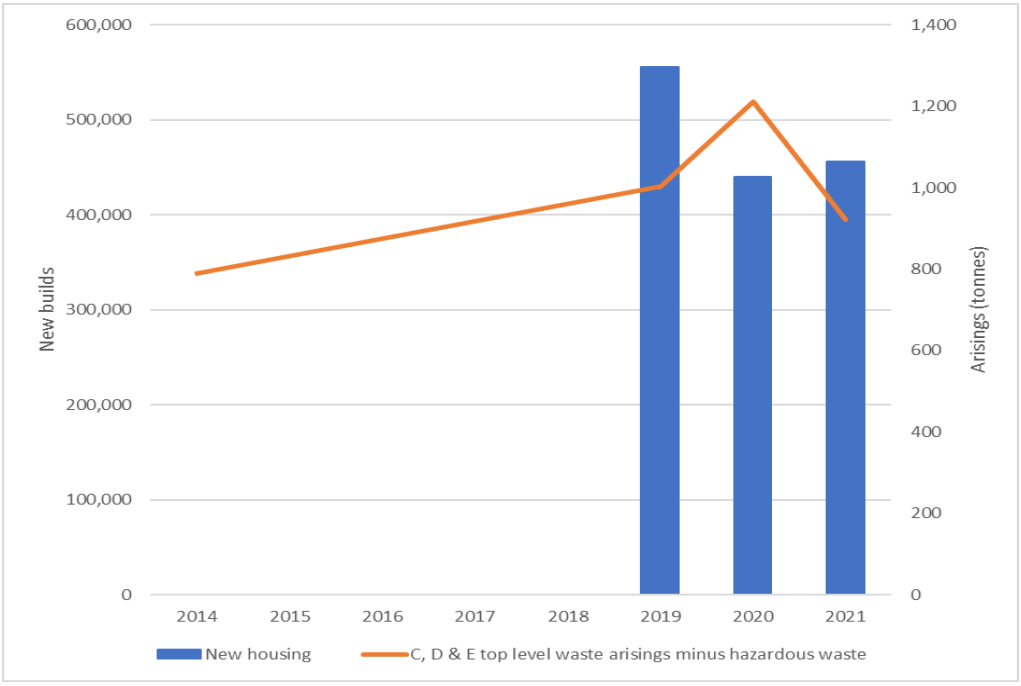

Figure 19: CWaC C, D & E top level waste arisings (orange line) (2010-2021) vs house building in CWaC (blue bars) (2019-2021)
Source: WDI and CWaCC (Table 2)

[81] Given 2019 was the final year of the wholesale coding of waste to 'Cheshire', for convenience an apportionment factor of 52% has been applied to the 'Cheshire' waste to attribute it to CWaC as per the CWaC WNA Update 2016 method.

Figure 3 shows that although a drop in house building occurred in the CWaC in 2020 and a bounce back in 2021, there appears to be no direct correlation with the pattern in C, D & E waste arisings, in fact any correlation appears to be inverse.

4. Forecasting Future C, D & E Waste Growth

4.1. Context

The nPPG states when looking to forecast C, D & E waste:

> "*Waste planning authorities should start from the basis that net arisings of construction and demolition waste will remain constant over time as there is likely to be a reduced evidence base on which forward projections can be based for construction and demolition wastes.*"

Hence the starting point for any assessment is that there will be no growth in arisings in the forecast period. In contrast to this, the approach taken in the previous WNA 2016 supporting adopted Local Plan policies relating to waste was to forecast C, D & E waste arisings based on the employment forecasts for the construction sector, from the Cheshire & Warrington Economic Model (CWEM) (2013). This resulted in a growth rate of 0.9% per annum being taken at the start of the Plan period (2015-2020) followed by 0.23% per annum rate through to 2030.

4.2. Updating the Forecast

Given the updated C, D & E waste baseline position against the 2014 baseline suggests a growth of 8.9% per annum, a positive growth rate is recommended. The updated CWEM (2021) applies an employment forecast for the CWaC construction sector of 0.1% per annum to 2030, a fall of 0.13% per annum on the forecast used in the WNA 2016.

This has been applied to the 2021 C, D & E waste baseline value to forecast arisings to 2045 as shown in Table 15.

Table 65: CWaC C, D & E waste forecast applying CWEM employment forecast for construction industry of 0.1% p.a. to 2021 baseline

	2021	**2025**	**2030**	**2035**	**2040**	**2045**
Tonnes	*543,645*	545,822	548,557	551,305	554,067	556,843

Table 15 shows that applying the growth factor of 0.1% per annum to the 2021 baseline value, C, D & E waste arisings are expected to rise by c13,000 tonnes to c557,000 tonnes by the end of the Plan period.

The nPPG also recommends that an assessment of major infrastructure projects also be undertaken on a Plan area basis. An assessment of the impact of the planned major infrastructure projects identified by CWaC on C, D & E waste arisings is presented in Table 15.

Table 66: Planned Major Infrastructure

Major Infrastructure projects	Estimated Start	Impact on C, D & E waste arisings RAG assessment	Notes
HyNet Hydrogen and Carbon Dioxide pipeline construction	2024		
HS2 construction of Phase 2b (section within CWaC)	2025/26		

Two planned major infrastructure projects anticipated to generate significant quantities of C, D & E waste during the Plan period, some of which may arise from CWaC are the HyNet project anticipated to start 2024 and HS2 project anticipated to start 2025/26. However, it has recently been announced by the Government that the construction of the section of HS2 that is most likely to impact CWAC, Phase 2b (Birmingham to Crewe and Crew to Manchester) will be delayed for at least two years [82].

[82] Transport Secretary Written statement to Parliament Published 9 March 2023 https://www.gov.uk/government/speeches/record-investment-plans-for-transport-network

5. Profiling the Existing C, D & E Waste Management Methods

5.1. Backfilling of mineral workings

The WDI allocates tonnages to sites by permit category granted by the Environment Agency. In the case of backfilling of mineral working this might either be a recovery to land permit or a landfill environmental permit. Where a site involving the permanent deposit of waste to land has been determined by the Agency to not qualify for a recovery to land permit under its guidance, it will be classed as a landfill. In that situation inputs to sites involving backfilling of mineral workings are counted as going to landfill in the WDI. However, given that activities such as backfilling of mineral workings are classed as recovery according to Government guidance on the waste hierarchy[83], and sites where this takes place may be classed as a landfills for permitting purposes, there can be a mismatch between the tonnages of waste shown as having gone to landfill and the waste hierarchy orientated targets that might be set out in a Waste Local Plan.

Table 16 sets out how the datasets for inputs from CWaC to such sites have been disaggregated to distinguish between tonnages recovered at, as opposed to disposed to, landfill. This has been done on the basis that all inert waste sent to landfill will have actually been used in restoration or to meet operational needs and therefore do not represent disposals. This is supported by the fact that the gate fee charged for this material will be relatively low as compared to non-inert waste, and hence in order to maximise profit gained from filling remaining void a landfill operator can be expected to minimise acceptance of non-inert waste for disposal all things being equal.

Table 67: Allocation of Quantities of reported C, D & E waste from CWaC to permanent deposit to land management categories in 2021

Source: Table 2 & Table 9

Non-Inert Landfill		Inert Landfill	Recovery to Land	Exemptions
Non-inert	Inert	28,933	14,248	14,400
54	18,034			
Disposed to Landfill	**Assumed to be Recovered**			

Table 16 shows that virtually all CWaC C, D & E waste received at non-inert landfill was in fact inert material; this was mainly soils and stones classed under EWC 17 05 04. Table 17 presents the management profile arrived at using the 2021 baseline of c543,500 tonnes.

[83] Applying the Waste Hierarchy: evidence summary (DEFRA., June 2011)

Table 68: C, D & E Waste Management Profile Actual Data 2021

Route	Purpose	Tonnes	% of known
Recycling & Reuse	Recycled Aggregate (Table 13)	78,237	14%
	Subtotal	**78,237**	
Recovery	Exemptions	14,400	14%
	Use of Waste/ Recovery to Land	14,248	
	Inert landfill + inert waste to non-inert landfill	46,967	
	Subtotal	**75,615**	
Non-Inert Landfill	Disposals to non-inert landfill	54	<1%
	Subtotal	**54**	
Unknown	Treatment (remainder)	389,738	72%
	Total	**543,645**	

Table 18 gives the following management profile for C, D & E waste arising in CWaC in 2021:

- 14% re-used and recycled;
- 14% recovered in some other way;
- <1% landfilled;
- 72% to treatment (unknown)

5.2. C, D & E Waste Composition

The principal distinction in the C, D & E waste stream in terms of management (and so targets) is between inert and non-inert materials, with a further possible distinction between hard and soft inert materials. This can inform the setting of appropriate targets as some types of material are only suited to particular types of management method. For example, only hard inert material can be converted into recycled aggregate, and generally material used in backfill will be soft materials such as soils and sub-soils.

By considering what type of material would be suitable for management through each component of the management profile shown in Table 18 above, and analysis of specific waste codes it is possible to arrive at an indicative breakdown by material type. This is shown in Table 19.

Table 69: C, D & E Waste Composition from Management Profile Actual Data 2021

Hierarchy Tier	Management Route	Inert		Non-Inert/ Mixed
		Hard	Soft	
Recycling/Reuse	Recycled Aggregate	78,237	0	0
Other Recovery	Exemptions	0	14,400	0
	Use of Waste/ Recovery to Land	0	14,248	0
	Inert Landfill + inert waste to non-inert landfill	0	46,967	0
Disposal	Non-Inert Landfill	0	0	54
Unknown	Treatment	144,792	193,851	51,095
	Totals	**223,030**	**269,466**	**51,149**
	Breakdown	41%	50%	9%

Table 19 shows an overall inert content of 91%, with 9% identified as non-inert initially[84].

[84] 'initially' because the bulk of this waste is expected to be a mixture of inert and non-inert components that will undergo treatment, to separate these components out (and thereby minimise onwards management costs). However, when inert materials are mixed with non-inert materials the whole amount is classified as non-inert until separated into its constituent parts.

6. Management Targets

The revised EU Waste Framework Directive set a minimum target of 70% by weight of non-hazardous Construction & Demolition waste prepared for re-use, recycling and other material recovery by 2020[85].

It should be noted that:

- while backfilling operations using waste to substitute other fill materials may be counted towards the target. i.e. backfilling of mineral workings may be classed as recovery;
- naturally occurring material categorised under EWC 17 05 04 (soil & stones) is excluded from the target. i.e. its use is unconstrained by targets.

The CWaC C, D & E waste management profile arrived at for 2021 in Table 18 indicates that a overall recovery rate of 91% is already being achieved for CWaC's C, D & E waste. This suggests that an overall recovery target of at least 85% should be achievable through the Plan period. Therefore a 'floor' target of at least 85% of Plan area C, D & E waste being managed through recovery is proposed to be set through to 2045. The targets shown in Table 20 are suggested.

It should be noted that the recently adopted Environment Act target of 50% reduction in residual waste by 2042 includes C, D & E waste residues[86].

Table 70: Proposed Targets (floors & ceilings) for C, D & E Waste Management

Component		*2021*	2025	2030	2035	2040	2045
Inert	**Recovery including Recycled Aggregate, Recovery to Land inc exemptions and inert landfill (floor)**	*>91%*	≥85%	≥85%	≥85%	≥85%	≥85%
Non-inert	**Treatment**	*9%*	≤15%	≤15%	≤15%	≤15%	≤15%
	Remainder to Landfill (ceiling)	*<1%*	≤1%	≤1%	≤1%	≤1%	≤1%

[85] The UK Government has committed to achieving targets set in the revised Waste Framework Directive even though the UK has now left the EU.

[86] Delivering on the Environment Act: new targets announced and ambitious plans for nature recovery (Gov.UK., March 2022)

7. Projected Management Requirement for CWaC C, D & E Waste

Applying the proposed target values in Table 20 to the C, D & E waste forecast as shown in Table 15 gives the management requirements displayed in Table 21 below.

Table 71: C, D & E Waste Targets Applied to Forecast at Plan Milestone years (tonnes)

Component		2025	2030	2035	2040	2045	Peak/ Cumulative requirement
Inert	Recovery	>463,949	>466,273	>468,609	>470,957	>473,317	473,317 (peak)
Non-inert	Treatment	81,873	82,284	82,696	83,110	83,526	83,526 (peak)
	Remainder to Landfill	<5,458	<5,486	<5,513	<5,541	<5,568	121,289 (cumulative)

Table 21 shows combined recovery capacity for inert waste will need to grow by at least at c10,000 tonnes over the Plan period for the proposed target/floor to be met, while the ability to treat at least c83,500 tonnes of non-inert waste will be required by the end of the Plan period. If the residual component of the C, D & E waste stream goes to landfill in accordance with the targets/ceiling, this represents a cumulative non-hazardous landfill requirement of c121,500 tonnes to the end of the Plan period as shown in Table 22 below. This material is less suited to diversion to EfW due its less combustible nature, but is suited to pre-treatment to reduce its quantity/weight over time.

Table 72: Projected Residual C, D & E Waste Non-Haz Landfill Requirement (tonnes)

Year	Tpa	Tonnes Cumulative
2023	2,216	2,216
2024	3,297	5,513
2025	5,458	10,971
2026	5,464	16,434
2027	5,469	21,904
2028	5,475	27,378
2029	5,480	32,858
2030	5,486	38,344
2031	5,491	43,835
2032	5,497	49,332
2033	5,502	54,834
2034	5,508	60,341
2035	5,513	65,854
2036	5,519	71,373
2037	5,524	76,897
2038	5,530	82,427
2039	5,535	87,962
2040	5,541	93,502
2041	5,546	99,049
2042	5,552	104,600
2043	5,557	110,158
2044	5,563	115,721
2045	5,568	**121,289**

8. C, D & E Waste Capacity Assessment

Having established the projected management requirements of C, D & E waste in CWaC to 2045, the available capacity to manage this type of waste is assessed in this section.

8.1. C, D& E Waste Recycling Capacity

The capacity of the sites identified as producing recycled aggregate in 2021 in Table 6 have been assessed along with sites classed as treatment in the WDI that receive predominantly C, D & E waste using WDI peak input over 5-years data as shown in Table 23. Table 23 also includes the site identified as producing recycled aggregate that received waste uncodeable below the Northwest.

Table 73: C, D &E Waste Recycling Sites in CWaC

Site Name & Operator	Consented capacity	Peak inputs + 15%	Preferred value
Aggregates Yard, UK Aggregates & Plant Ltd		97,630	97,630
Land at Brunner Mond, A S H Skip Hire Ltd		4,629	4,629
Liverpool Road, Cheshire Waste Skip Hire Ltd		27,947	27,947
Shellway Road, Ash Aggregates Ltd	650,000 tonnes per year maximum (300,000 tonnes likely)[87]	196,063	300,000
Dairy House Farm, CJS Construction and Aggregate Ltd		16,330	16,330
Bridges Road Transfer Station, Alchem Merseyside Ltd		11,277	11,277
Guilden Sutton Depot, Ringway Infrastructure Services Ltd		6,338	6,338
		Total capacity	**464,151**

Table 23 shows total operational C, D&E waste recycling capacity in CWaC of **c464,000 tpa.**

[87] As per information provided by CWaCC

8.1.1. Non-Inert Waste Disposal Capacity

In order to establish the available void capacity in CWaC, information sourced from the Environment Agency was used. The only non-inert landfill site in CWaC is Gowy Landfill with remaining void as shown in Table 24. However, it is understood that the site has ceased to accept non-inert waste and is now undergoing restoration which is to be completed by November 2023 under the current permission for the site. Therefore, the remaining void offered by the landfill has all been counted as providing capacity for the management of inert waste as below.

8.2. Inert Waste Permanent Deposit Capacity

8.2.1. Inert Landfill

Whilst there is no dedicated inert landfill capacity in CWaC, there is some inert capacity provided by Gowy non-inert landfill for restoration purposes as shown in Table 24 below.

Table 74: Remaining Non-Inert Landfill Void Space in CWaC

Site Name	Permission Expiry Date	EA data end of 2021 permitted Void space (m^3)	End of 2021 capacity (tonnes)	Notes
Gowy Landfill Site	Nov 2023	119,336	179,004 for inert only	Total void 119,336 * 1.5 = 179,004t inert waste input for restoration.
		Total	**179,004**	

Table 24 shows that there is c119,500 m^3 of remaining consented void offering c179,000 tonnes management capacity for inert waste.

8.2.2. Recovery to Land Capacity

Analysis of Environment Agency's permitting list reveals one permitted waste recovery to land activity in operation in CWaC in 2021. The total inputs to the site (over 2010-2021 period) as reported in the WDI have been deducted from the permitted capacity to determine the remaining capacity as of 2021. This is shown in Table 25 below.

Table 75: Permitted Recovery to Land Sites in CWaC

Site Name + Operator	Remaining Capacity in 2021 (tonnes)
Town Farm Quarry, P. Casey Enviro Ltd	110,356

Table 25 shows a total operational recovery to land capacity within CWaC of **c110,500 tonnes.**

8.3. Capacity Summary

Table 26 shows a summary of operating capacity of the different type of facilities that manage C, D & E waste investigated in this section.

Table 76: Assessed C, D & E Waste Capacity in CWaC

Capacity Type	Assessed capacity	
	Recovery	
	Recycling/ Treatment	Beneficial Use
Recycled Aggregate	498,096	
Other Recycling		
Non-Inert Landfill		179,004
Recovery to Land		110,356
Total	**498,096**	**289,360**

9. Assessing the Capacity Gap

The management requirements presented in Table 21 have been compared against the capacity assessed in Table 26.

9.1. Recovery Capacity

When the total assessed management capacity for recovery inc recycling shown in Table 26 is compared with the estimated peak combined recovery requirement of 473,317 tpa shown in Table 21, a deficit of capacity is predicted through the Plan period, as shown in Table 27.

Table 77: CWaC C, D & E Waste Recycling and Recovery Capacity Requirement at Plan Milestones

Source: Table 21 and 26

	Tonnes at Plan Milestone				
	2025	**2030**	**2035**	**2040**	**2045**
Recovery inc Recycling Target[88]	>463,949	>466,273	>468,609	>470,957	>473,317
Plan Area Fixed Capacity[89]	498,000	498,000	498,000	498,000	498,000
Recovery to Land Capacity [90]	5,617	5,621	5,625	5,629	4,798
Total annual capacity	*503,617*	*503,621*	*503,625*	*503,629*	*502,798*
Shortfall (Target minus capacity)	**-42,205**	**-44,936**	**-47,680**	**-50,438**	**-54,045**

Table 27 shows that when accommodating the predicted C, D & E waste recovery requirement, there is a significant deficit in capacity predicted throughout the Plan period of c50,000 tpa.

9.2. Residual Waste Management

While there is no obligation through national policy for CWaC to achieve net self-sufficiency for non-inert waste management throughput the Plan period, given the focus on residual waste management consideration has been given to the predicted remaining consented non-inert landfill capacity within the county. However, as stated in section 8.1.1, the sole remaining non-inert landfill in CWaC has ceased accepting non-inert waste and is currently in its restoration phase. Therefore, a predicted cumulative landfill shortfall for non-inert C, D & E waste of c121,500 tonnes is expected by 2045 as shown in Table 22.

9.3. Capacity Gap Summary

The findings from the preceding discussion on waste management capacity gaps in CWaC are shown in Table 28 below. This highlights the predicted capacity gap shortfall for residual non inert waste both at Plan milestones and the peak or cumulative capacity requirement.

[88] Greater than to allow for treatment

[89] Assuming all fixed capacity is permanent and in operation for the Plan period.

[90] Based on depletion of Gowy Landfill remaining void by end of 2023 and Town Farm Quarry recovery to land capacity across whole Plan period

Table 78: CWaC Capacity Gap Summary for C, D & E Waste Management Requirement & Annual Capacity Gap Analysis

Underlined values relate to cumulative totals

Capacity Type	Waste Management Capacity Gap (Tonnes at Plan Milestones)					Peak/ Cumulative Requirement (tonnes) rounded
	2025	2030	2035	2040	2045	
Recovery (Table 28)	-42,205	-44,936	-47,680	-50,438	-54,045	-54,045
Non-inert Landfill (Table 22)	-5,458	-5,486	-5,513	-5,541	-5,568	-121,500

Table 28 shows that there is a predicted shortfall in non-inert landfill capacity at 2040 with an overall cumulative shortfall predicted of c121,500 tonnes by the end of the Plan period in 2045. In addition, there is a deficit in recycling and recovery and other recycling capacity at each Plan milestone.

Cheshire West & Chester

Waste Needs Assessment 2023

Appendix 5: Hazardous Waste Management Requirements for Cheshire West & Chester to 2045

Report: Final

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Project: Cheshire West & Chester Waste Needs Assessment Update 2023

Report: Hazardous Waste Management Requirements to 2045

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Abbreviations and Glossary of Terms

Abbreviations

C, D & E / CDEW	Construction, Demolition & Excavation Waste
CE	Cheshire East
CWEM	Cheshire & Warrington Econometric Model
CW&C	Cheshire West & Chester
CWaC C	Cheshire West & Chester Council
DEFRA	Department for Environment, Food and Rural Affairs
DPD	Development Plan Document
EA	Environment Agency
ELVs	End of Life Vehicles
EWC	European Waste Catalogue
GVA	Gross value added
HTI	High Temperature Incinerator
HWI	Hazardous Waste Interrogator
HWRCs	Household Waste Recycling Centres
MRS	Metal Recycling Sites
nPPG	National Planning Guidance
PI	Pollution Inventory
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RoHS	Restriction of Hazardous Substances Directive
WDI	Waste Data Interrogator
WEEE	Waste Electrical & Electronic Equipment
WNA	Waste Needs Assessment
WPA	Waste Planning Authority

Glossary of Terms

Construction, Demolition & Excavation Waste	Controlled waste arising from the construction, repair, maintenance and demolition of buildings and structures.
DEFRA	The UK Government department responsible for developing national waste management policy.
Duty to Cooperate	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.
End of Life Vehicles	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.
Environment Agency	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.
Hazardous Waste Landfill	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.
Hazardous Waste	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.
Household Waste	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.
Household Waste Recycling Centres	A facility that is available to the public to deposit waste not collected through kerbside collection. (otherwise known as a civic amenity site)
Incineration	The controlled combustion of waste. Energy may also be recovered in the form of heat (see Energy from Waste).
Industrial Waste	Waste arising from any factory and from any premises occupied by an industry (excluding mines and quarries).
Landfill (including land raising)	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).
Recovery	Subjecting waste to processes that recover value including recycling, composting or thermal treatment to recover energy.
Recycling	The reprocessing of materials extracted from the waste stream either into the same product or a different one.
Waste Planning Authority (WPA)	The local authority responsible for waste development planning and control. In this case Cheshire West and Chester Council.
Waste Transfer Station	A site to which waste is delivered for bulking prior to transfer to another place for further processing or disposal.

1 Introduction

1.1 Cheshire West & Chester (CWaC) Council has contracted BPP Consulting to produce an update to the CW&C Waste Needs Assessment (WNA) to underpin the preparation of its Local Plan policies relating to waste which is to be updated to cover a Plan period to 2045. The WNA consists of the following sections:

1. Local Authority Collected Waste Management Requirements to 2045;
2. Commercial & Industrial Waste Management Requirements to 2045;
3. Construction, Demolition & Excavation Waste Management Requirements to 2045;
4. Hazardous Waste Management Requirements to 2045; and
5. Scoping report for Other Waste; plus
6. Review of Waste Flows

1.2 This report assesses the future management requirements for hazardous waste predicted to arise in Cheshire West & Chester over the Plan period.

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 to identify what might be considered to be the "best available data" relating to hazardous waste production and management.

1.4 The term 'hazardous waste' is used in England, Wales and Northern Ireland to describe waste with hazardous characteristics as set out in the List of Wastes (LoW) Regulations.[91] Certain types of waste are classed as 'hazardous' because they possess properties that are considered to pose a threat to human health or the environment such as toxicity, flammability, corrosiveness and carcinogenicity. Hazardous waste is different to other waste considered as it does not have a discrete source as it is a collection of different materials which are generally collected and managed separately due to their hazardous properties, and which may arise from different sources. For example, fridges containing CFC gases and cathode ray tubes used in TV and computer monitor screens which are classed as hazardous waste may occur in both domestic and commercial waste streams but require separate management from other wastes to minimise the environmental impact of their management.

1.5 Hazardous wastes generally arise within the following waste streams depending on their origin:

- Local Authority Collected Waste (LACW)
- Commercial and Industrial Waste (C&I)
- Construction and Demolition and Excavation Waste (CDE)

[91] List of Wastes (England) Regulations 2005 which came into force on 16th July 2005. http://www.legislation.gov.uk/uksi/2005/895/contents/made

1.6 As the management requirements of the wastes classed as hazardous are often different to that of the non-hazardous elements of these waste streams, hazardous waste is planned for separately. As the quantities are considered separately they have been excluded from the C&I waste, C,D & E waste and LACW stream reports to avoid 'double counting'.

Data Sources

1.7 The Environment Agency's Hazardous Waste Interrogator (HWI) consists of data relating to movements of waste consigned as hazardous aggregated into a single dataset and made publicly available that is updated each year. This includes hazardous waste consigned between producers and disposal/treatment facilities, as well as most consignments between intermediate facilities and final disposal sites. While the HWI always specifies the waste origin and destination by Waste Planning Authority (WPA) it does not identify the specific facility at which the waste has been managed, whereas the Environment Agency Waste Data Interrogator (WDI) - which reports on inputs to all permitted facilities in England - does report by receiving facility but may only report origin by source region in some cases. Hence both datasets have been accessed to generate a more rounded picture of management routes followed by CW&C's hazardous waste. The resulting values have been cross checked with values presented in the Environment Agency's Pollution Inventory through which significant waste and non-waste facilities report their hazardous waste arisings (amongst other matters).

The relationships between the datasets are illustrated in Figure 1.

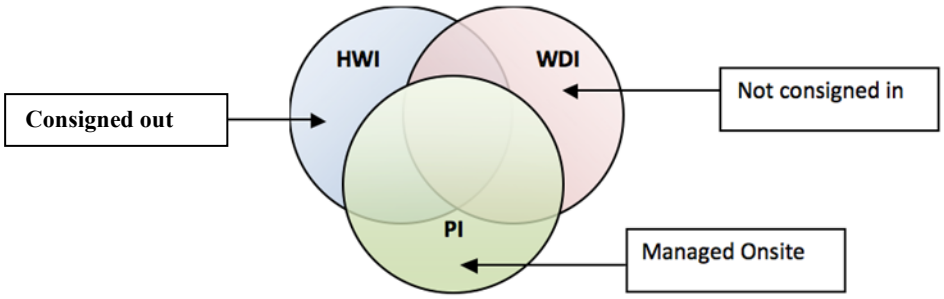

Figure 20: Relationship between Datasets for Hazardous Waste with possible omissions identified

Net Self Sufficiency

1.8 There is no expectation in national policy that individual Plan areas be self sufficient in hazardous waste management capacity. This is because different hazardous wastes require management through distinct specialist facilities. For example, asbestos contaminated soil will generally require landfilling in a separate cells in a non-inert waste landfill, whereas oily water from interceptors will require management through a treatment plant, while certain wastes may require high temperature incineration to destroy them. Provision of such facilities may only be viable at a regional, or larger scale.

1.9 However, it is still considered appropriate to assess whether the current provision of capacity will be sufficient to meet any emerging future needs within the Plan area.

2 Calculating a Baseline Arisings Estimate

2.1 To calculate a baseline arising for Cheshire West and Chester the following datasets have been accessed:

1. The EA Hazardous Waste Interrogator 2021 - movements from origin to, and between, permitted waste management sites.[92]
2. The EA Waste Data Interrogator 2021 – hazardous waste inputs to permitted waste management sites and removals (in some cases).[93]
3. The EA Pollution Inventory Site outputs 2021 - hazardous waste produced by significant industrial sites.

The EA Hazardous Waste Interrogator 2021 indicates the following:

- In 2021, c43,000 tonnes of hazardous waste were produced in Cheshire West & Chester;
- Of this, c5,000 tonnes were managed in Cheshire West & Chester; with
- c38,000 tonnes being managed outside Cheshire West & Chester i.e. exported.

In addition, c102,000 tonnes of hazardous waste were imported to Cheshire West & Chester for management.

The above data shows that more hazardous waste was managed than was produced in Cheshire West and Chester (c43,000 vs c102,000 tonnes).

The EA WDI 2021 indicates the following:

- In 2021 c35,500 tonnes of hazardous waste managed at permitted sites (both within and beyond Cheshire West & Chester) were attributed to Cheshire West & Chester as its source;
- Of this, the EA WDI indicates that of this only c7,000 tonnes were managed in Cheshire West & Chester, with the difference (c29,000 tonnes) being managed outside the Borough.
- In addition, c111,000 tonnes were imported for management in Cheshire West and Chester.

[92] The HWI showed a total of 5,654 tonnes of 'solid waste from gas treatment (3,735 tonnes) and 'fly ash containing dangerous substances (1,920) from CWaC. However, the WDI only shows 1,525 tonnes as an output from two operational incineration plants in CWaC: Ellesmere Port Incinerator and Ince Bio Power. It is believed that the additional tonnage is waste consigned into CWaC for long term storage at the Minosus facility, but actually transferred on to fates outside CWaC instead, and therefore this waste cannot be said to arise from CWaC itself. Therefore, the tonnage that could not be attributed to either facility was removed from the raw data.

[93] The WDI showed a total of 5,995 tonnes of 'solid waste from gas treatment (3,487 tonnes) and 'fly ash containing dangerous substances (2,508) was removed from CWaC. For same reason as cited in footnote 2 above the difference was removed from the raw data.

The above data confirms that more hazardous waste was managed than was produced in Cheshire West and Chester, c35,500 vs c117,500 tonnes.

2.2 It should be borne in mind in both cases that the management of hazardous waste from elsewhere in CW&C, may itself give rise to hazardous waste requiring onward management. Examples being Air Pollution Control Residues (APCr) from the Ellesmere Port HTI or waste arising from treatment facilities. It is questionable as to whether such waste ought to be assigned to CW&C as a producer as it arises as a consequence of waste from elsewhere. However, the management activity does constitute economic activity within CWAC so outputs of residues have been counted in this exercise.

2.3 The Pollution Inventory dataset shows that c25,500 tonnes of hazardous waste were produced by the 26 installations of all types operating in Cheshire West and Chester reporting through this route.

Summary of Headline Data

2.4 The data from the HWI, WDI and PI shows that hazardous waste arising in Cheshire West and Chester between c35,500 and c43,000 tonnes requiring offsite management of which c15,500 tonnes arose from major industrial sites including waste management facilities. The breakdown of management as indicated by the WDI and HWI is shown in Table 2.

Table 79: Cheshire West & Chester Hazardous Waste Arisings & Management Data
Blue indicates values contributing to arisings, pink to Borough management capacity
Source: HWI 2021 and WDI 2021 Environment Agency

	Cheshire West & Chester Hazardous Waste Arisings (tonnes)		Hazardous Waste Managed in Cheshire West & Chester (tonnes)		
Data source	**Quantity Managed Attributed to Cheshire West & Chester**	**Of which Quantity Managed outside Cheshire West & Chester (exports)**	**Quantity Managed in Cheshire West & Chester Attributed to Cheshire West & Chester**	**Quantity Managed in Cheshire West & Chester from outside (imports)**	**Total Managed in Cheshire West & Chester**
HWI	42,785	37,951	4,834	101,788	106,621
WDI (inputs from CWaC to all facilities)	35,670	28,823	6,847	110,839	117,686

2.5 Table 2 shows that the adjusted values obtained from the HWI and those from WDI for 2021 are not substantially different when it comes to waste arising in Cheshire West and Chester (c43,000 vs c35,500 tonnes), and waste managed within Cheshire West and Chester (c106,500 vs c117,500 tonnes). The key difference being the tonnage of CWaC waste managed in CWaC which varied by nearly 50% (c7,000 vs c5,000) although the actual tonnage may not be regarded as significant.

Integrating HWI and WDI values with Pollution Inventory check

2.6 In order to arrive at the best available data values, the HWI and the WDI have been integrated. This involves a process that follows these three stages:

1) Integrate the WDI input with the HWI data on arisings.
2) Cross check WDI input values with hazardous waste output values from waste management installations reporting through the Pollution Inventory.
3) Cross check the value arrived at from Stage 1 with hazardous waste outputs from non-waste installations reporting through the Pollution Inventory.

The Integration Process

Stage 1: Integrate the WDI input with the HWI data on arisings.

2.7 Scrutiny of the WDI data reveals that, in some cases, the management of waste from a specific Plan area can be underreported due to lack of attribution of all hazardous waste inputs to a site to a specific Plan area i.e. in this case Cheshire West and Chester. In some cases it is only attributed down to regional level. Therefore, the WDI input values have been reconciled with the HWI dataset.

2.8 Precedence is given to the larger value, which it is assumed captures those movements not accounted for due to the limitations of each dataset. In this instance, for all fates listed, the HWI CWaC waste values are larger. The results of this exercise are shown in Table 2[94] below.

Table 80: Cheshire West & Chester Hazardous Waste Arisings: WDI Input vs. HWI Values
Source: WDI 2021 Environment Agency plus HWI 2021 Environment Agency

Fate	CW&C Input to all sites	HWI CW&C Waste	Stage 1 Value
Landfill	8,083	10,394	10,394
Treatment	11,304	9,869	21,556
Recycling/Recovery	10,252	10,254	
Incineration or use as fuel	1,676	2,621	2,621
Final Fate Total	**31,315**	**33,137**	**34,570**
Transfer	4,015	9,596	9,596
Total	**35,330**	**42,733**	**44,166**

[94] Adjusted to account for the excess tonnages of APCr referred to in footnotes 2 and 3.

2.9 On comparing the WDI permitted site input values with the HWI data for hazardous waste movements, the value increased by roughly c7,500 tonnes. This higher value takes into account the greater quantities of waste reported as managed through landfill, incineration and transfer waste fates in the HWI. The reason for combining the values for recycling/recovery and treatment was to eliminate the potential for double counting between the treatment site input reported through the WDI and the tonnage reported going to recycling/recovery in the HWI.

2.10 Apart from the combined recycling/recovery and treatment value (WDI), the final Stage 1 value carried forward is a composite of the higher values of the two sources for each management route. This is c44,000 tonnes or c34,500 tonnes if movement for transfer were to be ignored on the basis that the waste would ultimately go to a 'next step' site also reported in the data.

Stage 2: Cross check WDI output values with output values from waste management installations reporting through the Pollution Inventory.

2.11 While the WDI is supposed to include all waste management facilities, including those reporting through the Pollution Inventory, the WDI has been cross checked with the PI to ensure all the waste management installations producing hazardous waste in CW&C are captured. We found that all 9 of the waste management installations reporting through the PI for 2021 were captured in the WDI 2021 dataset.

Stage 3: Cross check the value arrived at from Stage 1 with the hazardous waste outputs of non waste management facilities reported through the Pollution Inventory.

2.12 Having eliminated the scope for underreporting outputs from permitted waste management facilities, a further cross check has been undertaken to ensure that all arisings have been captured. This involves checking the Stage 1 value with the hazardous waste outputs of Cheshire West and Chester non-waste sector industrial installations reported through the Pollution Inventory. This exercise is set out in Table 3 below.

2.13 Table 3 shows that the cross-checking exercise has resulted in no change to the overall total arising value, as less hazardous waste was reported through the PI as being produced and going to each waste fates than was reported as having been accepted at facilities reporting through the WDI. This indicates the Stage 1 values capture all of the hazardous waste arising from non waste installations reporting through the PI in Cheshire West and Chester.

Table 81: Cheshire West & Chester Hazardous Waste Arisings: Stage 2 values vs. Pollution Inventory values excl PI Waste Management Facilities

Source: WDI 2021 plus PI 2021 Environment Agency

Fate	Stage 1 value (see Table 3)	Non waste CE installation hazardous waste outputs as reported through Pollution Inventory	Stage 3 Value
Landfill	10,394	5,523	10,394
Treatment	21,556	4,761	21,556
Recycling/Recovery		2,287	
Incineration or use as fuel	2,621	510	2,621
Final Fate Total	**34,570**	**13,081**	**34,570**
Transfer	9,596	185	9,596
Total	**44,166**	**13,266**	**44,166**

Conclusion

2.14 Hazardous waste arisings attributable to Cheshire West and Chester for 2021 have been found to be between c34,500 (excluding waste transferred on) and 44,000 tonnes.

3 Discussion of Hazardous Waste Arising Baseline value

3.1 The baseline arising value generated for 2021 is less than the value obtained for 2014 (WNA 2016[95]) of c56,500 tonnes[96]. While the 2021 value was generated using a different method, there is still value in undertaking a comparison of the datasets to ascertain how the management profile has changed over the period. Comparison of the datasets indicates that the decrease is primarily due to the tonnage attributed as going to landfill category falling by half.

Table 82: Cheshire West & Chester Hazardous Waste Arisings: Comparison between management profile generated for 2017 and 2021 showing difference

Source: Table 15 WNA 2016 vs Table 3 above

Fate	2016[97]	2021	Diff
Landfill	21,189	10,394	-10,795
Treatment	24,044	21,556	-2,488
Recycling/Recovery			
Incineration or use as fuel	3,439	2,621	-818
Final Fate Total	**48,672**	**34,570**	**-14,102**
Transfer	-	*9,596*	*+9,596*
Total	**48,672**	**44,166**	**-4,506**

Composition of Cheshire West and Chester Hazardous Waste

3.2 To understand the source of the difference in values, the composition of the hazardous waste has been analysed to identify the principal arisings that contribute to the 2021 value. This has been based on the integrated dataset i.e. the source of the preferred value for each of the fates. Hazardous waste types that occurred in a quantity greater than 500 tonnes are listed. They account for just under 83% of the total arisings value of c44,000 tonnes.

[95] The section about hazardous waste in the previous WNA relied solely upon HWI data to produce an arisings value.

[96] Of this c56,500 tonnes, c7,500 tonnes waste fate was reported as 'Don't know'. Hence, this was omitted from Table 5

[97] There was no value reported for the waste fate 'transport' and therefore has been left blank.

Table 83: Principal Hazardous Waste Types arising in Cheshire West and Chester in 2021

Source: WDI 2021, HWI 2021, Environment Agency

Hazardous Waste Type/Source	Total	% contribution total arising value (rounded)	Cum %
End-of-life vehicles	12,548	28%	28%
Sludges from physico/chemical treatment	4,448	10%	38%
Oily water from oil/water separators	2,221	5%	44%
Soil and stones containing dangerous substances	1,577	4%	47%
Bituminous mixtures containing coal tar	1,395	3%	50%
Bottom ash and slag containing dangerous substances	1,348	3%	53%
Construction materials containing asbestos	1,341	3%	56%
Solid wastes from gas treatment	1,263	3%	59%
Other organic solvents, washing liquids and mother liquors	1,244	3%	62%
Other bases	1,110	3%	65%
Packaging containing residues of or contamination	1,037	2%	67%
Sludges from on-site effluent treatment	991	2%	69%
Aqueous washing liquids and mother liquors	910	2%	71%
WEEE containing hazardous components	696	2%	73%
Fly ash and other flue-gas treatment wastes	667	2%	74%
Mineral-based non-chlorinated engine, gear and lubricating oils	639	1%	76%
Other construction and demolition wastes (including mixed wastes)	636	1%	77%
Solid wastes from flue-gas treatment	624	1%	79%
Absorbents, filter materials (including oil filters), wiping cloths, protective clothing contaminated	618	1%	80%
Organic wastes containing dangerous substances	618	1%	81%
Organic halogenated solvents, washing liquids & mother liquors	578	1%	83%
Total	**36,507**		

3.3 Table 5 shows the following:

- The primary hazardous waste type/source is ‘end-of-life vehicles’ (c12,500 tonnes) which makes up 28% of the total hazardous waste arising in CW&C for 2021.
- This is followed by ‘sludges from physico/chemical treatment containing dangerous substances’ (c4,500 tonnes) and ‘oily water from oil/water separators’ (c2,000 tonnes) which make up 10% and 5% of the total arisings respectively.
- APCrs including ‘Bottom ash and slag containing dangerous substances’ (c1,500 tonnes), ‘Solid wastes from gas treatment’(c1,500 tonnes), and ‘Fly ash and other flue-gas treatment wastes’ (c500) make up a total of 6% of the total arisings.

To conclude, waste types that occurred in quantities greater than 500 tonnes account for just under 83% of the total arisings value in CWaC.

4 Forecasting Future Hazardous Waste Arisings

National Policy

4.1 The National Policy Statement for Hazardous Waste[98] which remains the most current statement of Government policy on the issue, 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 Cheshire West and Chester

4.2 While Planning Practice Guidance advises that future hazardous waste arisings be estimated by extrapolating time series data drawn from the HWI, use of historical HWI data alone to establish possible future trends is not considered reliable due to frequent changes in the definition of hazardous waste and refinement of regulatory guidance which has tended towards widening the range of wastes being classed as hazardous and thereby distorting timeseries data of arisings. While in 2021 there is a closer correspondence between the values, because the timeseries data cannot be relied upon, an alternative approach to forecasting arisings has been adopted.

4.3 To generate Plan Area specific forecasts, business sector proxies have been taken to identify GVA growth factors from the Cheshire & Warrington Econometric Model (CWEM)[99]. These have been applied to the breakdown of the 2021 baseline value by major waste types, to determine how each is likely to grow through the Plan period (extrapolating from 2036 to 2041. This produced initial forecasts of hazardous waste arisings from CWaC over the Plan period. Applying this approach to the tonnages and waste type breakdown arrived at for 2021, shown in Table 5 above, gives the results displayed in Table 6 below. It was not considered there was a suitable proxy for track ballast or glass, plastic and wood, given they arise from recycling of existing materials, so they have been held constant. Bottom ash and other still bottoms were not continued due to the expectation that it arises as a consequence of waste treatment so may potentially be double counted with input to CWaC facilities from CWaC.

[98] *National Policy Statement for Hazardous Waste: A framework document for planning decisions on nationally significant hazardous waste infrastructure* Defra June 2013

[99] *The Cheshire & Warrington Econometric Model (CWEM),* is an economic forecasting model maintained and operated by Cheshire East Council on behalf of Cheshire & Warrington partners.

Table 84: Business Sector Proxies applied to Principal Hazardous Waste Arisings in Cheshire West and Chester
Source: Table 5 & CWEM GVA Forecast

Hazardous Waste Type/Source	Sector Proxy
End-of-life vehicles & Components	Statista Calculation
Sludges from physico/chemical treatment containing dangerous substances	Chemicals - indirectly (following treatment)
Oily Water	Statista Calculation
Construction, Demolition & Excavation	Bespoke
Bituminous mixtures containing coal tar	None - Constant
Bottom ash and slag containing dangerous substances	None - Constant
All organic solvents, washing liquids and mother liquors	Chemicals
Other bases	Chemicals
Packaging containing residues of or contaminated by dangerous substances	None - Constant
Sludges from on-site effluent treatment containing dangerous substances	Chemicals - indirectly (following onsite treatment)
Aqueous washing liquids and mother liquors	Metal and Metal Products
WEEE	Electrical Equipment
Wastes from flue-gas treatment	None - Constant
Absorbents, filter materials (including oil filters not otherwise specified), wiping cloths, protective clothing contaminated by hazardous substances	Statista Calculation
Organic wastes containing dangerous substances	Chemicals

4.4 Apart from the Statista Calculation and bespoke 'oily water' proxy, the other proxies listed in Table 6 were sourced from the Cheshire & Warrington Econometric Model (CWEM). This dataset shows the forecast year-by-year gross value added (GVA) prices between 2019 to 2036. From these GVA values, annual growth rates were calculated. As the Plan period for this report spans from 2021 to 2045, these growth rate percentages were calculated in increments across this Plan period, as show in Table 7 below. As there are no GVA values beyond 2036 the % values from 2035 were carried across for 2040 and 2045.

4.5 For end-of-life vehicles & components, a negative projection using Statista data has been calculated to account with sales of new internal combustion engine vehicles (diesel or petrol) ending in the UK at 2030. For construction, demolition and excavation waste, a bespoke proxy has been produced that sees a constant decline to five percent of the 2021 value. This is based on the expectation that legacy contaminated land and hazardous material in building stock is cleared by 2040, with only incidental amounts of contamination arising from that year.

Table 85: Sector Proxy Growth Rates derivation

Source: Statista and CWEM GVA Forecast

Sector Proxy	From CWEM GVA	Plan Milestone Year						Comments
		2021	2025	2030	2035	2040	2045	
Statista Calculation	Sales in Thousand Units	16,849	14,258	9,937	6,097	2,257	169	N/A
	Period Growth Rate		-15.4%	-30.3%	-38.6%	-63.0%	-92.5%	
Chemicals	GVA	549.1	553.1	552.5	548.9			As there are no GVA values post 2036 in the CWEM dataset. The period growth rate for 2041 has taken as the 2036 growth rate and the GVA values calculated from these
	Period Growth Rate		0.7%	-0.1%	-0.7%			
Metals & Metal Products	GVA	284.5	299.1	301.1	306.6			
	Period Growth Rate		5.1%	0.7%	1.8%			
Electrical Equipment	GVA	41.7	48.4	51.2	54.4			
	Period Growth Rate		16.2%	5.7%	6.4%			

4.6 Applying the period growth rates from Table 7 to the starting tonnages for the principal hazardous waste types in 2021 from Table 5, future hazardous waste arisings for the Plan period was calculated at five year milestones across the Plan period, as shown in Table 8.

Table 86: Forecast Principal Hazardous Waste Arisings in Cheshire West & Chester Applying Sector Proxy

Source: Table 5 & Table 7

Hazardous Waste Type/Source	Plan Milestone Year						Comments
	2021	2025	2030	2035	2040	2045	
End-of-life vehicles & components	13,187	11,156	7,776	4,774	1,766	169	UK ban on selling petrol and diesel cars from 2030/35 will see a reduction in the quantity of internal combustion ELVs.
Sludges from physico/chemical treatment containing dangerous substances	4,448	4,479	4,474	4,443	4,412	4,381	N/A
Oily Water	2,221	2,843	2,132	1,422	711	111	N/A
Construction, Demolition & Excavation	3,553	2,878	2,203	1,528	853	178	Legacy contaminated land and hazardous material in building stock expected to have been cleared by 2045.
Bituminous mixtures containing coal tar	1,395	1,395	1,395	1,395	1,395	1,395	N/A
Bottom ash and slag containing dangerous substances	1,348	1,348	1,348	1,348	1,348	1,348	N/A
All organic solvents, washing liquids and mother liquors	1,823	1,835	1,834	1,821	1,808	1,795	N/A
Other bases	1,110	1,117	1,116	1,109	1,101	1,093	N/A
Packaging containing residues of or contaminated by dangerous substances	1,037	1,037	1,037	1,037	1,037	1,037	This might fall as the use of dangerous substances in manufacture falls as a result of REACH & RoHS
Sludges from on-site effluent treatment containing dangerous substances	991	998	997	990	983	977	N/A
Aqueous washing liquids and mother liquors	910	956	963	980	998	1,016	N/A
WEEE	696	808	854	909	967	1,029	N/A
Wastes from flue-gas treatment	2,553	2,553	2,553	2,553	2,553	2,553	N/A
Absorbents, filter materials (including oil filters), wiping cloths, protective clothing contaminated by hazardous substances	618	523	365	224	83	169	N/A
Organic wastes containing dangerous substances	618	622	622	617	613	609	N/A
Total	**36,507**	**34,549**	**29,669**	**25,150**	**20,628**	**17,748**	

4.7 As Table 8 only relates to wastes that account for 83% of arisings, a composite growth factor across all the above sectors has been applied to the baseline value to give the values at each of the Plan's milestone years as shown in Table 9.

Table 87: Forecast Hazardous Waste Arisings in Cheshire West and Chester Extrapolating Sector Total (tonnes)

Source: Table 8 & Baseline Arising Output of Reconciliation Process

	Plan Milestone Year				
	2025	**2030**	**2035**	**2040**	**2045**
Totals from Table 12	*34,549*	*29,669*	*25,150*	*20,628*	17,748
Composite Growth Rate	-5.36%	-14.13%	-15.23%	-17.98%	-13.96%
Total applying composite growth rate to baseline value	41,797	35,892	30,426	24,956	21,472
Tonnage difference on previous milestone		-5,905	-5,466	-5,471	-3,484

Conclusion

4.8 Table 9 shows that the quantity of hazardous waste is expected to fall over time, to end up at a tonnage of c**21,500 tonnes** in 2045 i.e. nearly halved. This implies a growth rate of -2.96% per annum across the Plan period. The tonnage values shown in Table 9 have been used to project capacity requirements in the next section of this report based on an assessment of existing capacity within Cheshire West and Chester and management routes followed.

5 Hazardous Waste Management Capacity in Cheshire West and Chester

5.1 This section considers the availability of capacity within Cheshire West and Chester for managing hazardous waste. 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. Since the HWI does not attribute waste down to site level, the WDI 2021 input values have been used to ascertain the amount of waste that specific CWAC sites managed, to understand what capacity each may offer.

Table 88: CW&C Facilities Receiving 500t+ Hazardous Waste Inputs Reporting through the WDI 2021 (tonnes)

Source: WDI 2021 Environment Agency

Facility Type	Facility Name/Operator	Total (tonnes)
Vehicle Depollution Facility	Unit 7 Indigo Business Park, Oil Sites Road (Jamie Mcintyre)	852
	Road Three, Winsford (Synetiq Ltd)	2,642
Chemical Treatment	Land at Brunner-Mond Works, Griffiths Road (ECO-Option (UK) Ltd)	23,413
Haz Waste Transfer	Cheshire Waste Management Centre, Oil Sites Road (Tradebe North West Ltd)	4,955
Haz Waste Transfer/Treatment	Ellesmere Port Transformer Oil Regeneration Plant, Bridges Road (Haltermann Carless UK Ltd)	5,643
Hazardous Waste Incinerator	Ellesmere Port Incinerator, Bridges Road (Veolia ES (UK) Ltd)	56,492
Metal Recycling	Land/premises at, Cart Road (A.Vlies Northwich Metals Ltd)	2,560
	Total	**96,557**

5.2 Comparing the total managed value shown in Table 10 (c96,500 tonnes) to the final arising value derived for Cheshire West and Chester (c46,000 tonnes) suggests a surplus in hazardous waste management capacity of c50,500 tonnes currently exists within the Borough. This comes as no surprise given CW&C hosts a number of strategically significant facilities for the management of hazardous waste, one of which being the Ellesmere Port HTI with capacity of up to 100,000tpa and, the presence of the chemicals sector such as Brunner Mond and oil treatment capacity. Moreover, it should also be borne in mind that the inputs to sites in 2021 may neither be truly representative of site capacity i.e. inputs in 2021 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.

5.3 Any sites that managed an amount of hazardous waste exceeding 20% of the total peak amount of waste managed were included in Table 10. The potential capacity was calculated by applying the percentage of waste managed at the site for 2021 that was hazardous to the total peak value.

Table 89: Updated Capacity of Facilities Permitted to Manage Hazardous Waste in CW&C (tonnes)

Source: WNA 2021 Environment Agency dataset, WNA 2019

Facility Name/Operator	WDI 5-year Peak	Permit Limit [100]	Preferred Value	Comment
Unit 7 Indigo Business Park, Oil Sites Rd (Jamie Mcintyre)	852	2,499	2,499	Salvage & vehicle recycling company
Road Three, Winsford (Synetiq Limited)	2,642	-	2,642	Salvage & vehicle recycling company
Land at Brunner-Mond Works, Griffiths Rd (ECO-Option (UK) Ltd)	28,507	-	28,507	Recycler of waste Sulphuric Acid, Ammonia & Ammonium compounds and the production of recovered product-grade liquid Ammonium Sulphate.
Cheshire Waste Management Centre, Oil Sites Road (Tradebe North West Limited)	4,952	4,999	4,999	Packing, collecting, disposal and recycling of chemical, hazardous, non-hazardous, WEEE and toxic waste.
Ellesmere Port Transformer Oil Regeneration Plant, Bridges Rd (Haltermann Carless UK Ltd)	8,564	-	8,564	Used transformer oils are recycled/regenerated back into insulating oil.
Ellesmere Port Incinerator, Bridges Rd (Veolia ES (UK) Limited)	66,532	100,000	100,000	High temperature incineration of hazardous materials and treatment of low level radioactive waste.
Land/premises at, Cart Rd (A.Vlies Northwich Metals Limited)	2,560	4,999	4,999	ELV depollution facility with metal recycling.
		Grand Total	**152,210**	

5.4 With respect to hazardous waste management capacity in Cheshire West and Chester excluding landfill, comparing the updated capacity value (c152,000tonnes) to the final arising value derived suggests a surplus of between c110,000 tonnes per annum at the start of the Plan period and c130,500 tonnes per annum in 2045 the end of Plan period .

Hazardous Waste Landfill

5.5 In addition to the above, there is capacity offered by Winsford Rock Salt Mine Waste Disposal Facility. This facility is a long term storage underground facility, but is classed as a landfill by the Environment Agency. The Agency's remaining landfill capacity datasheet for 2021 gives a remaining capacity value of c1,401,500 m^3. This value will decrease over time as the capacity is occupied. The WDI 2021 shows inputs of c20,000 tonnes in 2021.

[100] Permit limits for Unit 7, Cheshire Waste Management and Land/premises at Cart Rd taken from EA permitted sites listing July 2017.

Management Capacity Conclusion

5.6 Cheshire West and Chester hosts a number of facilities that manage significant quantities of hazardous waste, including treating such wastes. The combined capacity offered by these facilities equates to at least 152,000 tonnes per annum, with a number of niche operators taking hazardous wastes as a raw material for manufacturing processes. In doing so these operators provide strategically significant management capacity for a number of niche waste streams arising from within the region and beyond.

5.7 While there is no national policy expectation that net self sufficiency ought to be pursued for hazardous waste it is important that each hazardous waste stream produced within the Borough in significant quantities will be adequately catered for throughout the Plan period. For this reason the role of facilities beyond CW&C in the management of certain types of hazardous waste arising in the Plan area is considered in the following section.

6 Management Routes Followed by CW&C Hazardous Waste

6.1 This section assesses the management routes followed by hazardous waste arisings from Cheshire West and Chester. As the previous section covered capacity within Cheshire West and Chester, this section focuses on waste produced within, but managed outside, Cheshire West and Chester. The HWI is used as the primary source, cross checked with the WDI to identify the specific receiving site where possible. This exercise is important to identify WPAs hosting receiving facilities with whom CW&CC 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 indicate CW&C should plan for the management of that waste stream within its own boundaries.

6.2 Table 2 shows that the HWI identified c43,000 tonnes of hazardous waste leaving Cheshire West and Chester for management. This was managed at facilities located within a wide range of WPAs (c73). Applying a significance threshold, whereby only WPAs receiving over 500 tonnes of waste are considered, reduces the number of receiving WPAs down to 14 (as shown in Table 15), with Lancashire being the principal recipient (c10,000 tonnes) followed by Stockton-on-Tees (c4,000 tonnes), Knowsley (c4,000 tonnes) and Cambridgeshire (c3,500 tonnes). This is presented in rank order in terms of WPA tonnage and fate in Table 15 overleaf.

6.3 In summary:

- the tonnage exported from Cheshire West and Chester in 2021 was c43,000 tonnes; and
- Lancashire was the principal recipient of hazardous waste from Cheshire West and Chester followed by Stockton-on-Tees.

Table 90: WPAs Receiving over 500 tonnes of Hazardous Waste from CWaC (in rank order**)**
Source: HWI 2021 Environment Agency

Deposit WPA	Waste Fate						Grand Total
	Recovery	Treatment	Transfer for Recovery	Incineration without energy recovery	Transfer for Disposal	Landfill	
Lancashire	1,682		207		218	8,087	10,194
Stockton-on-Tees		2,164	279		49	1,342	3,834
Knowsley	735	2,183	674		184		3,777
Cambridgeshire	3,350		6			29	3,386
Salford	139	1,255	920		51		2,366
Trafford	12	1,191	178		549		1,930
Staffordshire	204	1,346	127		77		1,754
Liverpool	245	854	38		28		1,165
Cheshire East	833		261		61		1,154
Stoke-on-Trent City	223	78	113		655		1,069
Derbyshire	680	136	31		118	3	968
Sefton	948				3		951
Gloucestershire					3	667	670
Hampshire			6	640			648

7 Conclusion on Cheshire West and Chester's Hazardous Waste Management Requirements

7.1 The reconciliation process has indicated that c43,000 tonnes of hazardous waste was produced in Cheshire West and Chester in 2021. This is predicted to fall to c28,000 tonnes by the end of the Plan period. Currently, all reported hazardous waste arising in CW&C appears to be effectively managed with no obvious stresses in the system.

7.2 The capacity assessment indicates that the combined site capacity is at least 150,000 tpa, indicating sufficient waste management capacity for the management of Cheshire West and Chester's waste at the end 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 where the potential loss of capacity through either redevelopment or constraint is resisted unless equivalent compensatory capacity provision is made.

7.3 Notwithstanding the above, given the varying management requirements of particular waste streams, the continued availability of capacity for the Plan period at facilities outside the Plan area currently managing significant quantities be confirmed through contact with the host Waste Planning Authorities named in Table 12 under the Duty to Cooperate/alignment engagement and Statements of Common Ground entered into as necessary.

Cheshire West & Chester

Waste Needs Assessment 2023

Appendix 6: Scoping of 'Other' Waste Streams

Report: Final

Version: v1.2

Issue: 28th December 2023

BPP Consulting Document Control

Project: Cheshire West & Chester Waste Needs Assessment 2023

Report: Scoping of 'Other' Waste Streams in CWaC in 2021

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1.1	Post Client Review Informal Consultation	Ella Mills	23.08.2023	*Alan Potter (Partner)*	23.08.2023
1.2	Final Issue Post Informal Consultation	Alan Potter (Partner)	28.12.2023		

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Abbreviations

AD	Anaerobic Digestion
AMP	Asset Management Plan
AMR	Annual Monitoring Report
C & I	Commercial & Industrial Waste
CWaC	Cheshire West and Chester
DEFRA	Department for Environment, Food and Rural Affairs
EA	Environment Agency
EfW	Energy from Waste
EWC	European Waste Catalogue
HLW	High Level Radioactive Waste
LACW	Local Authority Collected Waste
PPG	Planning Practice Guidance
STW	Sewage Treatment Works
UU	United Utilities Group PLC
VLLW	Very Low Level Radioactive Waste
WDF	WasteDataFlow
WDI	Waste Data Interrogator
WCNA	Waste Capacity Needs Assessment
WPA	Waste Planning Authority
WRMP	Water Resource Management Plan
WW	Welsh Water

Glossary of Terms

Agricultural Waste	Waste produced on a 'farm' in the course of 'farming'. Agricultural waste takes both 'natural' (or organic) and 'non- natural' forms e.g. plastics and metal.
Anaerobic Digestion	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.
Asset Management Plan	An asset management plan produced by sewerage and water undertaking for approval by Ofwat includes an assessment of what assets make up the water, sewer or storm system in a particular area and plans to meet future needs within agreed budgets.
Biodegradable waste	Waste that can break down over time due to natural biological action/processes, such as food, garden waste and paper.
Commercial Waste	Waste from factories or premises used for the purpose of trade or business, sport, recreation or entertainment
Controlled Waste	Waste subject to controls emanating from the EU Waste Framework Directive.
Construction, Demolition & Excavation Waste	Waste arising from the building process comprising demolition and site clearance waste and builders' waste from the construction/demolition of buildings and infrastructure. Includes masonry, rubble and timber.
Defra	The UK Government department responsible for developing national waste management policy.
Energy from Waste (EfW)	The conversion of the calorific value of waste into energy, normally heat or electricity through applying thermal treatment of some sort. May also include the production of gas that can be used to generate energy.
Environment Agency	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.
European Waste Catalogue (EWC)	Comprehensive listing of wastes divided into 20 chapters, most of which are industry-based, although some are based on materials and processes. Each waste type is assigned a unique six-digit code. Otherwise referred to as List of Waste (LoW).
Exemptions	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.
Green waste	Biodegradable plant waste from gardens and parks such as grass and hedge trimmings, from domestic and commercial sources suitable for composting.
Incineration	The controlled combustion of waste. Energy may also be recovered in the form of heat (see Energy from Waste).
Industrial Waste	Waste arising from any factory and from any premises occupied by an industry (excluding mines and quarries).
Landfill (including land raising)	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).

Local Authority Collected Waste	Waste collected by or on behalf of a local authority. Includes household waste and business waste where collected by a local authority and non-municipal fractions such as construction and demolition waste delivered to HWRCs. LACW is the definition used in statistical publications, which previously referred to municipal waste.
Ofwat	The regulatory body responsible for overseeing the privatised water and sewage industry in England and Wales.
Recovery	Subjecting waste to processes that recover value including recycling, composting or thermal treatment to recover energy.
Recycling	The reprocessing of materials extracted from the waste stream either into the same product or a different one.
The Plan area	The area subject to the Waste Local Plan to which this study relates. In this case the county of Cheshire West and Chester.
Waste Planning Authority	The authority responsible for planning for waste within a specific administrative area. In this case Cheshire West and Chester Council.
Waste Transfer Station	A site to which waste is delivered for sorting or baling prior to transfer to another place for recycling, treatment or disposal.
Water Resources Management Plans	Statutory documents that all water companies must produce at least every 5 years intended to set out how they will achieve a secure water supply while also enhancing the environment.

1. Introduction

Cheshire West and Chester (CWaC) Council has contracted BPP Consulting to produce an update to the Cheshire West & Chester Waste Needs Assessment (WNA) to underpin the preparation of its Local Plan policies relating to waste which is to be updated to cover a Plan period to 2045.

The WNA consists of the following sections:

25. Management Requirements for Local Authority Collected Waste to 2045.
26. Management Requirements for Commercial & Industrial Waste to 2045.
27. Management Requirements for Construction, Demolition & Excavation Waste to 2045.
28. Management Requirements for Hazardous Waste to 2045.
29. Scoping Review of Management Requirements for Other Waste Streams in 2021.
30. Review of Waste Flows in 2021.
31. Waste Attribution (for C, D & E waste and C&I waste) in 2021.
32. Waste Technology Review.
33. Overview of Management Requirements to 2045.

This report is concerned with a scoping review of 'other' waste streams as follows:

- Wastewater
- Agricultural Waste
- Low Level Radioactive waste

National Planning Practice Guidance (PPG)[101] is the principal source of advice with respect to the production of a Waste Local Plan evidence base. This advises that Waste Planning Authorities (WPAs) should seek to plan for the above streams. Hence, this report is intended to determine if it is necessary to expressly provide for the future management needs of these streams for CWaC to 2045.

7.4 Advice on Data

The national PPG states that:

"*Assessing waste management needs for Local Plan making is likely to involve:*

- *understanding waste arisings from within the planning authority area, including imports and exports*
- *identifying the waste management capacity gaps in total and by particular waste streams*
- *forecasting the waste arisings both at the end of the period that is being planned for and interim dates*
- *assessing the waste management capacity required to deal with forecast arisings at the interim dates and end of the plan period."*

Paragraph: 022 Reference ID: 28-022-20141016

[101] available at: https://www.gov.uk/guidance/waste.

It includes a section entitled "Using data to monitor and forecast waste needs", which articulates the following principles waste planning authorities should adopt when using data to plan for the management of waste arising in their respective administrative i.e. Plan area:

- *Make clear assumptions on how data were handled, as well as their impact (including on forecasting)*
- *Provide data to an appropriate level of significance, based on their explicit assumptions. In practice, data quoted to more than 2 or 3 significant figures will not be helpful and spurious accuracy stemming from precise figures should be avoided*
- *Plan for a range of each type of waste rather than a specific single figure."*

Paragraph: 036 Reference ID: 28-036-20141016 Revision date: 16 10 2014

Data Presentation

In order to respect the need to avoid "spurious accuracy", the following approach has been taken:

9. Where actual tonnage data has been accessed, this has been used in the computations.
10. Where data has been subject to computation, this has been included to 3 significant figures. Final values discussed in the text are rounded to the nearest 500.
11. Where percentages have been used to generate data, the percentages are presented as whole numbers, however the computations actually use the full value. This means that values presented may not always precisely correspond to the values computed when applying the percentage value presented in this report.
12. Certain computations apply a threshold of >500 tonnes.

7.5 Principal Data Sources

The principal data source used to generate this section of the WNA 2023 is as follows:

Waste Data Interrogator

Operators of all sites permitted to manage waste submit returns on the quantities, types and origin of waste received and, where applicable, destination of waste removed at their sites. These returns are collated by the Environment Agency (EA) and are included in a national database known as the Waste Data Interrogator (WDI). This is released approximately nine months after the end of the calendar year to which the data relates. The 2021 WDI (version 3 released Jan 2023) consisting of data for the calendar year 2021 is the most current version available at the time of writing.

While the WDI may be used to inform the generation of estimations for the principal waste streams, the data to estimate arisings of 'Other' waste streams is less readily available and as a result quantifying and forecasting arisings is more problematic.

Nevertheless, the PPG does advise that Waste Planning Authorities (WPAs) should seek to plan for these streams so the following is an initial overview of the quantities of each of these waste streams that may arise in CWaC and whether any specific capacity ought to be provided for to ensure their future safe management.

2. Wastewater and Sewage Sludge

Context

In CWaC, United Utilities Group PLC (UU) and Dwr Cymru (Welsh Water) are the designated sewerage and water undertakers with responsibility for providing wastewater treatment capacity.

Every five years water and sewerage undertakers are required to submit to the water regulator, Ofwat, business plans known as Asset Management Plans (AMPs) that set out the services and infrastructure improvements the undertaker is planning to make and how these are to be funded. Ofwat sets price limits for the next five years based around these AMPs. Certainty of infrastructure provision over the medium and long terms can only be gained when future funding is secured through Ofwat's asset management plan review process. The current AMP period (known as AMP7) runs from 1 April 2020 to 31 March 2025 and does not therefore cover the whole Plan period to 2045[102].

Water companies also produce Water Resources Management Plans (WRMP) which cover a 25-year period to maintain sufficient water supply for customers whilst ensuring enough water remains in the environment to achieve environmental targets. United Utilities current WRMP19 covers the period 2020-2045. The draft WRMP24 has undergone consultation and the final revised draft is soon to be published[103]. Welsh Water has published the draft version of its WRMP24 covering the period 2030-2050.

While wastewater treatment plants are considered to be waste developments and therefore planning applications relating to their provision are handled by the Waste Planning Authority (WPA), the assessment of the need for future wastewater management is managed through the asset management plan process informed by requirements for improvements in the water environment regulated by the Environment Agency. Therefore, PPG advises that early discussions take place between local planning authorities and water and sewerage undertakers, so that proposed growth and environmental objectives, set out in the AMP's, are reflected in local plans. This in turn should help ensure that the necessary infrastructure is funded through the water industry price review mechanism regulated by Ofwat.

There are two aspects of wastewater treatment that need to be addressed:

1. The provision of capacity to treat wastewater itself; and
2. the provision of capacity to manage the resultant solid wastes (sewage sludge) that arise from the treatment process.

Each is covered in the following sections.

[102] AMP8 will cover the period from 1st April 2025 to 31st March 2030. The Price Review in 2024 is where water companies will agree the AMP8 Business Plan with Ofwat for the following 5-year period.

[103] As per the website accessed 20.06.2023

7.6 Wastewater Treatment Capacity

The CWaC WNA 2016 states the following in regards to Welsh Water:

> *"DCWW's Sludge Treatment Centre caters for the catchment of Chester, which equates to a population of 130,000. In 2014, 2,741 tonnes of dry solids (tDS) were produced and treated by DCWW. The forecasted average throughput at their facility is estimated to be 2,788 tDS in 2019.*
>
> *In order to improve quality of processes and maximise energy production, DCWW are considering modifying Chester's Sludge Treatment Centre from a conventional digestion facility to raw cake export facility. Potentially, this cake would be exported off-site for treatment at another advanced treatment facility. The peak capacity of this proposal would be 2,928 tDS/year."*

It records no response received from United Utilities, so makes no comment about its plans or the adequacy of treatment capacity in that part of the Plan area served by that undertaker.

Management of Sewage Sludge

Sludge resulting from the treatment of wastewater is termed sewage sludge. Sewage sludge undergoes three stages of treatment, primary treatment is the first phase of sewage treatment, followed by secondary and finally tertiary treatment. Some sites only offer primary treatment capacity and so the sludge may then be moved on to sites that offer secondary and tertiary treatment capacity. This section looks at the current capacity of wastewater treatment works for the management of sludge and requirements for future capacity.

Update

The WDI 2021 shows that a total of 240,670 tonnes of sewage sludge (EWC code 19 08 05 '*sludges from treatment of urban waste water'*) from CWaC was managed at permitted wastewater treatment works (WwTW) reporting through the WDI[104]. Of this, 71,258 tonnes were managed within CWaC at the Ellesmere Port and Northwich WwTW operated by United Utilities. The tonnage of sewage sludge produced by WwTW located in CWaC managed at permitted facilities was managed at a single facility located in Cheshire East (CE) as shown in Table 1 below. These sites also received other waste types from various WPAs as shown in Table 2.

Table 91: Principal permitted site outside CWaC receiving CWaC sewage sludge (>500 tonnes)
Source: WDI 2021

Facility WPA	Operator	Facility Name	Tonnes Received
Cheshire East	United Utilities	Crewe WwTW	168,942

In addition to the above, the WDI reports 189,289 tonnes of 19 09 02 (sludges from water clarification as an input to Huntington WwTW in CWaC. The WDI 2021 reports outputs of this site of c13,500 tonnes of 19 09 02 going for recovery in CWaC[105].

[104] Note that just under 500 tonnes was managed at Meece 1 Landfill in Staffordshire. This probably relate to screenings.

[105] This would usually be deducted from the inputs to avoid double counting. However, given it is going for recovery it is likely being spread on agricultural land. As this application won't be reported through the WDI it won't be counted at a 'nest step site' and therefore has not been deducted to avoid double counting.

7.7 Sludge Storage Exemptions

Review of the exempt site listing for England indicates that a total of 826 locations were registered to United Utilities and 1 location registered to Welsh Water under the following exemption from permitting:

S3: Storing sludge at a place where it is to be used in accordance with the Sludge (Use in Agriculture) Regulations 1989.

This exemption allows up to 1,250 tonnes of sludge to be stored at each location at any one time. Material may be stored for up to 12 months before being applied to agricultural land as a fertiliser in accordance with Sludge (Use in Agriculture) Regulations 1989 & associated best practice guidance.

As the listing does not include the addresses for each exemption, and United Utilities' operating area extends beyond CWaC, it is not possible to identify the number that relate to locations in CWaC.

It should however be noted that these exemptions only provide interim storage for the sludge that has undergone treatment at the WwTW's in an area prior to application to land so are complementary to, rather than alternative or additional to, wastewater sludge treatment capacity itself.

7.8 Inputs of Other Waste to Wastewater Treatment Works in CWaC

WwTWs can provide a valuable function in managing wastes, other than wastewater, that arise in liquid and sludge form such as septic tank emptyings. WwTWs that receive such waste normally require an environmental permit. Review of the data presented in the WDI 2021 indicates that Ellesmere Port and Northwich WwTW in CWaC are permitted to receive and treat waste other than wastewater and sludges as shown in Table 2.

Table 92: >500 tonnes Inputs of Other Waste to CWaC Permitted WwTW in (exc. 19 08 05)
Source: WDI 2021

Site Name	Waste Code	EWC Waste Description	Total Tonnes
Ellesmere Port (Little Stanley) WwTW	19 07 03	Landfill leachate	58,552
	19 02 06	Sludges from physico/chemical treatment	34,338
	20 03 04	Septic tank sludge	18,512
Northwich WwTW	20 03 04		6,457

Table 3 also lists a number of other WwTW's identified by CWaCC Annual Monitoring Report (AMR). However, the tonnages associated with these sites are unknown.

Table 93: Other WwTW identified in CWaC AMR

Site Name	Location
Sealand Road WwTW	Chester
Huntington WwTW	Chester
Little Budworth	South Taporley

Conclusion

As stated in the adopted CWaC Waste Local Plan at Paragraph 8.81:

"Whilst the companies have indicated that there may be a need for quality improvements to the works, there has been no indication that additional land is required for the management of sewage sludge."

Having reviewed the evidence, it appears that the findings of the WNA 2016 and consequential policy in the adopted Local Plan still hold in regards to wastewater and sewage waste treatment needs. This should however be confirmed by direct contact with United Utilities and Welsh Water.

3. Agricultural Waste

Context

The Waste Management (England and Wales) Regulations 2006 brought the management of agricultural waste under legislative control for the first time. Prior to this, a significant proportion was managed on farms by burning or disposal into farm tips. These practices became illegal under the 2006 Regulations.

In advance of the introduction of the regulations a number of research projects were undertaken to establish quantities and composition of arisings from this stream[106] and understand management arrangements in place at the time with a view to identifying management needs at national level:

- 1998 survey reported in a 2001 EA report
- Agricultural Waste Survey reported in a 2003 EA report

These remain the most current sources of data available for the agricultural waste stream as a whole and therefore continue to be relied upon when seeking to generate local estimates for planning purposes.

Following the introduction of the regulations, certain agricultural waste is considered more likely to be managed in the same way as the commercial and industrial waste stream, thus placing some additional capacity requirements on the management network that manages the Commercial and Industrial (C&I) waste stream.

In order to identify whether waste produced by agricultural sources in CWaC needs separate consideration in any updated Plan, the following three aspects have been considered:

1. The nature of different agricultural wastes in relation to types of agricultural holdings in CWaC;
2. the likely current level of arisings;
3. the way in which the arisings are managed.

7.9 The Nature of Different Agricultural Wastes

To be regarded as agricultural, waste must have been produced on a 'farm' in the course of 'farming'. Therefore, waste arising from activities that happen to be located on a farm, such as crop processing for food consumption, would fall outside this definition and be considered as commercial and industrial waste.

Agricultural waste takes both 'natural' (or organic) and 'non- natural' forms.

[106] Environment Agency (2001). Towards Sustainable Agricultural Waste Management. Environment Agency R&D Technical Report P1-339. https://www.gov.uk/government/uploads/.../geho0003bieo-e-e.pdf

Natural Agricultural Waste Arisings

This is the predominant waste stream produced by farming with the most commonly produced natural waste being those from livestock farming such as slurries and manure. In the UK, if manures and slurries are used as a fertiliser on agricultural land they are technically not classed as a controlled waste and are excluded from waste management regulation (although there are controls on the application through other means). Since natural wastes are outside formal control it is considered that they are unlikely to enter the formal waste management system which needs to be planned for[107]. Therefore, this report focuses on non-natural waste arisings.

Non-Natural Agricultural Waste Arisings

'Non-natural' agricultural waste is waste other than 'natural' organic waste arising from farming activities. This includes discarded pesticide containers, plastics, tyres, batteries, clinical waste, old machinery, waste oil and packaging waste. Non-natural waste arisings may also include organic waste such as crop residues. The only recognised source of national estimates for arisings of non-natural agricultural waste available is the 2001 EA Report entitled 'Towards Sustainable Agricultural Waste Management'. This report presents estimates of arisings down to English region level for 1998. For the North West region as a whole, the report estimated that approximately 17,300 tonnes of non-natural agricultural waste was produced on an annual basis.

7.10 Management Options

The 2006 DEFRA '*Waste Minimisation Manual: A Practical Guide For Farmers & Growers*'[108] identifies three principal routes for managing agricultural waste as follows:

1. Remove waste from the farm and deliver to an appropriately permitted facility.
2. Apply to the EA for a permit to manage certain waste on-farm[109].
3. Register an appropriate exemption to recover or dispose of some waste on-farm.

Each route is considered below.

Delivery to a permitted facility

This route would mean that any waste produced will be recorded at the permitted facility and hence reported through the WDI. Agricultural waste is coded under EWC 01 and EWC sub chapter codes 02 01. In the WDI 2021 the amount of waste reported under these codes from CWaC was c26,000 tonnes.

Applying for a permit

Where agricultural waste is being managed on a farm on an ongoing basis or in sufficient quantities an environmental permit may be required. Where a permit is granted by the Environment Agency the quantities of waste managed through such facilities would be reported through the WDI and hence captured for the purposes of quantifying this waste stream. Permitted facilities may also require

[107] It should be noted that some on farm waste management facilities such as lagoons and AD plants may make provision for this waste stream, sometime in conjunction with other wastes counted under other waste streams.

[108] DEFRA 2006 Product code PB 11674

[109] Intensive farming units such as pig or poultry farms are subject to environmental permitting.

express planning consent. Note that only one such facility exists within CWaC as identified in Table 3.

Registering an exemption

Typical exemptions that farmers apply for include the ability to burn waste in the open (D7), spreading waste to benefit agricultural land (U10) and the use of waste in construction (U1), which can cover the use of waste hardcore to maintain farm tracks and roads. However, exemptions may also be used to cover activities taking place on farmland involving the import of waste from non-agricultural sources. The specific exemptions that relate solely to the management of agricultural waste are as follows:

- Deposit of agricultural waste consisting of plant tissue under a Plant Health notice.
- Treatment of sheep dip for disposal.
- Treatment of non-hazardous pesticide washings by carbon filtration for disposal.
- Spreading pig and poultry ash mixed with manure on farmland.

7.11 Agricultural Waste managed at Permitted Sites

The previous WNA (2016) reported c608,000 tonnes of agricultural waste arose in CWaC in 2015. and concluded that:

> *"Given that the vast majority of the agricultural waste is treated on-site, there are limited requirements for CWaC to consider treatment capacity within the WPA region."*

The CWaC Local Plan (2015) took the position that:

> *"This policy also encourages the development of on farm anaerobic digestion plants for the management of agricultural waste on farm units. This supports current practise for the management of agricultural waste in the borough, where a large amount of agricultural waste is produced but very little leaves the farm for management."*

Update

Analysis of the WDI 2021 identified c26,000 tonnes of waste arising from agricultural sources in CWaC was managed at permitted sites in 2021. Virtually all was managed via anaerobic digestion (AD) at a single site in CWaC operated by Normans Farm Gas Power Ltd. While a number of other facilities reported receiving agricultural waste from CWaC, the amounts were all below 500 tonnes.

7.12 Agricultural Waste Managed via Exempt Activities

Due to the imprecise and non-specific nature of registered exemptions it is not possible to attribute tonnages managed through these routes. However, it may be reasonable to assume that some of the waste managed through some exemptions that don't involve the final fate (S, T and U categories) eventually ends up at permitted facilities and the tonnages of waste are therefore recorded in the WDI. It may have been mixed with non-agricultural waste during the course of collection and may therefore not be declared as coming from agricultural sources. Due to this, no attempt to calculate the total agricultural waste managed at exempt sites has been made.

7.13 Additional Applications in CWaC AMR

Three additional applications for on-farm facilities listed in CWaC AMR have become operational since 2021. Two of these are for an agricultural AD plant with 2,360m^3 capacity and the formation of a slurry lagoon on the same site. The other is for an agricultural AD plant with 6,000m^3 capacity.

Conclusion

The estimated agricultural waste arising from CWaC in 2021 that may require formal management is c26,000 tonnes and this appears to already be provided for. The tonnages managed through exemptions may add to the arisings figure but the quantities are unknown and it is likely that some is reported in the WDI at 'next step 'sites. Given the position of the adopted Local Plan (2015) it is considered that it is not justified to plan for additional management capacity for this stream alone.

4. Low Level Radioactive Waste

Context

Solid radioactive waste is categorised into three principal categories (and a sub category) according to its level of radioactivity (and the consequential heat) it produces. These categories are:

- **High-level radioactive waste (HLW)** waste which can generate significant heat as a result of its radioactivity, and so this factor has to be taken into account in the design of storage or disposal facilities.
- **Intermediate level radioactive waste (ILW)** has lower levels of radioactivity than HLW and does not generate sufficient heat for this to determine the design of storage or disposal facilities.
- **Low level radioactive waste (LLW)** is radioactive waste having a low radioactive content. LLW makes up more than 90% of the UK's radioactive waste by volume but contains less than 0.1% of the total radioactivity. Within the definition of LLW, there is a sub-classification, known as Very Low Level radioactive waste (VLLW).
    - Very low level waste (VLLW) may either be low volume VLLW or high volume VLLW. The principal difference between the two types is the need for total volumes of high volume VLLW deposited at any one particular landfill or other waste management facilities being subject to control.

7.14 Context in CWaC

CWaC has one site at Capenhurst operated by Urenco UK Ltd producing ILW. The Local Plan states the following:

> *"Whilst Cheshire West and Chester has a site (Capenhurst) producing intermediate level radioactive waste, very low level radioactive waste can be produced from many non nuclear industrial sites including hospitals, universities, research facilities and the oil and gas industries. This policy does not cover radioactive wastes that arise in Cheshire West and Chester as the detailed waste management plan of the Capenhurst facility provides for all of its arisings. The volumes created at the other facilities whilst uncertain, are very small and indications are that it is handled in the most appropriate way"*

The previous WNA (2016) concluded the following:

> *"The quantities of radioactive waste are small and not sufficient to justify the development of new waste management facilities. Advice from the Planning Inspectorate is that policies on the management of this waste stream are unlikely to be needed unless there is specific interest in the development of facilities from operators in the area."*

7.15 Policy Relevant to CWaC Arisings

The primary national Government policy document relevant to CWaC due to the presence of nuclear sector facilities is the '*UK Strategy for the Management of Solid Low Level Waste from the Nuclear Industry*'[110] published in February 2016. The three main strategic themes include:

- the application of the waste hierarchy;
- the best use of existing LLW management assets;
- the need for new fit-for-purpose waste management routes

For the purposes of LLW, the national Government policy document that affects the management of radioactive waste that may arise within CWaC is the *UK Strategy for The Management Of Solid LLW Arising From The Non-Nuclear Industry*[111] (hereinafter referred to as 'the LLW strategy').

The LLW strategy is primarily aimed at non-nuclear industry waste producers, the environment agencies and waste planning bodies and:

- Provides guidance and background information to enable planning authorities to make informed decisions on planning applications and to respond to concerns from their communities;
- clarifies the respective roles of waste producers, the environment agencies, planning authorities and the Nuclear Decommissioning Authority to enable decisions to be made that properly recognise the responsibilities of others; and,
- informs waste producers and regulators of how the regulatory framework applies to LLW, particularly the need for producers of LLW to produce waste management plans, consider waste minimisation at source and apply the waste hierarchy.

7.16 Low Level Radioactive Waste from Non-Nuclear and Nuclear Sources

The majority of radioactive waste that is not classed as high or intermediate level is produced by sectors outside the nuclear industry and hence is termed 'non-nuclear'. Most radioactive waste produced by non-nuclear sources contains very low levels of radioactivity and is therefore classed as VLLW. The majority of this material is similar in its physical and chemical nature to general wastes from household, commercial or industrial sources.

Non-Nuclear Sources

Non-nuclear sources of radioactive waste include hospitals, the pharmaceutical sector, and research and education establishments, all of which may use radioactive materials which ultimately leads to the generation of radioactive waste. Individually these sources generate relatively small volumes of radioactive waste. Further information regarding these sources is provided below.

- **Hospitals** - Solid low level radioactive wastes arise as a result of traces of radiopharmaceuticals in used syringes, needles, vials from which radiopharmaceuticals have

[110] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/497114/NI_LLW_Strategy_Final.pdf

[111] https://www.gov.uk/government/publications/strategy-for-the-management-of-solid-low-level-radioactive-waste-from-the-non-nuclear-industry-part-1-anthropogenic-radionuclides

been withdrawn and absorbent or protective materials (e.g. swabs, dressings, sheets and plastic film) which may be contaminated with small amounts of radiopharmaceutical. Traditionally, most hospital waste has been designated as clinical waste, much of which is incinerated. However, hospitals are now segregating wastes at source, distinguishing between that waste that requires management as 'clinical' and that which can be managed as 'general' waste. This may result in some LLW being managed as general waste.

- **Industry** - The pharmaceutical industry carries out drug and technology development in specific areas of disease research and, in doing so, makes wide use of radiopharmaceuticals. Solid LLW from the pharmaceutical industry comprises general laboratory plastics, vials, sharps (i.e. needles and blades), gloves and any material which may be contaminated. LLW from biotechnology companies includes equipment to count the radioactivity, gloves, protective overalls and vials, and the waste is treated as either clinical or general waste
- **Research** - Radioactive tracers are used in universities, colleges and other research laboratories, to study the incorporation of chemical compounds into cells and organisms and also to study their transfer and metabolism. LLW arising at medical schools and biomedical research laboratories is similar to that from hospital laboratories and the pharmaceutical and biotechnology industries. The waste typically includes disposable plasticware, sample tubes, paper and plastic coverings, paper tissues, and organic liquids that are used to count certain types of radioactivity (called scintillation fluids). Agricultural and animal research will result in rather more bulky wastes (for example plant matter and animal bedding).
- **Contaminated Land** - Whilst waste arisings from the remediation of land contaminated with radioactivity from non-nuclear sources are potentially significant in terms of volumes, their ad hoc nature makes it difficult to undertake any meaningful long term planning for disposal of associated soils. In its strategy, the Government states that it does not therefore expect planning authorities to make specific provision for this within their planning frameworks. However, it does consider it prudent for waste planning authorities to make reference in their planning documents to the possibility that radioactively contaminated soil might arise where historical activities involving radioactive sources may have taken place, and that such waste might require disposal to specially authorised landfills. This may be the case for development in the vicinity of Capenhurst.

7.17 Management of VLLW and LLW

Very Low Level Waste (Exempt Waste)

A site producing or managing less than 50 m^3 of VLLW per year is classed as a 'low volume VLLW source' and as such is exempt from reporting quantities of waste produced and managed. VLLW from such sources is not required to be managed separately and so is expected to be managed in the same manner as general waste produced on the source site. As a result, any waste management facility in the UK may accept small volumes of VLLW mixed in with the other wastes depending on whether source sites fall within their catchment. However, VLLW is rarely (if ever) declared as such in any waste returns submitted so there are no specific records of its management to draw on. The LLW strategy states that Government considers that the present arrangements for low volumes of exempt VLLW are satisfactory and does not expect WPAs to make specific provision for the management of VLLW in their waste plans.

Low Level Waste

When considered on its own, the small quantity of LLW produced in the UK is insufficient to drive the provision of dedicated management facilities via the market. Therefore, the national LLW Strategy concludes that producers of these wastes will nearly always have to rely on waste management networks provided for other large volume wastes. This can be problematic as the public perception of the risks associated with the management of LLW can deter waste facility operators from providing such a service.

Most disposal of LLW requires a permit to be held by both the waste producer and the operator of the waste management facility that receives it. LLW can go either to a landfill as a 'controlled burial', the national Low Level Waste Repository (LLWR) located in Cumbria at Drigg, or may be dealt with by incineration (with or without energy recovery). To extend its life, use of the national LLWR is reserved for particular types of LLW, so LLW disposal usually takes place at specially authorised facilities used for the management of other types of waste. Unlike the network of existing waste management facilities available to take VLLW there are considerably fewer facilities across the UK that currently take LLW. While operators of appropriate facilities may apply to take LLW at any time, in England there are currently only three landfill sites granted permits to do so[112]. These are shown in Table 4. The closest site to CWaC is the Clifton Marsh landfill in Lancashire, with Lillyhall in Cumbria falling within its catchment so current and future arrangements at these sites are of greatest relevance. The ENRMF has development consent including provision for disposal of LLW up to 2046.

Table 94: Landfill Sites Permitted to Receive LLW in the UK

Site Name	Operator	Waste Type	Source Specific	Host WPA
Clifton Marsh	Sita (Lancashire) Ltd	LLW	Small quantities of lower activity low level radioactive wastes[113].	Lancashire
Lillyhall Landfill Site	Waste Recycling Group Ltd	High Volume -VLLW	No more than 26,000 m^3 of HV-VLLW per year and if the landfill remains operational until 2031 no more than 582,000 m^3 of HV-VLLW in total.[114]	Cumbria
East Northants Resource Management Facility	Augean South PLC	LLW	Waste mainly generated from the decommissioning and cleanup of nuclear industry sites[115]	Northants

It should also be noted that Capenhurst has planning permission for the treatment of 5,000 tonnes per annum of VLLW and LLW from off-site sources along with 2,000 tonnes sourced from on-site, so provides some capacity for the management of this waste stream[116].

[112] No records indicate there are any incinerators permitted to dispose of LLW in England.

[113] Sita Ltd 2020 http://www.sita.co.uk/

[114] Environment Agency. 2011. Environmental Permitting (England and Wales) Regulations 2010 Decision Document. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/303034/WRG_Decision_Document.pdf

[115] DCO application to extend its capacity and life granted in January 2023.

[116] CWaC AMR., 2022.

7.18 Planning for the Management of LLW

The national LLW strategy exhorts producers of LLW to work with planning authorities, to ensure that such wastes may be effectively handled through the preparation of local plans and in determining planning applications. It also suggests that any waste management plans produced by LLW producers should take account of the proximity principle alongside other considerations. It states that:

> "*Waste planning authorities should consider how to manage LLW and VLLW arising in their areas as part of the preparation of their local waste plans. They should seek advice from waste producers and the environment agencies to ensure that the waste is being sent to a suitable waste management facility. If necessary and feasible, they should work with other waste planning authorities to share facilities."* [117]

7.19 LLW - The Proximity Principle

The national LLW strategy recognises that planning, by waste producers, for the disposal of VLLW and LLW involves balancing regulatory and policy requirements with what appropriate disposal routes are actually available. In the case of most low volume VLLW from non-nuclear sources, its management route/fate is purely dependent on that of the general waste with which it is mixed at the point of production i.e. waste producers have little influence on choice of destination at which the waste is ultimately disposed unless they segregate it at source.

In the case of deciding on disposal routes for LLW, the LLW strategy states that the Government wishes to see "appropriate and explicit consideration" of the proximity principle. "Appropriate and explicit consideration" means that proximity must be a feature of any options assessment process which supports a proposed waste management plan. "Appropriate" consideration means that the proximity principle will assume a different importance in an options assessment for, say, a site producing large volumes of contaminated steel, for which only a limited number of decontamination facilities are available, compared to a hospital generating low volumes of radioactive waste suitable for (local) incineration or landfill.

The LLW Strategy also states that:

> "*Communities which benefit from the beneficial uses of radioactive materials (including direct benefit such as the use of radiopharmaceuticals, and indirect benefits such as contributions to a local economy from commercial bodies using radioactive materials) should take a share in the responsibility for managing the radioactive wastes which inevitably arise from their use, where possible*"

It does however go on to recognise that "*...each and every local authority cannot necessarily be self-sufficient in the matter of waste management*." [118]

[117] LLW Strategy key point page 18

[118] LLW Strategy key point page 17

7.20 Production and Management of LLW in CWaC

A review of radioactive source permits records granted by the EA indicates that there are 7 authorisations held by 6 entities within CWaC as shown in Table 5 below.

Table 95: Radioactive Source Authorisations held within CWaC

Source: EA Public Register accessed June 2023

Activity	Entity	Date Approved (most recent)	Location	Number of permits registered
Keeping & Use of Radioactive Materials and Disposal of Radioactive Waste	Tata Chemicals Europe Limited	28/10/2008	Northwich East Site, Griffiths Road, Lostock, CW9 7NU	1
	University of Liverpool	20/09/2013	The Veterinary Field Station, Leahurst, Neston, South Wirral, CH64 7TE	1
	Veolia ES (UK) Limited	12/08/2020	Ellesmere Port Incinerator, Bridges Road, Ellesmere Port, CH65 4EQ	1
	CVS (UK) Limited	27/09/2017	Chestergates Referral Hospital, , Gates Lane, Chester, CH1 6LT	1
	Countess of Chester Hospital NHS Foundation Trust	25/11/2008	Countess of Chester Hospital, Liverpool Road, Chester, CH2 1UL	2
	CF Fertilisers UK Limited	19/08/2010	Ince, Chester, CH2 4LB	1

These permits are issued to establishments which use radioactive substances and it is possible therefore, that as part of their activities, they will generate some LLW or VLLW requiring disposal offsite. In addition to the establishments authorised to hold radioactive sources listed in Table 4, there are a number of entities within CWaC that hold permits for the disposal of radioactive waste. It is noted that given the purpose of the WNA is to identify possible sources of waste that might require off-site management and so might result in a possible need for management capacity, locations where radioactive waste produced would be dealt with on site would not normally be considered. However, they have been included in Table 6 for the purpose of comprehensiveness.

There are 3 entities holding permits in CWaC as shown in Table 6. Three of these appear to be related to the Capenhurst facility, with the other held by a major metal recycling company.

Table 96: Radioactive Substances Permit involving Disposal of Radioactive Waste held in CWaC

Source: EA Public Register accessed June 2023

Entity	Data Approved	Location	Number of permits registered
Urenco Nuclear Stewardship Ltd	01/08/2020	Capenhurst, Chester, CH1 6ER	2
Urenco UK Ltd	01/08/2019	Urenco UK Ltd, Chester, CH1 6ER	1
Urenco Chemplants Ltd	12/05/2020	Tails Management Facility, Capenhurst Works, Chester, CH1 6ER	1

Conclusion

This review has found that nothing substantial has changed regarding radioactive waste in CWaC and therefore the findings of the WNA 2016 and consequential policy in the adopted Local Plan still hold.

5. Overall Conclusion

Review of the above data sources allows the following conclusions to be reached about the need to provide for 'other wastes' in the preparation of the CWaC Local Plan:

1. Wastewater and the associated sludge appear to be catered for adequately through arrangements made by United Utilities and Welsh Water, the statutory sewerage undertakers. It is considered that the findings should be confirmed with the affected water utilities to determine if the current Local Plan policy in relation to wastewater and sewage waste treatment capacity provision remains sound.

2. Agricultural waste – CWaC is not considered to generate sufficient quantities of waste that would warrant specific separate provision assuming the continuation of the existing arrangements including the exemption regime.

3. Radioactive waste – This review has found a small number of permitted sources of non-nuclear radioactive waste within CWaC plus some treatment capacity already provided at Capenhurst. This strongly suggests that any specialist capacity need has already been met and therefore the current policy in the Local Plan on the matter remains sound.

Cheshire West & Chester Waste Needs Assessment 2023

Appendix 7: Cross Boundary Waste Movements & Duty to Cooperate

Report: Final

Version: v1.1

Issued: 28th December 2023

BPP Consulting Document Control

Project: Cheshire West & Chester Waste Needs Assessment 2023

Report: Cross Boundary Waste Movements & Duty to Co-operate

Version Description: Final

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1.0	Draft for Client review	Alan Potter (Partner)	25.04.2023	*Roshnee Chavda (Client Reviewer)*	26.04.2023
1.1	Final Issue	Alan Potter (Partner)	28.12.2023		

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Abbreviations

AD	Anaerobic Digestion
C & I	Commercial & Industrial Waste
C, D & E / CDEW	Construction, Demolition & Excavation Waste
CWaC	Cheshire West and Chester
EA	Environment Agency
EfW	Energy from Waste
ELV	End-of-Life Vehicle
HWRCs	Household Waste Recycling Centres
LACW	Local Authority Collected Waste
MRS	Metal Recycling Site
MRF	Material Recycling Facility
nPPG	national Planning Practice Guidance
NPPW	National Planning Policy for Waste
WDI	Waste Data Interrogator
WNA	Waste Need Assessment
WPA	Waste Planning Authority
WTS	Waste Transfer Station

Glossary of Terms

Agricultural Waste	Waste produced on a 'farm' in the course of 'farming'. Agricultural waste takes both 'natural' (or organic) and 'non- natural' forms e.g. plastics and metal.
Anaerobic Digestion	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.
Bio waste	Waste that can break down over time due to natural biological action/processes, such as food, garden waste and paper.
Commercial Waste	Waste from factories or premises used for the purpose of trade or business, sport, recreation or entertainment.
Composting	A process in which biodegradable waste (such as green waste and kitchen waste) is broken down in aerobic conditions by naturally occurring micro-organisms to produce a material suitable for use as a soil improver.
Construction, Demolition & Excavation Waste	Waste arising from the building process comprising demolition and site clearance waste and builders' waste from the construction/demolition of buildings and infrastructure. Includes masonry, rubble and timber.
Energy from Waste	The conversion of the calorific value of waste into energy, normally heat or electricity through applying thermal treatment of some sort. May also include the production of gas that can be used to generate energy.
Environment Agency	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.
Green waste	Biodegradable plant waste from gardens and parks such as grass and hedge trimmings, from domestic and commercial sources suitable for composting.
Hazardous Waste Landfill	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.
Hazardous Waste	Waste requiring special management under the Hazardous Waste Regulations 2005 due to 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 characteristics of the waste.
Household Waste	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.
Incineration	The controlled combustion of waste. Energy may also be recovered in the form of heat (see Energy from Waste).
Industrial Waste	Waste arising from any factory and from any premises occupied by an industry (excluding mines and quarries).
Inert Landfill	Landfill site permitted to only accept inert waste for disposal.
Landfill (including land raising)	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).
Local Authority	Waste collected by or on behalf of a local authority. Includes household waste and

Collected Waste	business waste were collected by a local authority and non-municipal fractions such as construction and demolition waste delivered to HWRCs. LACW is the definition used in statistical publications, which previously referred to municipal waste.
Materials Recycling Facility (MRF)	A facility for sorting recyclable materials from the incoming waste stream.
Non-Hazardous Waste Landfill	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.
Recovery	Subjecting waste to processes that recover value including recycling, composting or thermal treatment to recover energy.
Recycling	The reprocessing of materials extracted from the waste stream either into the same product or a different one.
The Plan area	The area subject to the Waste Local Plan to which this study relates. In this case the county of CWaC.
Waste Planning Authority	The authority responsible for planning for waste within a specific administrative area. In this case CWaC Council.
Waste Transfer Station	A site to which waste is delivered for sorting or baling prior to transfer to another place for recycling, treatment or disposal.

1. Introduction

The purpose of this report is to assess the nature and quantum of movements of waste (a.k.a. waste flows) between CWaC and other Waste Plan areas to determine those that may be regarded as strategic for the purposes of engagement with other Waste Planning Authorities (WPAs) under the Duty to Cooperate (DtC).

Duty to Cooperate engagement is intended to establish the likelihood of waste flows remaining, or becoming, strategic in future involving consideration of the following:

1. Whether historical flows of waste identified in this report are likely to continue including consideration of any barriers to the continuation of waste exports; and
2. whether new flows of waste beyond the Plan area are likely to occur, taking any predicted changes in capacity that the management of waste arising in CWaC currently relies on (situated either within or beyond CWaC) into account.

DtC engagement is conducted against the backdrop of the national policy expectation that authorities should consider planning for the management of waste arising in other areas where appropriate which runs as follows:

3. Waste planning authorities should prepare Local Plans which identify sufficient opportunities to meet the identified needs of their area for the management of waste streams. In preparing Local Plans, waste planning authorities should:

- *consider the need for additional waste management capacity of more than local significance and reflect any requirement for waste management facilities identified nationally;*
- *take into account any need for waste management, including for disposal of the residues from treated wastes, arising in more than one waste planning authority area but where only a limited number of facilities would be required;*
- *work collaboratively in groups with other waste planning authorities, and in two-tier areas with district authorities, through the statutory duty to cooperate, to provide a suitable network of facilities to deliver sustainable waste management;*

National Planning Policy for Waste (16 October 2014)

Advice is provided to support CWaC Council in its DtC engagement activities and this includes identification of proposed 'target' WPAs.

2. The Duty to Cooperate

Section 33A of the *Planning and Compulsory Purchase Act 2004* requires Councils to cooperate with other local planning authorities, county councils and bodies or other persons as prescribed. The Duty to Cooperate imposes, in particular, a duty to: "*engage constructively, actively and on an ongoing basis*". This is required in relation to "*maximising the effectiveness*" of, and having "*regard to",* activities concerned with supporting or preparing planning policies "*so far as relating to a strategic matter*". As such the Duty places a legal duty on Councils to engage "*constructively, actively and on an on-going basis*" in "*maximising the effectiveness*" of Local Plans.

As noted above, the Duty applies to the preparation of development plan documents, in so far as they relate to a "*strategic matter*". A strategic matter is defined as *"sustainable development or use of land that has or would have a significant impact on at least two planning areas including... in connection with infrastructure that is strategic...*" (S33A(4)). Waste management qualifies as a strategic matter for the purposes of the Duty.

The updated National Planning Policy Framework (July 2021) expects that Local Plans will include 'non-strategic' and 'strategic' policies, and explains that strategic policies should…"*set out an overall strategy for the pattern, scale and quality of development, and make sufficient provision for:…..infrastructure*" and this includes "*for…..waste management*". It goes on to specify that: "*In order to demonstrate effective and on-going joint working, strategic policy-making authorities should prepare and maintain one or more statements of common ground, documenting the cross-boundary matters being addressed and progress in cooperating to address these*."

The management of waste has little regard for administrative boundaries, with waste arising in one authority's area often being managed in another. Furthermore, waste management facilities may have a catchment which extends beyond the boundary of the Plan area within which it is situated. Such flows are recognised in relation to the disposal of waste and recovery of mixed municipal waste in particular in the National Planning Policy for Waste that expects waste planning authorities to:

> "*…plan for the disposal of waste and the recovery of mixed municipal waste in line with the proximity principle, recognising that new facilities will need to serve catchment areas large enough to secure the economic viability of the plant*;".

Hence the management of waste can be a cross boundary strategic matter, the planning for which requires co-operation between waste planning authorities.

As the consensus to what constitutes a 'strategic' level of waste movements varies between WPAs, the thresholds adopted by WPAs that form the North West Waste Planning Advisory Group have been applied as a starting point for considering whether dialogue is required:

- Inert waste: 10,000 tonnes per annum
- Non-hazardous waste: 5,000 tonnes per annum
- Hazardous waste: 500 tonnes per annum

It should be noted that the above thresholds are intended to be used as an initial screening tool only, and movements falling above these, may be further screened out following more detailed consideration of the significance of individual flows. This second stage is important given the expectation that flows of significance are to be subject to Statements of Common Ground between source and receiving WPAs[119].

[119] Note while it is expected that the Duty to Cooperate will be revoked under the *Levelling up and Regeneration Bill* currently going through Parliament, in the absence of any alternative mechanism this remains the approach being adopted in Plan making processes.

3. Waste Flows from CWaC

3.1 Export and Imports of Waste to and from CWaC

Table 1 below shows the tonnages of CWaC waste managed at permitted facilities within CWaC and outside, as well as the tonnage of waste managed within CWaC coming from outside CWaC in 2021.

Table 97: Tonnages of CWaC waste managed in permitted facilities within and outside CWaC, and tonnage of waste imported to CWaC facilities

Source: WDI 2021

CWaC arisings		Managed in CWaC		
Total CWaC waste	Of which managed outside CWaC	CWaC waste managed in CWaC	Waste imported to CWaC	Total Managed
1,915,538[120]	1,141,369[121]	774,169	1,148,361[122]	1,922,530

Table 1 shows that c774,000 tonnes of CWaC's waste was managed in CWaC in 2021. This compares with c1,141,500 tonnes managed outside the Plan area. This export is offset by the import of waste for management from outside CWaC of c1,148,500 tonnes, specifically for recycling and non-inert landfill as shown in Figure 1. So, taking this snapshot as a simple balance, CWaC achieved net-self-sufficiency in 2021. Figure 1[123] displays visually the balance between imports and exports by waste management method and waste type in CWaC[124].

It should be noted that this is a single snapshot in time for a year and is not necessarily a true representation of net -self-sufficiency as actual inputs for 2021 may not be reflective of total capacity (and can be expected to be an underestimate of capacity in most cases other than landfill).

[120] Includes c148,000 tonnes of CWaC waste identified as being managed in Wales in separate C,D&E and C&I waste reports.

[121] As footnote 2.

[122] Includes c143,000 tonnes of process residues from St Helens imported to CWaC non-inert waste landfill (Gowy).

[123] Note that Figure 1 includes waste captured as exported to Wales, included in the C, D & E and C&I waste section.

[124] Note that Figure 1 includes waste unattributed below the Northwest attributed to CWaC using the waste attribution exercise.

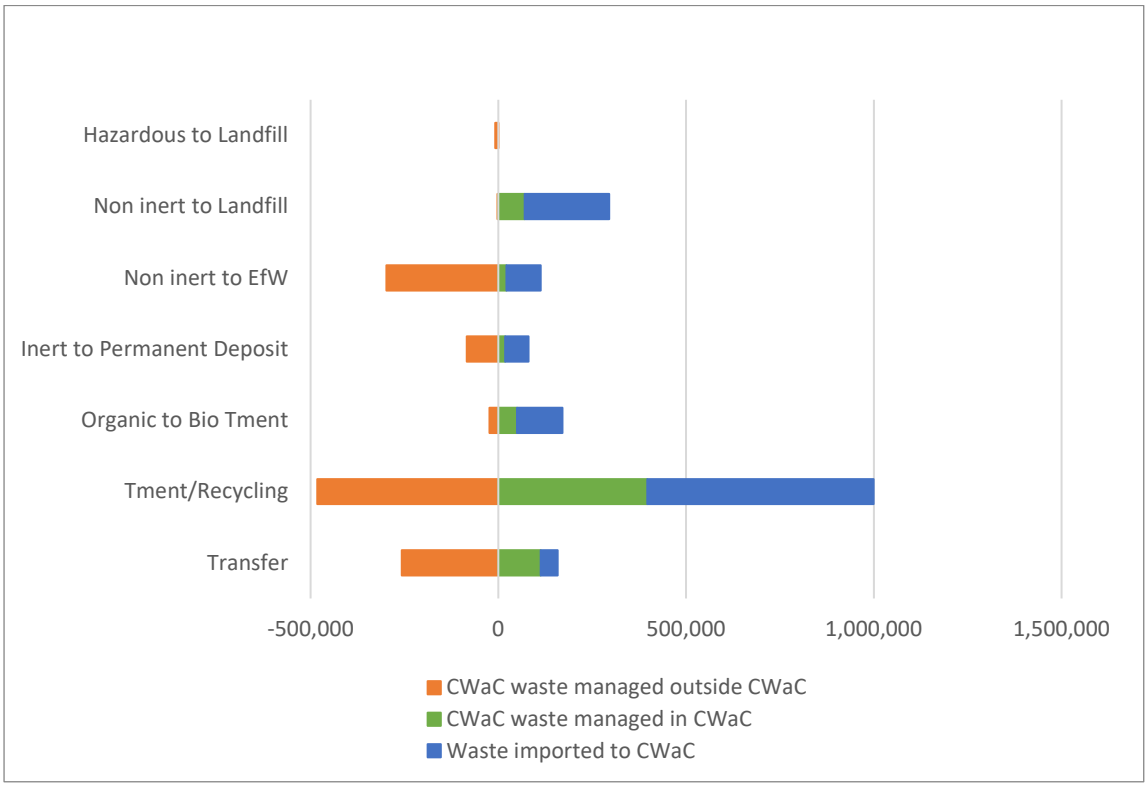

Figure 21: Waste import and export balance in CWaC 2021 by management method and waste type where known (tonnes)

A key matter to address when assessing the robustness of the Plan strategy is to establish whether flows of waste to waste management facilities beyond the Plan area relied upon by a source WPA will be available for the duration of its Plan period. The focus for Duty to Cooperate engagement in this case is therefore to address outgoing waste flows and these are considered in the following section.

3.2 Applying significance thresholds

The regional significance 'thresholds' referred to previously have been applied.

Table 2 below shows movements of waste from CWaC in 2021 (latest data available) to other WPAs (in rank order) where one or more of the above thresholds have been met or exceeded.

Table 98: Destination WPA's of Inert, Non-inert and Hazardous Waste exports from CWaC in rank order applying SEWPAG DtC thresholds 2021.

Source: WDI 2021

N.B. Entries highlighted are those where thresholds have been met or exceeded

Receiving WPA	Hazardous	Inert	Non-inert
Halton	<100	138,691	272,009
Cheshire East	899	10,705	176,161
Flintshire	<100	94,454	28,265
Warrington	<100	20,467	28,261
Wakefield	<100	<10,000	44,264
Bolton	133	34,385	7,133
Knowsley	867	27,698	<5,000
Wigan	<100	<10,000	18,378
Derbyshire	609	<10,000	16,470
Stoke-on-Trent City	1,001	<10,000	15,967
Trafford	322	14,163	<5,000
Shropshire	1,138	<10,000	9,813
Lancashire	8,953	<10,000	<5,000
Sheffield	139	<10,000	7,848
Staffordshire	1,428	<10,000	5,638
Wirral	933	<10,000	5,013
Leicestershire	<100	0	5,078
Leeds	2,996	0	<5,000
Salford	2,288	<10,000	<5,000
Warwickshire	1,761	0	<5,000
Stockton-on-Tees	1,406	0	<5,000
Cambridgeshire	1,173	<10,000	<5,000
Liverpool	1,044	<10,000	<5,000
Sandwell	1,035	<10,000	<5,000
East Riding of Yorkshire	879	0	<5,000
Kirklees	853	0	<5,000
Rotherham	660	<10,000	<5,000
Hampshire	642	<10,000	<5,000

In 2021 a total of 28 WPAs accepted waste in excess of the screening significance thresholds and 13 WPA's accepted waste in quantities that met or exceeded the thresholds in two or more of the target waste streams.

Detailed examination of the totals indicates that movements of waste from CWaC that might be classed as strategically significant i.e. met or exceeded the screening DtC thresholds went to the sites shown in the following tables. It is considered that where strategic flows went to a small number of sites the strategic reliance is greater than if distributed across a large number of sites. This therefore suggests that flows to such sites are of greater strategic importance to the Plan strategy. Conversely where inputs to individual sites fell below the threshold they have been excluded from further analysis even if the total tonnage going to the host WPA exceeded the threshold.

A detailed analysis by principal waste streams has been conducted using 2021 data, as shown in Table 3 below.

3.3 CWaC Hazardous Waste Destinations

The principal destination WPAs receiving hazardous waste from CWaC are shown in Table 3 below.

Table 99: Destination sites for CWaC Hazardous Waste Exports 100t[125] or more in 2021 in Rank Order by WPA (total tonnage managed)

Source: WDI 2021

Facility WPA	Site Category	Site Name	Principal Waste Type 500t or more	Tonnes
Lancashire	Landfill	Whitemoss Landfill	Sludges from physico/chemical treatment + bottom ash	7,345
	Incineration	Ribblesdale Cement Works	Calcium hydroxide	928
	Treatment	Recycling Lives Recycling Park	WEEE	618
Leeds		Aggregates Manufacturing Facility	Solid waste from gas treatment	2,697
Salford		CSG Lanstar (Cadishead)	Waste containing dangerous sulphides	1,884
Warwickshire	Incineration	Rugby Cement Plant	Fly ash	1,705
Stockton-on-Tees	Treatment	Port Clarence Landfill Site	Solid waste from gas treatment	1,216
Staffordshire		Stoke Waste Treatment & Transfer Facility	Other bases	1,340
Shropshire	MRS	Skan 4x4	ELV's	1,130
Cambridgeshire	Treatment	Mepal Soil and Waste Treatment Centre	Haz CDE	1,118
Sandwell		ERQ - STC,	Asbestos	634
	Transfer	Bullock Street	Bottom ash and slag	958
Liverpool		Sneyd Hill Transfer and Treatment Centre	Solid wastes from flue-gas treatment	953
Wirral	MRS	Neptune Car Spares	ELV's	520
		Recycling Lives	ELV's	412
East Riding of Yorkshire		Full Sutton Industrial Estate	ELV's	879
Cheshire East	Treatment	The Science Park	Hazardous liquids	839
Lancashire	Treatment	Lower Bank View Waste Management Facility	Wastes from grit chambers and oil/water separators	846
Kirklees	Landfill	Bradley Park Landfill	Asbestos	524
Knowsley	Transfer	Avanti Treatment and Transfer Centre	Hazardous packaging	771
Hampshire	Incineration	Fawley High Temperature Incinerator	Sludges from physico/chemical treatment + bottom ash	642
Rotherham	Transfer	Safety Kleen Dinnington	Oily water from oil/water separators	502
Derbyshire	Treatment	Ilkeston Waste Treatment and Transfer	Organic halogenated solvents, washing liquids and mother liquors	584

Table 3 shows the four dominant flows were sludges from physico/chemical treatment for landfill and bottom ash going to landfill, solid waste from gas treatment and waste containing dangerous sulphides going for treatment.

[125] WPAs with sites receiving CWaC hazardous waste in quantities of <100t have been excluded

3.4 CWaC Inert Waste Destinations

The principal destination WPAs receiving inert waste from CWaC in excess of 10,000 t are shown in Table 4 below.

Table 100: Destination sites for CWaC Inert Waste exports c10,000t or more in 2021
Source: WDI 2021

Facility WPA	Site Category	Site Name	Principal Waste Type 10,000t or more	Total
Halton	Treatment	Grundy & Co Excavations	Bricks, concrete and soils and stones	111,000
	Transfer	G S H Waste Recycling	Mixed CDE	27,155
Cheshire East[126]		Green Lane Nick Brookes Demolition & Waste Disposal	Soils and stones	48,698
	Treatment	King St Trading Estate, WPI Group Ltd	Mixed CDE	1,096
Bolton	Transfer	The Materials Recycling Facility		29,853
Flintshire		Ewloe Waste Transfer Station		17,449
	Recovery to Land	Alan's Skip Hire		13,081
		Cambrian Quarry	Soils and stones	14,345
	Treatment	Mold Road, PM Dromgoole & Sons agricultural Ltd		22,375
Knowsley	Landfill	Cronton Quarry		27,696
Warrington	Treatment	A D S Recycling	Mixed CDE	19,917
Trafford		Land Off Sinderland Road	Soils and stones	13,979

Table 4 shows the following:

- The separate waste stream specific report for C, D & E waste found of the c492,500 tonnes of inert waste produced in CWaC in 2021, 70% was exported and this was primarily managed through 12 sites hosted by 7 different WPAs as shown in Table 4.
- The dominant flows were sludges from bricks, mixed C, D & E waste, concrete and soils and stones for treatment and transfer.

[126] Note that the sites included under Cheshire East are those identified as receiving unattributed waste below the Northwest region that has been attributed to CWaC waste in the attribution of waste exercise.

3.5 CWaC Non-Inert Waste Destinations

The principal destination WPAs receiving non-inert waste from CWaC are shown in Table 5 below.

Table 101: Destination sites for CWaC Non-Inert Waste exports 5,000t or more in rank order[127]

Source: WDI 2021

Facility WPA	Site Category	Site Name	Principal Waste Type 5,000t or more	Total
Halton	Incineration/EfW	Runcorn	Sorting residues	243,282
	Transfer	G S H Waste Recycling	Mixed municipal waste	14,285
		W S R Recycling	RDF	9,298
Cheshire East	Treatment	Crewe Waste Water Treatment Works	Sludges from waste water treatment	174,239
Flintshire	Transfer	Severn Road, Parry and Evans Ltd	Paper and cardboard packaging	5,057
		A S H Bretton Recycling Centre	Mixed municipal waste	20,748
Wakefield	Incineration/EfW	Ferrybridge 1	RDF	44,264
Warrington	Treatment	A D S Recycling	Mixed municipal waste	19,078
		Diggle Green Farm Composting Facility	Biodegradable waste	9,183
Wigan	Transfer	Boden And Davies	Wooden packaging	8,629
	Treatment	Kirklees Leachate Treatment Plant	Landfill leachate	7,066
Derbyshire		Sapphire Specialised Fuel Plant	Textiles	12,282
Bolton	Transfer	The Materials Recycling Facility	Mixed municipal waste	7,111
Shropshire	Treatment	Wood Lane Landfill Site	Sorting residues	4,119

Table 5 shows the following:

- The separate waste stream specific report for C&I waste found of the c512,500 tonnes of C&I waste produced in CWaC in 2021, 58% was exported and this was primarily managed through 14 sites hosted by 8 different WPAs as shown in Table 4.
- The four dominant flows were sorting residues for incineration, mixed municipal waste and RDF for transfer, sludges from waste water treatment works for treatment.

[127] Including waste water treatment sludges and leachate

4. Summary

A total of 49 sites have been identified as receiving what may be regarded as strategically significant quantities of waste from CWaC in 2021. These were spread across 24 WPA areas.

In addition, analysis of data for 2020 indicates a further 10 WPAs received waste in excess of the thresholds. These are shown in Appendix 1.

All the host WPAs ought to be contacted to confirm the following:

1. Whether the facilities identified as receiving waste are still operational given the dataset is for 2021. It should be noted that facilities identified as Recovery to Land[128] and Landfill will have a finite life. Most Recovery to Land facilities are likely to be operational for a few years only.
2. Any planning reasons that might mean the acceptance of wastes cannot continue, such as consent conditions and end dates; or if the site has been earmarked in Plans for redevelopment.
3. Whether the host WPA has any specific policies about providing for the management of waste that arises outside their respective Plan area.
4. Whether any Statements of Common Ground have been entered into with other WPAs concerning continued availability of capacity at the facility in question that might compromise continued access for CWaC's waste.

The outcomes of the above engagement should be documented, and Statements of Common Ground sought with WPAs hosting facilities taking strategically significant quantities of waste for which ongoing access is to be relied upon during the Plan period as appropriate

[128] No CWaC waste was found going to this type of facility in 2021

Appendix 1: Destination WPAs of Hazardous, Non-inert and Inert Waste from CWaC

Highlighted cells: Orange - additional WPAs receiving strategically significant waste in 2020
Green – WPAs receiving strategically significant waste from CWaC in either 2020 or 2021 or both
Source: WDI 2020 & 2021

Facility WPA	Hazardous[129]		Inert		Non-Inert	
	2020	2021	2020	2021	2020	2021
Halton	<500	<500	129,602	138,691	289,018	272,009
Cheshire East	8,070	899	53,096	10,705	141,548	176,161
Warrington	<500	<500	48,263	20,467	300,238	28,261
Wakefield	<500	<500	<10,000	<10,000	50,939	44,264
Bolton	<500	<500	40,700	34,385	<5,000	7,133
Knowsley	2,469	867	24,460	27,698	<5,000	<5,000
Wigan	<500	<500	<10,000	<10,000	16,453	18,378
Derbyshire	1,642	609	<10,000	<10,000	12,281	16,470
Trafford	972	<500	27,854	14,163	13,823	<5,000
Shropshire	<500	1,138	<10,000	<10,000	14,811	9,813
Lancashire	8,474	8,953	<10,000	<10,000	<5,000	<5,000
Sheffield	<500	<500	<10,000	<10,000	<5,000	7,848
Staffordshire	7,844	1,428	0	<10,000	35,799	5,638
Wirral	<500	933	<10,000	<10,000	<5,000	5,013
Leicestershire	<500	<500	<10,000	0	<5,000	5,078
Leeds	711	2,996	<10,000	0	<5,000	<5,000
Salford	3,496	2,288	<10,000	<10,000	<5,000	<5,000
Stoke-on-Trent City	3,342	1,001	<10,000	<10,000	33,319	953
Warwickshire	<500	1,761	<10,000	0	5,174	<5,000
Stockton-on-Tees	2,025	1,406	0	0	<5,000	<5,000
Cambridgeshire	<500	1,173	<10,000	<10,000	<5,000	<5,000
Liverpool	4,893	1,044	12,259	<10,000	88,955	<5,000
Sandwell	953	1,035	<10,000	<10,000	<5,000	<5,000
East Riding of Yorkshire	613	879	<10,000	0	<5,000	<5,000
Kirklees	1,317	853	0	0	<5,000	<5,000
Rotherham	581	660	<10,000	<10,000	<5,000	<5,000
Hampshire	593	642	0	<10,000	<5,000	<5,000
Worcestershire	858	<500	<10,000	<10,000	<5,000	0
Kent	1,176	<500	0	0	<5,000	0
Kingston Upon Hull City	1,088	0	0	0	<5,000	0
Nottinghamshire	646	<500	<10,000	<10,000	<5,000	<5,000
Walsall	835	<500	<10,000	<10,000	<5,000	<5,000
Wolverhampton	2,324	<100	0	0	<5,000	0
Birmingham City	<100	<100	0	<10,000	9,565	<5,000
Buckinghamshire	<100	0	0	0	5,835	0
Bury	<100	<100	<10,000	<10,000	13,362	<5,000

[129] WPAs with sites receiving various quantities of sub 500t of hazardous waste from CWaC have not been included.

Redcar and Cleveland	<100	<100	0	0	10,541	<5,000
Thurrock	0	0	11,000	0	0	0

Cheshire West & Chester Waste Needs Assessment 2023

Appendix 8: Attributing Unattributed Waste to Baseline Values for C, D & E Waste and C&I Waste arising in Cheshire West & Chester

Report: Final

Version: 1.1

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Project: Cheshire West and Chester Waste Needs Assessment 2023

Report: Attributing Unattributed Waste to Baseline Values for C, D & E Waste and C&I Waste arising in Cheshire West & Chester

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Date: 28th December 2023

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Abbreviations

C & I	Commercial & Industrial Waste
C, D & E / CDEW	Construction, Demolition & Excavation Waste
CE	Cheshire East
CW&C	Cheshire West and Chester
EA	Environment Agency
EWC	European Waste Catalogue
LACW	Local Authority Collected Waste
WDI	Waste Data Interrogator
WNA	Waste Needs Assessment
WPA	Waste Planning Authority
WTS	Waste Transfer Station

Glossary of Terms

Anaerobic Digestion	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.
Biodegradable waste	Waste that can break down over time due to natural biological action/processes, such as food, garden waste and paper.
Commercial Waste	Waste arising from premises which are used wholly or mainly for trade, business, sport, recreation or entertainment, excluding municipal and industrial waste.
Controlled Waste	Waste subject to controls emanating from the EU Waste Framework Directive.
Construction, Demolition & Excavation Waste	Controlled waste arising from the construction, repair, maintenance and demolition of buildings and structures.
DEFRA	The UK Government department responsible for developing national waste management policy.
Duty to Cooperate	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 Plans.
Energy from Waste	The conversion of the calorific value of waste into energy, normally heat or electricity through applying thermal treatment of some sort. May also include the production of gas that can be used to generate energy.
Environment Agency	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.
Green waste	Biodegradable plant waste from gardens and parks such as grass or flower cuttings and hedge trimmings, from domestic and commercial sources suitable for subjecting to composting.
Hazardous Waste Landfill	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.
Hazardous Waste	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.
Household Waste	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.
Household Waste Recycling Centres	A facility that is available to the public to deposit waste not collected through kerbside collection. (otherwise known as a civic amenity site)
Industrial Waste	Waste arising from any factory and from any premises occupied by an industry (excluding mines and quarries).
Incineration	The controlled combustion of waste. Energy may also be recovered in the form of heat (see Energy from Waste).

Inert Landfill	Landfill site permitted to only accept inert waste for disposal.
Inert Waste	Waste not undergoing significant physical, chemical or biological changes following disposal, as it does not adversely affect other matter that it may come into contact with, and does not endanger surface or groundwater.
Landfill (including land raising)	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).
Materials Recycling Facility (MRF)	A facility for sorting recyclable materials from the incoming waste stream.
Non Hazardous Landfill	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.
Recovery	Subjecting waste to processes that recover value including recycling, composting or thermal treatment to recover energy.
Recovery to land	Activities involving the permanent deposit of inert waste for specific purposes not classed as disposal. Generally subject to permitting. May include backfilling of mineral workings.
Recycled Aggregate	Aggregates produced from recycled construction waste such as crushed concrete and planings from tarmac roads.
Recycling	The reprocessing of materials extracted from the waste stream either into the same product or a different one.
Refuse Derived Fuel	A fuel produced to a contract specification by processing the combustible fraction of waste.
Residual Waste	Waste remaining after materials for re-use, recycling and composting/organic waste treatment e.g. anaerobic digestion have been removed.
WasteDataFlow	WasteDataFlow is the web based system that UK local authorities use for municipal waste data reporting to central government. It serves as the data collection system for the annual Defra Municipal Waste Management Survey in England.
Waste Local Plan	A statutory development plan prepared (or saved) by the waste planning authority setting out polices in relation to the management of waste arising within the Plan area and provision of development to manage waste arising within that area.
Waste Planning Authority (WPA)	The local authority responsible for waste development planning and control. In this case Cheshire West & Chester Council.
Waste Transfer Station	A site to which waste is delivered for bulking prior to transfer to another place for further processing or disposal.

1 The Issue - Baseline Arisings Data Gap

Cheshire West and Chester (CW&C) Council has contracted BPP Consulting to produce an update to the Cheshire West & Chester Waste Needs Assessment (WNA 2023) to underpin the preparation of its Local Plan policies relating to waste which is to be updated to cover a Plan period to 2045.

The WNA consists of the following sections:

34. Review of Management Requirements for Local Authority Collected Waste;
35. Review of Management Requirements for Commercial & Industrial Waste;
36. Review of Management Requirements for Construction, Demolition & Excavation Waste;
37. Review of Management Requirements for Hazardous Waste;
38. Scoping Review of Management Requirements for Other Waste;
39. Review of waste flows.
40. Waste Attribution (for C, D & E waste and C&I waste)
41. Overview of Management Requirements

This section is concerned with attributing waste tonnages managed at sites located in CW&C and Cheshire East (CE) but not attributed down to Borough level in the WDI, so that comprehensive baseline values for C, D & E waste and C&I waste arising in CW&C for 2021 can be generated.

To produce the baseline estimates, data is collated from existing data sources. While LACW and hazardous waste have independent data sources (Wastedataflow (WDF) and the Hazardous Waste Interrogator (HWI)), the generation of baselines for C&I waste and C, D & E waste using the most current methodologies applied nationally rely on records submitted by permitted site operators to the Environment Agency (EA)of waste delivered to, and removed from, specific permitted waste management facilities. The EA collates this data in its 'Waste Data Interrogator' (WDI) on an annual (calendar year) basis. The WDI data is used to establish waste arisings at Plan Area level by aggregating records of waste managed, shown as originating in the WPA area of interest, in this case CW&C.

1.1 Revisiting unattributed Cheshire waste

During the process of aggregating records for waste arising in and managed within Cheshire East (CE) for its WNA 2017, it was discovered that substantial tonnages of waste reported as being accepted at waste management facilities located within CE were not attributed (i.e. arising from) below the level of the former county of Cheshire. Given two possible sources of such waste being either CE or CW&C, there was a high probability that a significant quantity of waste arising within either of the Boroughs was not specifically being attributed to either. This meant that the method used to generate a baseline arising for either Borough was at risk of significantly under reporting tonnages of waste for which management capacity might need to be provided.

Interrogation of the WDI has revealed that since 2021, 'Cheshire' is no longer included as a Waste Plan Authority (WPA)[130] in the WDI. Instead, it would appear that in some cases the tonnage of waste previously reported under 'Cheshire' is now being attributed down to Borough level i.e. to either CE and CW&C, or has shifted to the 'uncoded below North West region' level category. By way of illustration Table 1 below shows the breakdown of the inputs to CE sites previously reporting inputs from Cheshire in 2017 and taken to be attributed to CE in the CE WNA 2019, and the reported inputs in 2021

Table 102: CE sites receiving 10,000t + of Cheshire waste in 2017 compared to reported inputs in 2021

Operator/Site	2017	2021			Notes
	Cheshire waste	Cheshire East	Cheshire West and Chester	North West uncodeable	
Enviro Skip Hire Ltd	64,479	59,346	41	0	Inputs coded down to either CE and/or CW&C
1st Choice Waste & Metals Limited	47,371	25,171	0	0	
William Beech Skip Hire Ltd	31,545	33,088	0	0	
White Moss Quarry	24,496	5,382	828	0	
Hough Mill Quarry	71,210	0			No inputs reported so no status inferred
Danes Moss Landfill Site (WTS)	33,453				
Nick Brookes Demolition & Waste Disposal	128,135	0	0	136,769	Appears the tonnage previously reported under "Cheshire" has shifted to "uncoded below NW"
Maw Green Landfill	51,102	54,019	1,342	32,380	Unclear if inputs previously reported under "Cheshire" are now reported under NW uncodeable
Cheshire Demolition & Excavation Contractors	25,162	10,179	9,765	19,966	

[130] Small tonnage was coded under "Cheshire (WPA not codeable)" in the WDI 2020. The practice of wholesale attribution to Cheshire ceased by the end of 2019.

Table 1 shows that many of the CE sites that previously reported inputs as coming from 'Cheshire' now attribute inputs down to Borough level. However, in at least one case it would appear that the inputs are now reported under 'North West (WPA Not codeable)' category, hereby referred to as ‘NW uncodeable’. As the portion of the input not attributed to CE previously was attributed to CW&C, to ensure the baseline values for CW&C generated are comprehensive, the tonnage attributed to 'NW uncodeable region only' reported as received at sites located in CW&C and in CE has been examined.

2 Accounting for tonnage attributed to North West region only

2.1 Step 1: Apportioning NW uncodeable waste to sites in CW&C

The WDI 2021 reports 124,425 tonnes of 'NW uncodeable waste' was received at permitted CW&C waste management sites in 2021. Of this, 2 sites received significant tonnages of C&I waste and C, D & E waste as shown in Table 2 below.

Table 103: CW&C sites receiving >1,000 tonnes of NW uncodeable waste

Site Name + Operator	Waste type	Tonnes
Argent Biodiesel Stanlow Plant, Argent Energy Ltd	C&I	47,149
Aggregates Yard, UK Aggregates & Plant Ltd	CDE	74,431
	Total	**121,580**

On further inspection it was discovered that Argent Energy Ltd operates two sites located in CW&C. The inputs to Argent's first site at Stanlow Oil Terminal are coded down to WPA level, including c3,000 tonnes from CW&C, which will be accounted for in the CW&C C&I baseline value. Given the outputs from Stanlow Oil Terminal of c44,000 tonnes are principally reported as going to CW&C for further management, and Argent's second site reported accepting t c47,000 tonnes of 'NW uncodeable waste' it is taken that this input tonnage is in fact a double count of the output of the first site. Therefore, it has not been counted towards the CW&C C&I waste baseline under this re-attribution method. Outputs from permitted sites get attributed to the host WPA, so 44,000 tonnes of waste was attributed as arising from CW&C, and yet the input from CW&C was only c3,000 tonnes. Therefore the input to Argent's second site has been ignored.

For the second site listed in Table 2, the Aggregates Yard, a spatial analysis has been undertaken by applying a 15-minute travel isochrone (or ‘catchment’) around the site to facilitate an assessment of the proportion of the site catchment that falls within CW&C (and CE) that might then be used to attribute the unattributed tonnage value. This generates the isochrone shown in Figure 1 upon which the reattributed tonnages shown in Table 3 have been derived.

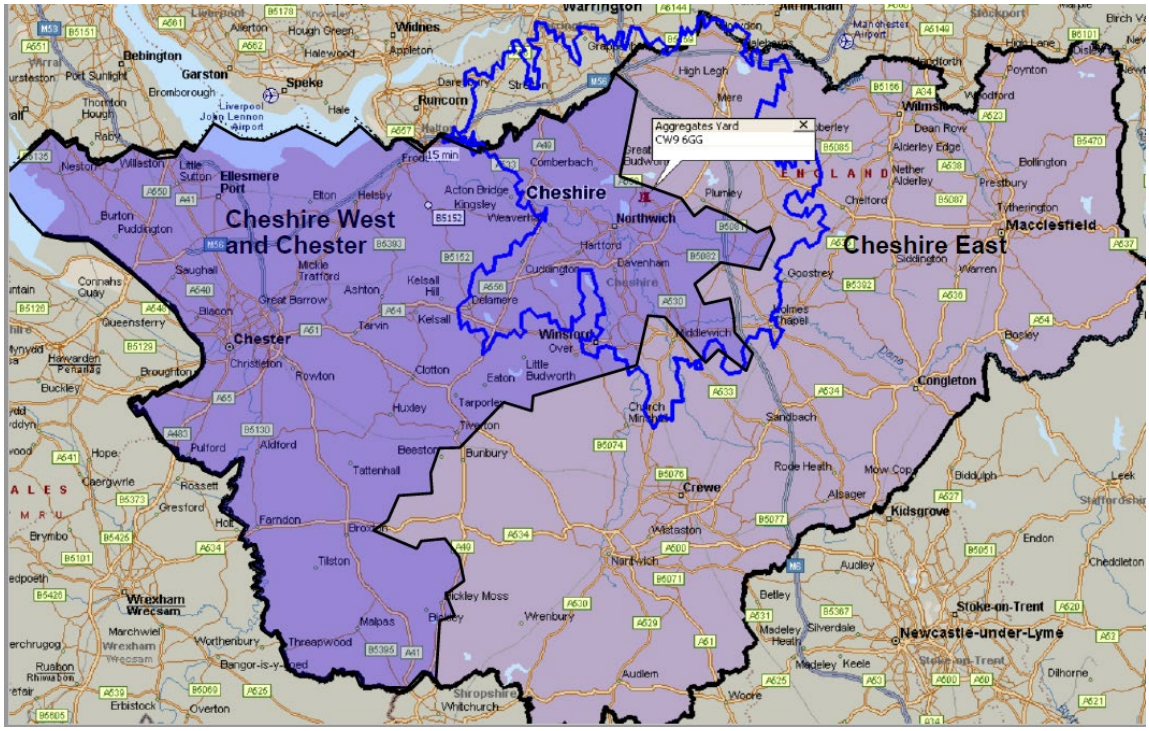

Figure 22: Cheshire West & Chester site receiving NW uncodeable C, D & E waste with a 15-minute travel isochrone

Table 104: CW&C site receiving NW uncodeable waste applying proportion of catchment in CW&C (visual assessment)

Site Category	Site & Operator	Waste received (tonnes) uncodeable below Regional Level	Approx. % of site catchment within CW&CC	Derived Value (tonnes)
Treatment	Aggregates Yard, UK Aggregates & Plant Ltd	74,431	45%	33,494
			Total	**33,494**

Figure 1 shows that c45% of the site catchment may fall in CW&C and therefore Table 3 shows that 33,494 tonnes of 'NW uncodeable waste' going to the Aggregates Yard may be considered to have arisen within CW&C (with 45% coming from CE and 10% coming from Halton).

2.2 Step 2: Apportioning NW uncodeable waste managed at CE sites

Given some sites in CE also report inputs under the 'NW uncodeable waste' category and a portion of this may have arisen from CW&C, the above method has been replicated for CE sites reporting inputs under 'NW uncodeable waste' as well.

The WDI 2021 reports 274,438 tonnes of 'NW uncodeable waste' was received at a total of six CE sites in 2021. Of this, five sites received significant tonnages of C&I and C, D & E waste set out in Table 4 below.

Table 105: Cheshire East sites receiving >1,000 tonnes of NW uncodeable waste

Site Name + Operator	Waste type	Tonnes
77 Moss House, Cheshire Demolition & Excavation Contractors Ltd	CDE	19,825
Land at Basford Sidings, Network Rail Infrastructure Ltd		57,039
King St Trading Estate, WPI Group Ltd		2,740
Maw Green Landfill, 3c Waste Ltd	CDE + C&I	31,257
Green Lane, Nick Brookes Demolition & Waste Disposal Ltd		136,397
	Total	**247,258**

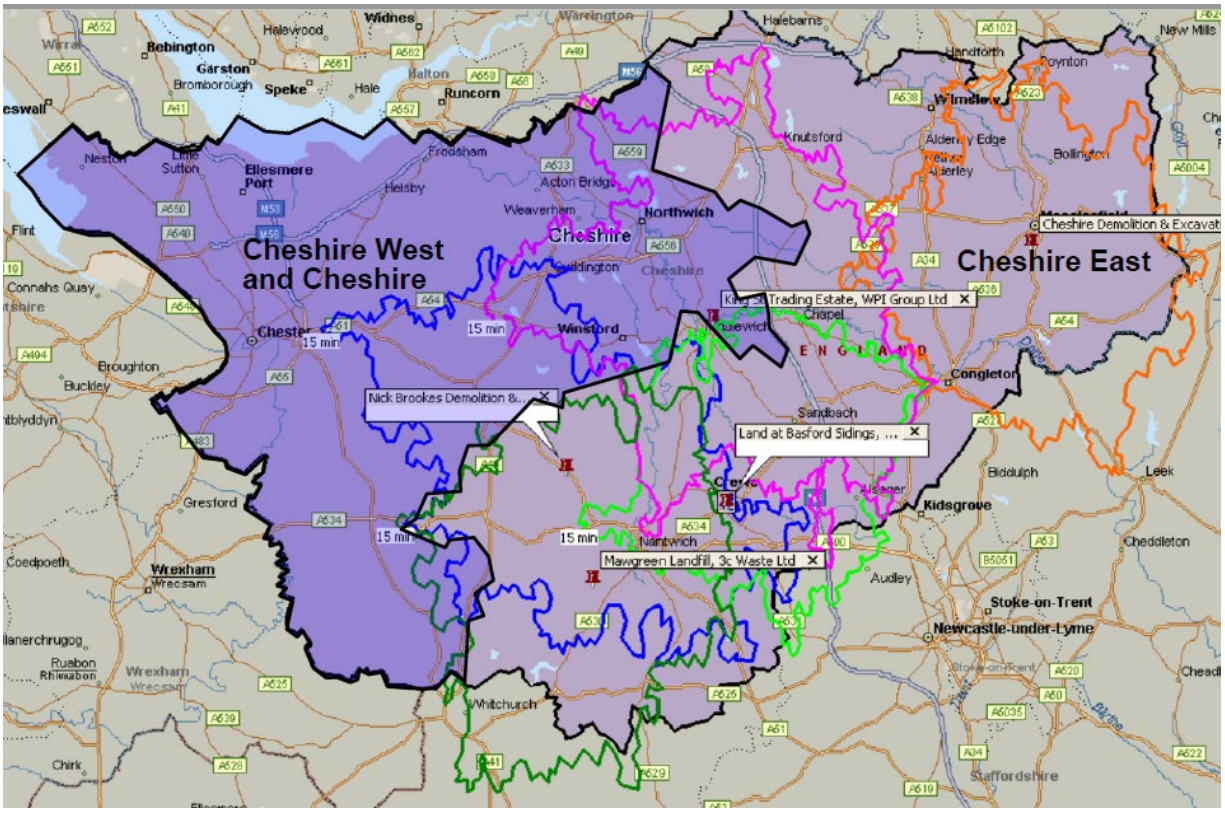

Figure 23: Cheshire East Sites receiving NW uncodeable C, D & E and C&I waste with a 15-minute isochrone (black line indicates Borough boundaries)

The spatial analysis has been repeated to establish the catchment distribution shown in Figure 2 with the unattributed tonnages being reattributed as shown in Table 5.

Table 106: Cheshire East sites receiving >1,000 tonnes NW uncodeable waste applying proportion of catchment in CW&C

Site Category	Site & Operator	Waste received (tonnes) uncodeable below Regional Level	Approx. % of site catchment within CW&C	Derived Value (tonnes)	Notes
Treatment	King St Trading Estate, WPI Group Ltd	2,740	40%	1,096	CDE
Transfer	Green Lane, Nick Brookes Demolition & Waste Disposal Ltd	136,397	35%[131]	47,739	CDE
			Total	**48,835**	

Table 5 shows that 48,835 tonnes of NW uncodeable waste going to 2 sites located in Cheshire East may be considered to have arisen within CW&C. The final step is to apportion the reattributed tonnages by waste type, i.e. C&I and C, D & E waste. Although the WDI 2021 indicates the Green Lane site received principally waste coded as if it was C&I in 2021, a review of the principal inputs to the site over 3-years indicates this is probably due to a change in coding practice rather than actual change in inputs. This is illustrated in Figure 3 below showing the switch from coding under 17 09 04 (CDEW) to 20 03 01 (C&I waste).

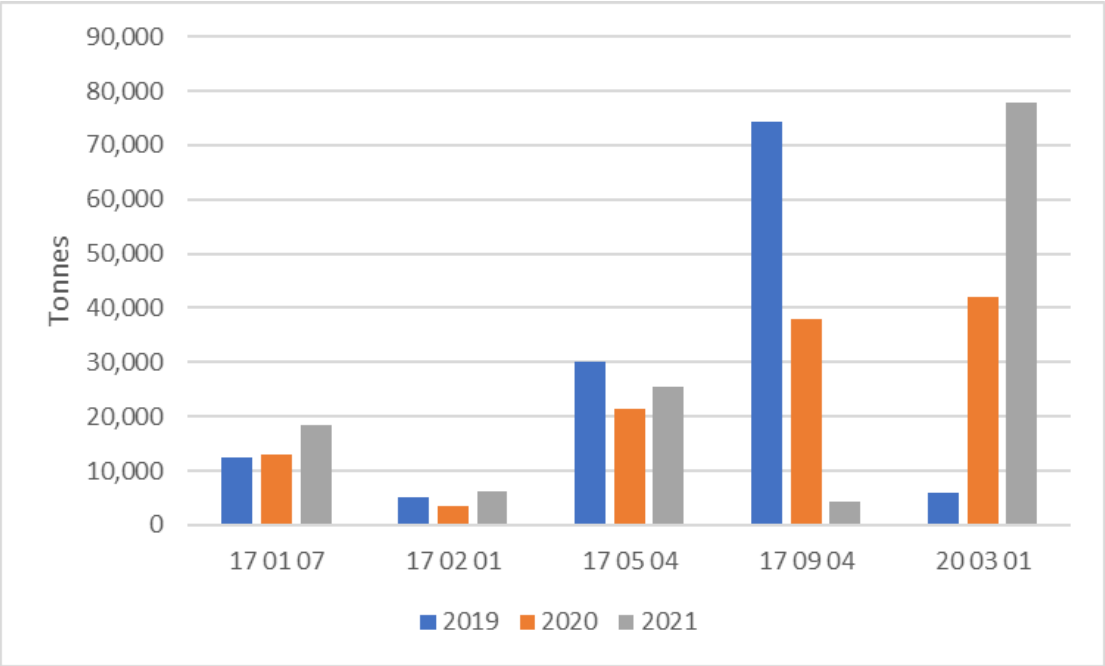

Figure 24: Principal inputs by waste code (>5,000 tonnes) to Green Lane over 3 years.

[131] Was previously taken to be 60% in CE WNA 2019 based on operator survey response.

Given there appears to be no reported change in practice from a review of the planning register and the operator's website[132], the apportioned waste has all be assigned to the C, D & E waste baseline.

The outcome of Step 1 and Step 2 is as follows:

- 82,329 tonnes (33,494 + 1,096 + 47,739) of C, D & E waste attributed to CW&C.

Table 6 shows the summary of NW uncodeable waste attributed to CW&C by waste type and management type.

Table 107: Summary of NW uncodeable waste attributed to CW&C by waste and management type

Waste Type		Transfer	Treatment
CDE	In CW&C	0	33,494
	Outside CW&C	47,739	1,096

[132] Note that direct contact with Nick Brookes was made but no call back was received to confirm.