



# Waste Needs Assessment 2024

## Joint Waste Local Plan

### 2024 5 Year Review



## **Executive Summary**

The purpose of this Waste Needs Assessment (WNA) is to bring the Initial WNA up to date to the year 2022, to enable the high level review of the Waste Local Plan (WLP) to determine whether or not the previous predictions were accurate and on target. Therefore, enabling the review to predict whether or not the WLP is fit for purpose until the end of the plan period, or whether early review is needed. This had included updating waste arisings and projections. Waste fractions are split into Local Authority Collected Waste, Commercial and Industrial, Construction, Demolition and Excavation, Hazardous and other (Waste Water, Low Level Radioactive Wastes and Agricultural Wastes). It shows that the initial WNA was particularly pessimistic, and arisings have not increased to the levels predicted. Sufficient facilities have come forward to cover the waste the plan area is handling, until the end of the plan period. There has also been a huge shift shown within the data, in terms of self-sufficiency in waste. Previously, the area exported large amounts of waste but now imports massively exceed the amount the plan area is exporting. There are discrepancies showing within the data due to the effect of the Covid-19 pandemic lockdowns, and also where data sets have changed. Multiple methods are used to estimate data where single data sets are not available to give an estimated range, all generally show waste handled within the area to be lower than expected, and with changes due to occur to waste collection and disposal under simpler recycling, recycling figures are likely to improve.

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## **Abbreviations**

AD- Anaerobic Digestion	LACW – Local Authority Collected Waste
C&D – Construction and Demolition	LLRW – Low-Level Radioactive Waste
CD&E – Construction, Demolition and Excavation	M&H – Merseyside and Halton
C&I – Commercial and Industrial	MERL – Merseyside Energy Recovery Limited
DtC – Duty to Cooperate	MRF – Materials Recycling Facility
EA – Environment Agency	MS – Merseyside
EfW – Energy from Waste	NPPF – National Planning Policy Framework
ER – Energy Recovery	NPPW – National Planning Policy for Waste
EWC – European Waste Catalogue	NPS – National Policy Statements
HH - Household	NW – North West
HIC – Household, Industrial and Commercial	ONS – Office for National Statistics
HWDI – Hazardous Waste Data Interrogator	RMS – Regional Recreational? Mitigation Strateg
HWRC – Household Waste Recycling Centre	WDF – Waste Data Flow
IVC – In-Vessel Composting	WDI – Waste Data Interrogator
JWLP – Joint Waste Local Plan	WT – Waste Transfer
LA – Local Authority	WTS – Waste Transfer Station
LAA – Local Aggregates Assessment	

## Definitions

Term	Definition
<b>Agricultural Waste</b>	Waste that is produced on a farm due to farming activities, this can be organic (natural) wastes and non-organic (non-natural) wastes.
<b>Anaerobic Digestion</b>	A waste management process by which organic matter, such as green and food waste, is broken down by bacteria without the presence of air. This process produces a biogas and nutrient rich liquid or solid known as digestate. This biogas can then be used to generate energy in a furnace, gas engine or turbine, alternatively it can be used to power vehicles. Digestate can be used as land fertiliser.
<b>Biodegradable Waste</b>	Waste that includes any organic waste than can be broken down by natural biological processes.
<b>Commercial Waste</b>	Waste that is produced in the commercial sector from premises used for the purpose of trade or business, across all sectors such as retail or entertainment.
<b>Composting</b>	A process by which biodegradable waste is broken down in aerobic conditions to produce material suitable for soil enhancer.
<b>Construction, Demolition &amp; Excavation Waste</b>	Waste that is produced during building processes including waste from the demolition and construction of infrastructure and site clearance.
<b>Defra</b>	The government department responsible for developing and distributing national waste management policy in the UK.
<b>DLUHC</b>	The Department for Levelling Up, Housing and Communities.
<b>Duty to Cooperate</b>	A legal requirement to cooperate between planning authorities and other bodies for effective plan making regarding strategic matters.
<b>Energy from Waste</b>	The process of turning the calorific content to waste into energy (heat or electricity), through applying thermal treatment. The process may also include the production of gas which can used to generate energy.
<b>Environment Agency</b>	The body responsible for regulating waste management activities though the issuing of permits to control certain waste handling and/or producing activities.
<b>European Waste Category</b>	A detail list of categorised waste chapters, based on industry, materials, or processes. There are 20 chapters and each waste type is assigned a specific six-digit code.
<b>Exemptions</b>	Certain waste handling and producing activities are exempt from the need of having a permit from the Environment Agency. Individual exemptions each have specific limits and conditions that must be complied with for validation. Exemptions are registered with the Environment Agency and are valid for 3 years.
<b>Green Waste</b>	Waste from gardens and parks, biodegradable wastes such as grass, arises from both domestic and commercial sources and is suitable for composting.
<b>Hazardous Waste Landfill</b>	Sites of disposal for hazardous waste by landfill. Sites can be dedicated to dispose of hazardous waste or a single cell within a non-hazardous landfill that has been specifically designed and designated for hazardous waste.
<b>Household Waste</b>	Waste arising from households collected by kerbside collections, bulky items collected from households and waste dropped at household waste recycling centres (bring sites/civic amenity sites), as well as waste from street sweepings and public litter bins.

<b>Term</b>	<b>Definition</b>
<b>Incineration</b>	The controlled combustion of waste, with or without energy recovery.
<b>Industrial Waste</b>	Waste arising from industrial practices and/or premises such as factories (excludes mines and quarries).
<b>Inert Landfill</b>	A Landfill site permitted to only dispose of inert waste.
<b>In Vessel Composting</b>	A site of composting within a closed system using biodegradable wastes such as green and food waste.
<b>Landfill</b>	The disposal of waste to fill voids in the land or to raise land via disposal of waste.
<b>Local Authority Collected Waste</b>	Waste collected by a local authority, this includes household and business waste, as well as all waste types delivered to HWRCs. This waste fraction was previously referred to as municipal waste.
<b>Materials Recycling Facility</b>	A waste facility that sorts recyclable materials into separate fractions such as, cardboard and paper and plastics.
<b>Municipal Solid Waste</b>	Waste collected by a waste collection authority from households or parks and garden wastes and waste cleared from sites of fly tipping.
<b>Non-Hazardous Waste Landfill</b>	A landfill site with permission to accept non-inert (biodegradable) wastes such as municipal, commercial and industrial and other non-hazardous wastes.
<b>Open Windrow Composting</b>	A process by which biodegradable waste is broken down in aerobic conditions (open-air) by naturally occurring activities to produce a material suitable for soil enhancer.
<b>Recovery</b>	The process of recovering value from waste by subjecting it to processes such as recycling, composting, or thermal treatment with energy recovery.
<b>Recycling</b>	The process of reprocessing waste into the same or a new material.
<b>Residual Waste</b>	The waste that remains once materials for re-use, recycling and composting have been removed.
<b>The Plan Area</b>	The area to which this study relates. In the case of this waste needs assessment, it is the area of Merseyside and Halton also referred to as the Liverpool City Region.
<b>Waste Collection Authority</b>	A local authority with the duty to collect household waste and commercial waste. If requested to do so they may also collect industrial waste.
<b>Waste Disposal Authority</b>	A local authority or organisation responsible for managing the collected household waste and the provision of household waste recycling centres. In this case the responsible organisation is Merseyside Recycling and Waste Authority previously referred to as Merseyside Waste Disposal Authority previously
<b>Waste Transfer Station</b>	A waste site that receives waste for sorting or baling prior to transfer onto another site for recycling, disposal, or treatment.
<b>Waste Data Interrogator</b>	A database produced by EA which records waste arisings and movements to England, as well as fates using EWC waste classification EWC.
<b>Waste Permit Returns Data Interrogator</b>	A database produced by Natural Resources Wales which records waste arisings and movements to Wales, as well as fates using EWC classifications.
<b>Waste Data Flow</b>	A database produced by Defra in which Local Authorities record LACW figures on a quarterly basis.

# **1. Introduction**

## **1.1 Joint Waste Local Plan Context**

The Merseyside and Halton Joint Waste Local Plan (JWLP) was adopted by Halton, Knowsley, Liverpool, Sefton, St Helens and Wirral Councils in 2013. Under the National Planning Policy Framework (NPPF) local plans must be reviewed, to assess if they need updating, every 5 years from the adoption date of the plan. The review must take into account changes in circumstances affecting the area or any relevant changes in national policy and ensures plans are still effective, relevant, and legally compliant. However, due to limited resources, the JWLP review is overdue. The Waste Needs Assessment (WNA) was originally published in 2011 as part of the plan's evidence base. This document brings that original assessment up to date, to provide an up-to-date picture of the amount of waste produced and handled within the plan area as well as, future arisings and management needs.

The National Planning Policy Framework (NPPF) does not address waste planning specifically, waste planning policies are laid out in the National Planning Policy for Waste (NPPW). The NPPW is to be read alongside the NPPF, the National Waste Management Plan for England 2021 and the National Policy Statements (NPS) for wastewater and hazardous waste.

The WNA was published alongside the JWLP in 2011 and was the fifth assessment completed and provided a final statement of evidence on waste arisings and forecast and waste management assumptions over the period 2010-2027. This review seeks to conclude whether the published WNA was correct in its projections, update arisings and set out new projections until the end of the plan, as well as assess facility capacity and identify any gaps. It will also aid the consideration of whether the existing Joint Waste Local Plan will continue to meet assessed needs for the remainder of the Plan Period to 2027 or if a review of the Plan is required.

The waste types assessed in the published WNA are Local Authority Collected Waste (LACW), Commercial and Industrial (C&I) wastes, Construction, Demolition and Excavation (CD&E) wastes and Hazardous waste. There is also a section covering other controlled wastes, agricultural waste, low-level radioactive wastes (LLRW) and water treatment wastes. These waste streams are assessed to quantify current arising trends and facilities capacities to identify areas of shortfalls of waste handling within the plan area.

**The purpose of this WNA is to provide a review against the original WNA, which formed part of the evidence base of the JWLP, to ascertain whether the findings of that WNA hold true and the predictions and forecast site needs remain valid. The information that feeds into this WNA are based on the timescale of the review and is consistent with adopted Local Plans which are based on existing predicted needs. For example, housing figures used are for the same year as the Waste Data Interrogator used. A further full WNA will be undertaken once the review is complete and the next steps for a replacement JWLP are understood, at which point the WNA will consider future predicted needs including the most recent NPPF housing figures. This waste needs assessment is to be read alongside the capacity update and the JWLP review documents.**

## **1.2 Data Sources**

As the original waste needs assessment, published with the JWLP, was formulated in 2012 the data sets and sources used are now significantly out of date and most have not been replicated since. Therefore, there are inconsistencies between the methods used to formulate the figures published in the WNA and

the those used in the review, as the data sets used do differ. The data sources used to review the WNA are as below:

### **1.2.1 Waste Data Interrogator (WDI)**

The Waste Data Interrogator is formulated by the Environmental Agency (EA) using returns from operators of waste management sites who under environmental permits have a requirement to submit annual returns to the EA. These returns give details, where necessary, on the quantities, types, origin of waste received and the destination and fate of wastes removed. The information is presented in a national database and is usually released nine months after the end of the calendar year i.e., 2022 data was released in October 2023, which at the time of writing was the most up to date version.

### **1.2.2 Hazardous Waste Data Interrogator (HWDI)**

Similar to the WDI, there is also a requirement for producers and managers of hazardous waste to notify the national environmental regulator, of the country in which they are located, of movements of hazardous waste. In England this would be the EA, who again collected and present the data in the HWDI. The data is not as specific or detailed as of that available in the WDI and is reported down to the receiving local area rather than a named site. The HWDI is also released in the same way as the WDI and so the most up to date at the time of writing was also the 2022 version released in October 2023.

### **1.2.3 Waste Data Flow (WDF)**

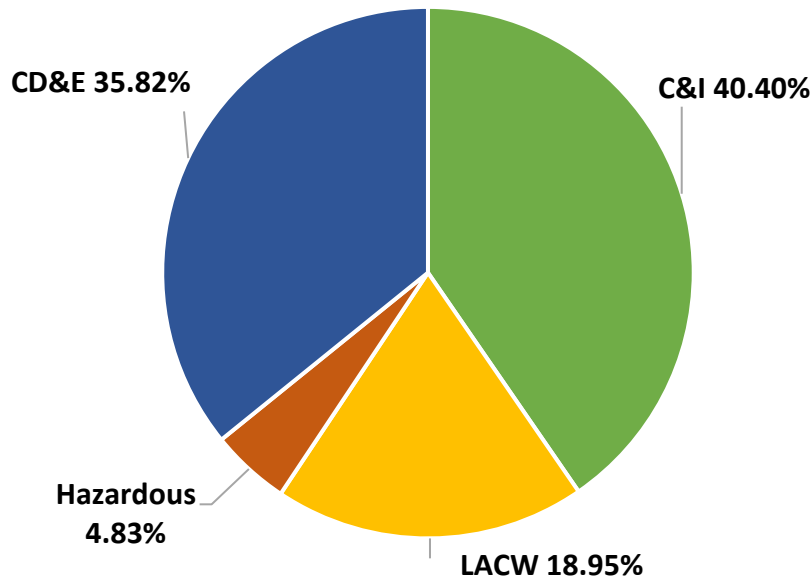
Waste Data Flow is an online database in which local authority input annual data regarding LACW. The data reported in financial years is presented quarterly or annually and shows total collected tonnages and recycling rates. The data is checked and published to the public following approval from Defra. The most recent publicly available data was the 2021/2022 financial year.

Other data sets were used within this assessment such as housing, population and national figures and are discussed in their respective sections.

## **2. Executive Summary**

### **2.1 Total Waste Arisings**

This WNA estimates a total of 3,314,399.86 tonnes of overall waste arose within the plan area in 2022, the quantities and split of waste categories are shown in Figure 1. This comprises of 1,339,112.89 tonnes (40.40%) commercial and industrial wastes, 1,187,178.10 tonnes (35.82%) construction, demolition, and excavation wastes, 628,120.15 tonnes (18.95%) local authority collected waste and 159,988.72 tonnes (4.83%) hazardous waste arisings. Projections have estimated that total arisings could reach 3,572,372.94 tonnes by the end of the plan period (2027). The method in which these figures are calculated are shown within each individual waste stream report.



*Figure 1: Total waste arisings split by waste type (WDI 2022)*

There are also other controlled wastes, agricultural waste, low and very low-level radioactive wastes, and water treatment wastes, which have been considered as part of this review. However, due to the small tonnages and little impact they have on waste management facilities they have not been counted within the plan areas arisings or facility capacity. This has been discussed in further detail in Section 7 of this report.

### **3. Local Authority Collected Waste (LCAW)**

#### **3.1 LACW Arisings (WDF)**

The last waste needs assessment (WNA), published with the Joint Waste Local Plan (JWLP), gave estimations of Local Authority Collected Waste (LACW) in pessimistic and optimistic scenarios as shown below (Table 1). LACW usually comprises of household (HH) waste as well as, a proportion of waste collected from small business holdings by the Local Waste Collection Authority. LACW data can be obtained through the Waste Data Flow (WDF). Table 2 shows LACW from the year 2015, up to the most current available data set. WDF automatically applies a formula to the data, which is inputted by the authorities, to account for commercial waste. This formula is set to 98.13% household unless changed by the authority this is automatically applied. This small amount of C&I waste has been accounted for in this section of the needs assessment and then deducted from the C&I section. Updated figures are showing around 200,000 tonnes per annum less than the original waste needs assessment.

*Table 1: Previous Waste Needs Assessment LACW predictions (tonnes) 2010-2030*

<b>Scenario</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>
<b>Pessimistic</b>	836,000	848,000	860,000	860,000	860,000
<b>Optimistic</b>	836,000	805,000	787,000	803,000	819,000

*Table 2: Total LACW waste per head and household 2015-2022 (WDF)*

<b>Year</b>	<b>Total LACW</b>	<b>Waste Per Head (Kg)</b>	<b>Waste Per HH (Kg)</b>
<b>2015/16</b>	582,511.27	382.09	839.31
<b>2016/17</b>	590,385.44	385.03	844.4
<b>2017/18</b>	569,572.08	368.79	808.47
<b>2018/19</b>	572,541.38	369.03	806.79
<b>2019/20</b>	582,263.79	373.41	814.37
<b>2020/21</b>	661,169.67	422.74	917.13
<b>2021/22</b>	<b>628,120.15</b>	404.79	866.67

Note: the initial WNA is set out in the calendar year whereas, the WDF is in financial year.

Across the years shown in Table 2 waste per head has risen by 22.7 kg, although there have been periods of decrease, the general trend from 2015/16 to 2021/22 is an increase. As populations are generally increasing and there is a general increase in waste per head, there is likely to be continued increases in LACW. Therefore, the pessimistic scenario of waste levelling out at 860,000 a year from 2020 is unlikely, as waste trends change yearly. However, between 2020/21 and 2021/22 there has shown a decrease in total waste collected as well as, waste per head. It is likely that 2020/21 is an anomaly rather than the decrease observed in 2021/22, because of the pandemic (discussed in part 2). On the other hand, this could show the beginning of changes in behaviour, and the anticipated 2022/23 data will give more indication of the likely pattern for LACW. It is also unlikely that waste levels will reach 860,000 tonnes by 2030. The optimistic scenario predicted a decrease in 2020 then continued increase, which has been observed but at a smaller scale, with 2019/20 having arisings of 247.48 tonnes less than 2015/16. Increase was then predicted between 2020 and 2025, there was increase into 2020/21 but a decrease in 2021/22.

#### **3.2 Forecasting LACW Arisings**

There are a range of methods that could be applied to predict LACW to the end of the plan period (2027). Due to the recent decrease in LACW and waste per household, a generic increasing trajectory cannot be applied. Multiple methods have been used in order create a range of predictions and account for different scenarios that may occur.

### 3.2.1 Using an average of waste per head

Using the waste per head WDF averages, and the ONS 2027 population prediction, predictions of waste arisings are shown for averages across the data set available years of 2015/16-2021/22 and an average of the last 3 years 2019/20-2021/22, in table 3. It is more likely that the arisings will match the pattern of waste per head seen across the last 3 years to reach 638,044.61 tonnes at the end of plan (2027).

Table 3: Average waste per head projection to 2027

Years Averaged	Waste Per Head Average (kg)	2027 Arisings Estimate (tonnes)
2015/16-2021/22	386.55 Kg	616,113.49
2019/20-2021/22	400.31Kg	638,044.61

### 3.2.2 Using household projections (Recreational Mitigation Strategies projections)

The Recreational Mitigation Strategy (RMS) is being implemented to protect the designated sites along the Liverpool City Region's Coastline. The evidence base for the strategy has included collecting projected housing completions in the Merseyside and Halton area. The Local Authorities have projected housing completions as far as 2037. Taking these projections and the waste per household averages gives a calculation of the extra LACW arisings from new dwellings. For the sake of this review, figures up to 2027 are included, but up to 2037 are available within the dataset. For the purposes of this review, this data is considered to provide a robust worst case scenario up to 2027. Projections have again used averages across the data sets available years of 2015/16 up to 2021/22 and an average of the last 3 years 2019/20 to 2021/22, shown in table 4. Table 5 shows the additional household waste arisings using the full data set averaged, table 6 shows additional waste using the 3-year averaged.

Table 4: Average waste per head averages

Years Averaged	Waste per HH Average (kg)
2015/16-2021/22	842.45
2019/20-2021/22	866.06

Table 5: Additional yearly LACW using full data set averaged waste per head projected to 2027/28

Year	Waste per HH Average (Kg)	Dwelling completion projections	Additional HH waste (tonnes)
22/23	842.45	4,554	3,822.22
23/24	842.45	4,554	3,822.22
24/25	842.45	4,554	3,822.22
25/26	842.45	4,554	3,822.22
26/27	842.45	4,554	3,822.22
27/28	842.45	4,554	3,822.22
<b>Total</b>	-	<b>27,324</b>	<b>22,933.32</b>

Table 6: Additional yearly LACW using the 3 year average waste per head projected to 2027/28

Year	Waste per HH Average (Kg)	Dwelling completion projections	Additional HH waste (tonnes)
22/23	866.06	4,554	3,944.02
23/24	866.06	4,554	3,944.02
24/25	866.06	4,554	3,944.02
25/26	866.06	4,554	3,944.02
26/27	866.06	4,554	3,944.02
27/28	866.06	4,554	3,944.02
<b>Total</b>	-	<b>27,324</b>	<b>23,664.12</b>

This method brings out an extra total of 22,933.32 or 23,944.02 tonnes across the 2022/23 to 2027/28 period. However, this is just extra household dwellings and doesn't make provision for additional small

business premises and LAWC from those properties. WDF adds a 2% back up for C&I waste collection by LAs, this is applied in table 7. Therefore, Merseyside and Halton are estimated to receive an additional 23,391.99 to 24,137.40 tonnes of C&I across the 2022/23 to 2027/28 period, based on household projections provided for the RMS. This figure can then be applied to past arisings to give figures including the new dwelling completion projections. The highest LACW was in 2020/21 at 661,169.67 tonnes, the most recent LACW was also applied to create a range of **651,512.14 to 685,307.07 tonnes** for 2027/28.

Table 7: Cumulative total of additional LACW.

Years	Additional Waste (tonnes)	+2% (tonnes)	+2020/21 WDF	+2021/22 WDF
<b>2015/16-2021/22 cumulative</b>	23,664.12	24,137.40	<b>685,307.07</b>	<b>652,257.55</b>
<b>2019/20-2021/22 cumulative</b>	22,933.32	23,391.99	<b>684,561.66</b>	<b>651,512.14</b>

### **3.2.3 Using Average % in LACW arisings**

Using the average percentage change of the LACW reported through the WDF. The average % of the available data 2015/16 – 2021/22 is 2.79% and for the last 3 years reported is 3.43%. The projection is calculated using a cumulative % increase. Table 8 shows arising projections using the full data range averaged and table 9 shows the last 3 years averaged. This method brings out projections for 2027/28 to be between **740,880.09 and 768,992.09 tonnes**. These are the highest projected figures of all the methods used but are still lower than projected in the plans initial WNA.

Table 8: Total data set averaged LACW projected forward to 2027/28

Year	+2.79 % Projection Tonnes
<b>2022/23</b>	645,644.70
<b>2023/24</b>	663,658.19
<b>2024/25</b>	682,174.25
<b>2025/26</b>	701,206.91
<b>2026/27</b>	720,770.59
<b>2027/28</b>	<b>740,880.09</b>

Table 9: 3 year averaged total LACW projected forward to 2027/28

Year	+3.43% Projection Tonnes
<b>2022/23</b>	649,664.67
<b>2023/24</b>	671,948.17
<b>2024/25</b>	694,995.99
<b>2025/26</b>	718,834.35
<b>2026/27</b>	743,490.37
<b>2027/28</b>	<b>768,992.09</b>

### **3.2.4 Conclusions**

Table 10 shows a summary of all the method's projections with 2027/28 LACW predictions ranging from **616,113.49 to 768,992.09 tonnes**. The prediction of 787,000 to 860,000 tonnes in 2020 was never met with figures being considerably lower. Table 1 shows predictions for 2025 of 803,000 to 860,000 tonnes, and 2030 of 819,000 to 860,000 tonnes which are highly unlikely to be met. Therefore, Merseyside and Halton are below predicted LACW arisings; facility capacity and imports will be discussed further in upcoming sections.

Table 10: Summary of all LACW projections for 2027 methods

Method	2027 Projection (2027/2028) (tonnes)
Average waste per head (data available)	616,113.49
Average waste per head (last 3 years)	638,044.61
Average waste per HH RMS (data available)	652,257.55 - 685,307.07
Average waste per HH RMS (last 3 years)	651,512.14 - 684,561.66
Average % in LACW arisings 2015/16-2021/22	740,880.09
Average % in LACW arisings last 3 years	768,992.09

### **3.4 LACW Residual Waste**

Residual waste is the proportion of waste not sent for recycling, reuse or compost. Table 11 shows residual waste data collated from the WDF.

Table 11: Residual waste data 2015-2021 (WDF)

Year	% LACW not sent for recycling, reuse, or composting	Residual HH Waste per HH (Kg)	% sent for reuse, recycling, and composting	% LACW waste sent for composting or AD	% LACW waste arisings sent for recycling
2015/16	54.14%	541.4	35.56%	13.23%	21.76%
2016/17	55.15%	551.53	34.73%	13.67%	20.56%
2017/18	54.19%	541.88	33.00%	13.15%	19.81%
2018/19	55.64%	556.35	31.07%	12.86%	18.17%
2019/20	56.15%	561.52	31.08%	13.51%	17.53%
2020/21	64.11%	641.05	30.14%	12.35%	17.74%

Recycling, reuse and composting overall percentages are decreasing year on year with 36% in 2015/16 and rates falling below 30% in 2021/22. The Government has set recycling targets of 65% of municipal waste for 2035, which the area is significantly below even at the peak in 2015/16 it is only 22%. Currently the area does sit below average as England waste from households 2020 and 2020/21 recycling rate was 44%. The waste sent for reuse, recycling and composting is split further into waste sent for composting or Anaerobic Digestion (AD) and waste sent for recycling. Facility types and capacities are discussed below.

### **3.5 LACW Facility Capacity Overview**

Table 12 shows the type of facilities and capacity operating at the time of the 2012 WNA and notes for updates at the time of writing this review. In 2021/22 188,233 tonnes were sent for reuse, recycling or compost. The last WNA shows combined total of composting and recycling facilities to be 227,000 tonnes with a further 100,000 MRF capacity operating from 2012. Initial WNA operational capacity includes capacity in the pipeline – consented but not operational.

Table 12: LACW facility capacity summary table

Type Of Facility	Operational Capacity	Additional capacity anticipated	Update as of writing.
<b>Receiving, sorting and bulking waste</b>			
HWRCs	240,000 tonnes (16 sites)	None. Additional in Liverpool but not known when or where. Halton WDA identified need for a replacement site to serve Runcorn.	As per MWRA website there are 16 sites, with 335,174.66 tonnes recorded on 2022 WDI (as shown in table 15). At the time of the initial WNA there were 15 sites, Old Swan HWRC has been opened since.
Municipal waste transfer stations	1,150,000 tonnes (4 sites)	None.	2022 = 1,221,153.24 tonnes. EWC 20 municipal wastes at transfer facilities (excluding CA sites). Further details shown in table 18. 20 would suggest HWRCs included even though it's saying CAs excluded.
MRFs	100,000 tonnes	Further 100,000 tonnes at Gillmoss by 2012.	Gillmoss built out at 100,000 per annum. Bidston MRF 80,000 tonnes.
<b>Recycling, composting, and reprocessing waste</b>			
Open Windrow Composting	127,000 tonnes (5 sites)	An application for a further 5,000 tonnes facility on the Wirral has been consented.	Warrington Road 30,000 tonnes accepted (Haddocks Wood) – not on WDI. <b>2022</b> WDI = 104,342. Mossborough Farm capacity 25,000 tonnes (2005), increase to 45,000 tonnes in 2016. Further details shown in table 18.
Enclosed composting (AD/IVC)	None	15,000 tonne IVC Bidston was never brought forward. Permission for second facility Gillmoss expired 2009.	ReFood operational in 2014 capacity of <b>110,000</b> tonnes capacity, possible expansion in 2017 to 160,00 tonnes. WDI 2022 = 71,159.9.
Reprocessing Facilities	>940,000 tonnes (24 sites)		Not specific to LACW.
<b>Treating waste</b>			
Primary (pre-) treatment	Some, small, private, and specialised plants		
Secondary (thermal) treatment	None	Covanta Energy, Ince Marches, CW&C, 600,000 tonnes. Teesside EfW facility (Wilton)	Runcorn EfW 2014 operational (1,100,000.00 tonnes capacity, not allocated to plan area). Discussed further below. Wilton 11 EfW facility, Teesside <b>500,000</b> tonnes. Hooton Bio Power 240,000 tonne capacity.
<b>Disposing of waste</b>			
Non-Inert Landfill	425,000 tonnes (1 site)		No capacity – Arpley, Warrington closed in 2016.
Inert Landfill	Serve predominantly operator's needs, although some merchant capacity at Cronton Claypit.		Cronton Claypit 2022 void space 400,000 cubic metres. (WDI shows C&D) Bold Heath Quarry estimated 600,000 tonnes void space.

Table 13 summarises how the total LACW facility capacity has changed since the Initial WNA, there is now an estimated 3.7 million tonnes of capacity compared to the initial WNA which discussed a total of 3.08 million tonnes. Facilities that have been consented between the time of the plan being adopted and this review are discussed in the new facility capacity section of the JWLP review. As projections are estimating 2027 arisings of between

616,113.49 and 768,992.09 tonnes, there is enough capacity within the area to handle its arisings. However, this does not consider the import of LACW within the area or the breakdown of the specific facilities needed, this is discussed further in section 6.

Table 13: Summary of total capacity tonnes (2013-2022)

Capacity	Tonnes
<b>Total Capacity (as of initial WNA)</b>	3,082,000
<b>Added New Capacity since adoption (discussed in Table 12, in bold)</b>	640,000
<b>Updated Capacity</b>	3,722,000
<b>Updated Capacity – minus Transfer Capacity</b>	2,572,000

### **3.6 Specific LACW Facility Capacities**

#### **3.6.1 HWRC capacities**

Obtained from the MRWA, table 14 shows HWRCs and their planning consented capacity, Halton (Johnsons HWRC and Picow Farm HWRC) are not included. All the HWRCs have permitted operational hours of 8 am to 8 pm, which most sites operate to from the 1<sup>st</sup> of April through to the 30<sup>th</sup> of September. From October 1<sup>st</sup> to March 31<sup>st</sup> sites are open 8 am to 5pm. With the exception of Rainhill which has specific weekend hours of 9 am to 6 pm the 1<sup>st</sup> of April through to the 30<sup>th</sup> of September and 9 am to 5 pm from October 1<sup>st</sup> to March 31<sup>st</sup>. Of these sites 6 have restricted tonnage (Bidston, Huyton, Kirkby, Old Swan, Ravenhead and South Sefton) which equal a total of 108,000 tonnes per annum.

Table 14: HWRC permitted tonnage

Site	Permitted Tonnage
<b>Bidston</b>	25k TPA
<b>Clatterbridge</b>	Not restricted by consent
<b>Formby</b>	Not restricted by consent
<b>Huyton</b>	20k TPA (Trade and HH*)
<b>Kirkby</b>	15k TPA
<b>Newton-le-Willows</b>	Not restricted by consent
<b>Old Swan</b>	15k TPA (not including Trade Waste)
<b>Otterspool</b>	Not restricted by consent
<b>Rainhill</b>	Not restricted by consent
<b>Ravenhead</b>	15k TPA
<b>Sefton Meadows</b>	Not restricted by consent
<b>South Sefton</b>	Planning based on 18k TPA, but Not restricted by consent
<b>Southport</b>	Not restricted by consent
<b>West Kirby</b>	Not restricted by consent

Table 15 shows tonnes received at all the HWRCs across the plan area, taken from the WDI 2018-2022. The total recorded through the WDI 2022 for these sites equals 321,510.53 tonnes however there are obvious inconsistencies. Bidston HWRC is not available only as Bidston Recycling Park and Southport figure includes the waste transfer station and so is also likely to include double counting. Taking Bidston at the max permitted capacity of 25,000 tonnes and Southport at a suitable max figure of 15,000 tonnes creates a total of 157,583.75 tonnes. With the addition of Halton sites shown in Table 15, creates a total of 171,247.79 tonnes.

Table 15: HWRC WDI data 2018-2022 (tonnes)

Site	2018	2019	2020	2021	2022
<b>Bidston Recycling Park</b> (MRF, WTS and HWRC)	117,514.91	146,856.62	160,921.23	169,331.23	153,333.76
<b>Clatterbridge</b>	15,348.48	15,066.92	9,491.54	12,222.52	12,442.66
<b>Formby</b>	6,363.79	6,518.27	3,939.83	5,634.92	5,984.5
<b>Huyton</b>	16,083	16,653.63	13,628.88	17,252.17	14,705.51
<b>Kirkby</b>	9,205.37	9,334.65	9,235.56	10,522.51	8,041.83
<b>Newton-le-Willows</b>	5,509.96	5,495.23	5,145.15	6,000.33	5,129.48
<b>Old Swan</b>	11,424.48	13,239.51	12,277.22	14,534.50	13,293.77
<b>Otterspool</b>	12,020.53	11,857.15	9,258.30	10,775.06	9,670.72
<b>Rainhill</b>	4,066.61	3,981.39	1,008.25	2,871.81	3,181.40
<b>Ravenhead</b>	14,681.05	14,599.33	10,613.48	13,370.59	12,841.85
<b>Sefton Meadows</b>	15,114.7	15,656.61	7,464.47	11,274.50	12,607.53
<b>South Sefton</b>	13,256.12	-	10,935.02	12,632.39	10,656.53
<b>Southport (WTS and HWRC)</b>	52,694.54	53,513.127	53,314.92	55,084.72	50,593.02
<b>West Kirby</b>	10,518	10,562.96	8,375.55	10,134.77	9,027.97
<b>Johnsons</b>	8,218.26	7,922.65	7,065.01	8,190.41	6,941.96
<b>Picow Farm</b>	7,197.87	7,155.78	6,444.58	7,599.70	6,722.08
<b>Total</b>	<b>319,217.67 Bidston &amp; Southport at 15,000 each= 179,008.22</b>	<b>338,413.83 Bidston &amp; Southport at 15,000 tonnes each = 168,044.08</b>	<b>329,118.99 Bidston &amp; Southport at 15,000 tonnes each= 144,882.84</b>	<b>367,432.13 Bidston &amp; Southport at 15,000 tonnes each= 173,016.18</b>	<b>335,174.6 Bidston &amp; Southport at 15,000 tonnes each= 161,247.79</b>

Table 16: HWRC capacity gap (tonnes)

Site	Capacity PTA	2022 (tonnes)	Remaining Gap (tonnes)
<b>Bidston Recycling Park</b>	25,000	153,333.76	-128,333.76
<b>Huyton (HH and trade waste)</b>	20,000	14,705.51	5,294.49
<b>Kirkby</b>	15,000	8,041.83	6,958.17
<b>Old Swan</b>	15,000	13,293.77	1,706.23
<b>Ravenhead</b>	15,000	12,841.85	2,158.15
<b>South Sefton</b>	Planning based on 18k TPA, but not restricted by consent	10,656.53	7,343.47
<b>Total</b>	108,000.00	212,873.25	-104,873.25
<b>Total – Bidston</b>	83,000.00	59,539.49	23,460.51

### **3.6.2 HWRC waste received 2018-2022**

The decrease observed between 2019 and 2020 can be attributed to the Covid-19 pandemic. As HWRCs were shut for prolonged times and when opened were appointment based. They ran on appointments and limited the number of cars on site at one time, therefore throughput to the sites will have been constricted and decreased. Those with restricted capacities are shown in Table 16 (above) in comparison to the amount handled in 2022 and the capacity gap (capacity – 2022 tonnes). There are restrictions in gaining accurate numbers due to the uncertainty of Bidston’s tonnage. Without considering Bidston’s capacity, there is a capacity gap of 23,460.51 tonnes, in 2021 there was only 14,688 tonnes. Old Swan HWRC was of concern as it is currently running with less than 500 tonnes of consented capacity left in 2021 but numbers fell in 2022 1,706 tonnes under capacity. Old Swan is one of two HWRCs in Liverpool, which has the largest population of the LCR and so may be a target area to increase HWRC capacity. Consideration should also be made for Huyton as its planning capacity also counts in trade waste. Using population figures taken from ONS table 17 shows a prediction of HWRC capacity need based on 2021 WDI arisings and CENSUS data to quantify a waste per head arising which is then applied to 2027 population predictions. This shows by 2027 an extra almost 5,000 tonnes of capacity will be needed. Given there is a current capacity available of just less than 15,000 tonnes, it can be concluded that there is around 15 years left of capacity. However, this does not account for any behaviour changes in the way the population disposes of waste. Bidston has been excluded due to the uncertainty of 2021 figures therefore, there is further capacity available at the Bidston site.

Table 17: HWRC comparison between 2021 figures and 2027 projected figures

Population 2021	2021 Arisings (tonnes)	Waste Per Head Kg	Population 2027	2027 Arisings (tonnes)	Difference
1,551,500	182,310.79	117.5061	1,593,863	187,288.70	+4,977.91

### **3.6.5 Composting**

Table 18 shows composting sites identified on the WDI 2022 as receiving Chapter 20 (Municipal wastes). There is no differentiation between composting site types, it is assumed those in the table are open windrow. Table 19 shows the Anaerobic Digestion (AD) facility ReFood Widnes, WDI 2022 waste movements by EWC, it is likely LACW would be included within EWC 20 and so only 3,178.64 tonnes received at ReFood is LACW of a possible yearly capacity of 160,000 tonnes.

*Table 18: Composting sites handling LACW (WDI 2022)*

Site	Operator	2022 WDI Tonnes
Hightown Compost Site - EPR/MP3135DF	SED Services Ltd	44,081.35
Mossborough Hall Farm EPR/YP3332JL	Heyes; Heyes; Heyes	20,544.56
<b>Total</b>		<b>64,625.91</b>

*Table 19: LACW received at Re Food AD facility by EWC chapter (WDI 2022)*

EWC Chapter	2022 WDI Tonnes
02 – Agricultural and Food Production Waste	67,061.32
04 – Leather, Fur and Textile Industry Waste	8.48
19 – Waste and Water Treatment Waste	911.46
20 - Municipal Waste	3,178.64
<b>Total</b>	<b>71,159.9</b>

## **3.7 Is there enough capacity for predicted LACW arisings?**

### **3.7.1 Capacity considerations**

- Increasing populations and dwellings
- Introduction of compulsory local authority collected food waste and standardised bin collections will change the range of recyclables
- Behaviour changes in order to increase recycling rates

### **3.7.2 Recycling and AD/Composting**

Arisings have been predicted to sit between 740,880.09 and 768,992.09 tonnes at the plan end of 2027/27. Recycling has been settling around 18% and composting/AD at 13%. Table 20 shows the maximum and minimum estimated LACW tonnages for the plan end and the predicted amounts for recycling and composting/AD.

*Table 20: Maximum and minimum estimated LACW Recycling and Composting/AD for 2027 (tonnes)*

Predicted 2027 LACW arisings	Recycling (18%)	Composting/AD (13%)	Total Recycling + Composting/AD
<b>740,880.09</b>	133,358.42	96,314.41	229,672.83
<b>768,992.09</b>	138,418.58	99,968.97	238,387.55

### **3.7.3 MRF capacity**

Gillmoss and Bidston MRFs serve LACW from Wirral, Liverpool, Knowsley, Sefton, and Halton with a combined capacity of 180,000 tonnes a year. Therefore, there is almost enough sorting capacity for recyclable materials up to the end of the plan year. However, it is likely that capacity will be increased, as well as the range of materials recycled at Gillmoss MRF to facilitate the implementation of the simpler recycling initiatives. There is also planning consent for increased capacity at WSR Recycling, Widnes which is the first stop for LACW collected in Halton, therefore, this facility should be able to provide increased recycling capabilities when this is fully implemented.

### **3.7.4 AD capacity**

There is currently only one AD facility within the plan area, Refood which has a capacity of 110,000 tonnes. As shown in Table 12, 104,342 tonnes were received at composting facilities, table 18 shows 64,625.91 tonnes were identified as municipal wastes. The Initial WNA identified 127,000 tonne capacity at composting sites. This creates a combined AD and composting capacity of at least 200,00 tonnes, which is below what is anticipated to be needed in 2027/28. As discussed in the literature review, there are numerous national and regional policies in place, that intend to increase recycling rates and introduce separate food collections. This will have impacts on the types and amount of LACW collected, the aim is more materials will be recycled and food will be collected and dealt with as a separate stream. This may call for the need for more recycling and/or AD capacity, this is what the local authorities are aiming for, as well as, decreasing plastics within residual waste sent for incineration to Teesside.

### **3.7.6 Runcorn EfW - Secondary (thermal) Treatment**

The plan area also has, Runcorn EfW which has a 1,100,000.00-tonne capacity which receives LACW. Table 21 shows LACW received at Runcorn EfW, which has been reported as household waste through the EA Incinerator Returns. There are only very small discrepancies between the received waste recorded through the WDI and the Incinerator Returns, although the waste isn't specifically categorised as LACW or household waste on the WDI, the incinerator report confirms it is. The EA incinerator returns show the facility received 929,714 tonnes in 2022, which is near capacity. However, the facility also receives waste from outside the plan area, in 2022 (WDI) only 42,789.22 tonnes received at the facility comes from within the plan area. Most of the waste received is imported from Manchester 655,301.6 tonnes, followed by Cheshire West and Chester 181,671.55 tonnes (WDI, 2022). Therefore, the majority of capacity at this facility is not allocated to the plan area and is not being utilised to handle arisings from within the plan area.

*Table 21: LACW received at Runcorn EfW (EA incinerator returns 2021-2022)*

<b>Year</b>	<b>WDI Tonnes</b>	<b>EA Incinerator Report Tonnes</b>
2021	984,610.58	983,717
2022	929,858.51	929,714

In 2021 Hooton Bio Power was constructed at a capacity of 240,000 tonnes with the aim to use locally sourced waste to generate electricity to export to the Grid. However, waste is imported from further than the North West area with significant amounts coming from Wales, West Midlands, East Midlands and Yorks & Humber. The WDI show the waste received at Hooton Bio Power to be classified as HIC, with a smaller quantity of EWC code 20 03 01, mixed municipal waste, shown in Table 22. The amount of waste received at the facility tripled between 2021 and 2022, the waste also arrived from a wider area in 2022. There is no data regarding Hooton Bio Power on the EA Incinerator Report Returns.

*Table 22: LACW received at Hooton Bio Power (WDI 2021-2022)*

<b>Year</b>	<b>WDI Tonnes</b>	<b>20 03 01 EWC (tonnes)</b>
2021	47,426.1	9,935.2
2022	117,348.56	14,702.2

### **3.7.7 Wilton 11 EfW, Teesside - Secondary (thermal) Treatment**

Most of the Plan Area's municipal waste is sent to Teesside EfW under the Merseyside Energy Recovery Limited (MERL) 30-year contract, which ends in 2044. SUEZ recycling and recovery operates the Wilton

11 EfW, in Teesside as well as, the rail transfer loading station in Kirkby, Knowsley. The 2022 WDI shows the Wilton 11 EfW facility in Teesside received 338,329.83 tonnes from within the plan area, which is over half (53.86%) of the plan area's total LACW in 2021/22 (628,120.15 tonnes, WDF). The EA Incinerator Returns explains the Wilton facility is receiving waste from "Merseyside County Council" as well as various commercial customers. The facility has the capacity to handle 500,000 tonnes and reported through the incinerator returns, as of 2022, that it is running at 467,000 tonnes per annum. This is very near capacity and with a projected range of an extra 9,924.46 to 140,871.94 tonnes LACW arising by the end of the plan, the Wilton EfW could be set to receive anywhere between 5,359.21 to 76,070.85 tonnes extra by 2027. The facility also took 128,670.17 tonnes, recorded on the 2022 WDI, from outside the plan area. This is likely to be coming in from the facility's various commercial customers. With the facility currently running at only 33,000 tonnes below capacity, there is the possibility the facility won't be able to keep up with taking 54% of the Plan Areas LACW.

### **3.8 Conclusion**

A gap in HWRC has been identified, however MWRA is currently assessing HWRC networks and how to increase HWRC capacity within the plan area, details yet to be confirmed. There is also a possible gap regarding capacity at the EfW Teesside site which is contracted to take the plan areas residual waste. If the site continues accepting a percentage of other wastes there will not be enough capacity for the projected 2027 arisings. However, if the site takes just residual waste from the Plan Area there will be sufficient capacity to the end of the plan period. However, consideration of new waste policies also needs to be considered for the handling of residual waste, such as Defra's aim to half residual waste by 2042. As well as simpler recycling comes into play alongside mandatory food waste collections, the amount of residual waste should decrease significantly. As the range of materials that will have to be collected for recycling increases and food waste is taken out of the residual waste stream, the amount of waste sent to Teesside should start to decrease. There is currently sufficient waste transfer, composting/AD and MRF capacity, however, the introduction of these waste policies will increase the demand for composting/AD to deal with the food waste collections. There will also need to be increases to MRF capacity and changes to the types of materials collected. This is likely to be met by a new site or expansion to an existing facility. Simpler recycling will be mandatory for household collections from March 2026 and so the changes to facilities will need to be made within the plan period, but the effects of the changes will need to be assessed and carried forward in any future JWLP.

*Table 23: Summary of LACW facility capacity gaps (tonnes)*

<b>Facility Type</b>	<b>Facilities</b>	<b>2027 Projected Arisings</b>	<b>Capacity</b>	<b>Difference</b>
HWRC	16 across plan area	187,288.70	171,247.79	-16,040.91
Municipal WTS	4 across plan area		1,150,000	
Composting/AD	2 composting sites + AD ReFood Widnes	100,000.00	200,000.00	100,000.00
MRF	Gillmoss and Bidston	41,600.00	180,000.00	91,600.00
Secondary (thermal treatment)	Wilton 11 EfW	543,070.85	500,000.00	-43,070.85
Secondary (thermal treatment)	Wilton 11 EfW	414,400.68	500,000.00	85,599.32

## 4. Commercial and Industrial wastes (C&I)

### 4.1 Calculating C&I Arisings

The previous waste needs assessment gave estimates of C&I, split into construction and industrial arisings, within an optimistic and pessimistic scenario, shown in Table 24. According to the last waste needs assessment, shown in Table 24, C&I waste would level out from 2015 in the optimistic scenario at 1,064,000 tonnes, and from 2025 in the pessimistic scenario at 1,154,000 tonnes. C&I is reported through the WDI however, it is combined with Household waste to create the Basic Waste Category (BWC) Household, Industrial and Commercial (HIC). LACW can also include an aspect of C&I waste collected from small businesses. Defra has formulated a method for calculating national C&I wastes, similar to that for CD&E. There are many examples of Local Authorities adapting the method to calculate at the LA/WPA level.

Table 24: Previous WNA C&I projections 2010-2030

Scenario	2010	2015	2020	2025	2030
<b>Commercial (Tonnes)</b>					
Pessimistic	751,000	742,000	772,000	791,000	791,000
Optimistic	751,000	742,000	733,000	733,000	733,000
<b>Industrial (Tonnes)</b>					
Pessimistic	363,000	363,000	363,000	363,000	363,000
Optimistic	354,000	331,000	331,000	331,000	331,000
<b>Total C&amp;I (Tonnes)</b>					
Pessimistic	1,114,000	1,105,000	1,135,000	1,154,000	1,154,000
Optimistic	1,105,000	1,073,000	1,064,000	1,064,000	1,064,000

#### 4.1.1 Solihull Defra Reconciled Method

Solihull's waste needs assessment in 2018 was carried out by Naisbitt Resource Management and used an adapted version of Defra's method. The method calculates the total amount of C&I arisings from the plan area received at permitted, incineration and exempt facilities. Data is taken from the WDI, and the following categories are removed to isolate C&I wastes:

- Waste coded as sub-chapter 02 01 to exclude agriculture waste.
- Waste coded as Chapter 17 to remove CD&E waste.
- Waste coded as Chapter 19 to prevent double counting waste handled at waste transfer facilities.
- Data has been taken from the 2018 to 2022 WDI with the exclusions as stated above in Table 25.

Table 25: Solihull method 2018-22 (tonnes)

WDI (tonnes)	2018	2019	2020	2021	2022
<b>Total waste as shown</b>	4,842,530.85	5,816,731.78	5,747,449.38	7,057,059.53	5,289,024.14
<b>Minus chapters 02 01, 17, 19</b>	1,322,078.81	1,341,011.95	1,385,535.54	1,937,884.54	1,625,500.41

There needs to be accommodation made for the waste categorised under 'not codable', where the specific LA cannot be identified as the arising destination. Listed on the WDI is 'Not codable Merseyside' which will have arisen from the plan area, this is shown in table 26.

Table 26: Solihull method 2018-22 including Not Codable Merseyside (tonnes)

WDI (tonnes)	2018	2019	2020	2021	2022
<b>Not codable M&amp;H Total</b>	1,634,828.95	1,775,115.09	5,747,680.18	1,806,255.28	1,745,382.46
<b>Not codable M&amp;H Total 02 01, 17, 19</b>	562,790.55	578,497.09	1,385,766.34	549,319.18	513,946.00

There is also the category 'Not codable North West' needs to be accounted for, this is done by apportioning the waste arisings to the Plan Area by population. This has been achieved by using NOMIS population data and taking the plan area's population as a percentage of the North West population as shown in Table 27. As 2022 population data is not available an average of 21.17% is used and will be updated as data becomes available. The data shown as 'Not codable North West' is apportioned by the percentages shown in Table 27 to create the totals shown in Table 28.

Table 27: Plan area population as a % of the whole North West regions.

Year	% MH population of NW
2018	21.28%
2019	21.24%
2020	21.23%
2021	20.91%
2022	21.17%

Table 28: Solihull method 2018-22 including Not Codable apportioned NW figure

WDI (tonnes)	2018	2019	2020	2021	2022
<b>Not codable NW Apportion Total</b>	1,091,615.41	1,255,017.94	1,559,261.78	1,487,577.95	1,536,931.44
<b>Not codable NW Apportion – 02 01, 17, 19</b>	350,099.30	392,620.07	414,640.00	332,013.30	347,858.13

Bringing the total Merseyside and Halton arisings, the not codable Merseyside and the apportioned North West arisings create the totals seen in table 29. This method shows totals of between 2,234,968.66 and 3,185,941.88 tonnes for 2018 to 2020. These numbers are significantly more than projected in the last WNA with all years being at least double than estimated. The pessimistic scenario shows the figure for 2020 to be 1,135,000 tonnes and 2025 to reach 1,154,000 tonnes, this method of estimation exceeds the original predicted figures.

Table 29: Solihull method totals 2018-22 C&I arisings (tonnes)

WDI (tonnes)	2018	2019	2020	2021	2022
<b>Total + not codable</b>	7,568,975.22	8,846,864.82	13,054,391.35	10,350,892.76	8,571,338.05
<b>Total + not codable - 02 01, 17, 19</b>	<b>2,234,968.66</b>	<b>2,312,129.11</b>	<b>3,185,941.88</b>	<b>2,819,217.02</b>	<b>2,487,304.54</b>

This method has not considered Exempt or Incinerator sites. Exempt sites are recorded through the EA exempt site register and are not required to submit returns to the WDI, these sites are exempt from holding an environmental permit. They are usually sites handling very small amounts of waste and some organisations/persons may apply for permits as an assurance or 'just in case' but may never carry out activities. Incineration activities/waste movements are not separately accounted for as from 2019 onwards the WDI includes incineration waste movements and tonnage. The EA produces an Incinerator database including waste received/handled and waste types, Widnes Biomass does receive wood but there is no waste origin, so Incinerator waste returns have not been accounted for in this method.

#### **4.1.2 Accounting for household waste**

Table 30: Solihull method total C&I arisings minus WDF data 2018-22

WDI (tonnes)	2018	2019	2020	2021	2022
<b>Total with not codable</b>	7,568,975.22	8,846,864.82	13,054,391.35	10,350,892.76	8,571,338.05
<b>WDF HH waste collected</b>	569,500.53	578,189.94	644,835.53	636,796.42	628,556.03
<b>Total WDI - HH</b>	<b>1,665,468.13</b>	<b>1,733,939.17</b>	<b>2,541,106.35</b>	<b>2,182,420.60</b>	<b>1,858,748.51</b>

As the WDI groups C&I with HH waste, as HIC, there is an element of household waste accounted for within this figure. Arguably the Solihull method has not accounted for the HH aspect of this waste. As the LACW part of this WNA uses WDF, LACW includes HH waste and a small proportion of C&I waste,

this proportion of waste has already been accounted for. Table 30 shows the total waste in Table 29 and the WDF amounts removed.

With the deduction of WDF household data the range of C&I arisings for 2018 to 2020 comes out with a low of 1,665,468.13 tonnes in 2018 and peak of 2,541,106.35 tonnes in 2020. There is a clear pattern in arisings with significantly higher tonnages in 2020 and 2021. During 2020 and 2021 the Covid-19 Pandemic saw several changes to laws and habits that may have affected C&I arisings. Such as single use cutlery, face masks, gloves and other personal protection were used in commercial and industrial settings. Although there were limits to people allowed in establishments and many were shut for long periods of time, there were several shutdowns throughout the two years. These shutdowns will have seen food-based establishments throwing out large amounts of food and drink, farms saw tonnes of food going to waste and retailers throwing out products deemed out of date or with short shelf lives. The 2022 dataset is showing decreasing levels; however, figures are not as low as seen in 2019 (pre-pandemic), but the decreases seen since the peak of 2020 suggests figures could keep falling and reach pre covid levels within a year or two.

#### **4.1.3 MEAS 2023 Method – separating IC from HIC**

As discussed, C&I waste is reported on the EA WDI but is included within the BWC HIC, therefore it is combined in with Household Waste. So, essentially if it is possible to separate out the fraction of household, and other wastes that have already been accounted for (agricultural, waste water, CD&E and hazardous), only C&I should remain. Household waste is also recorded under WDF which covers all LACW. Therefore, to remove household waste as done in section 4.1.2 the WDF data is removed from the HIC category in the WDI. The figures inputted into WDF are done by the Local Waste Collection Authority. A formula is applied to account for the stream of C&I collected by a local authority, LACW within the WDF is split 98% HH and 2% C&I. It is futile to separate out these fractions and the disposal authority is responsible for the handling of all the LACW whether it is HH or C&I and so has been accounted for within the assessment of LACW. In reality the WCA may collect more or less C&I waste than 2% of the total LACW reported through WDF. Unless this formula is changed by the WCA inputting the data, the standard set formula is applied. This fraction of C&I (whether it is the 2% or set differently by the WCA) is accounted for within the LACW section of this assessment. Simply removing the WDF data from the HIC category does not just leave C&I as there are huge amounts of waste left and is not an accurate representation of the C&I waste stream, as other portions of waste remain.

Table 31: MEAS 2023 method calculation of C&I arisings reasonings

<b>Waste Codes/Categories Removed</b>	<b>Waste Stream</b>	<b>Reasoning for removal</b>
BWC 'Inert C&D' (EWC 17)	CD&E	Accounted for in WNA separately.
BWC 'Hazardous'	Hazardous	Accounted for in WNA separately.
Site category 'Transfer'	Transferred waste	Waste being transferred to and from facilities are reported through the WDI so waste handled at a transfer facility and transferred onto a treatment or disposal site will be recorded at both.
Waste fate 'Transfer (R) and/or Transfer (D)'		
EWC beginning '02 01'	Agricultural waste	Accounted for in WNA separately.
Operator column: 'United Utilities'	Waste water treatment	Accounted for in WNA separately.
EWC Sub Chapter 'Preparation of water intended for human consumption or water for industrial use'. EWC Sub Chapter 'Waste water treatment plants not otherwise specified'.		

The Defra and Solihull edited methods have been considered within this method, however neither of those account for HH or hazardous waste which have already been accounted for elsewhere within this assessment. This method starts with the EA WDI waste received tab and selecting the plan area as the waste origin (including not codable Merseyside), waste codes and categories are then removed to manipulate the data. Table 31 shows the waste codes removed and the reasoning behind this method.

The figures using this method are shown in Table 32. These figures are closer to those first predicted in the Original WNA in comparison to the Solihull method. The data shows a huge increase between 2018 and 2019 and steady decreases since. It is likely we are to see decreases from 2019 due to the effects of the Covid-19 Pandemic on industries as many businesses were shut for a prolonged time, however there was an increase seen in single use utensils and supplies such as gloves, masks, cutlery etc which meant businesses were still accumulating wastes as business decreased. Although business returned to normal in 2022 this need for single use items was eradicated, there has also been huge closures of businesses due to the constraints of the pandemic as well as the rise in the cost of living crisis.

Table 32: MEAS 2023 method figures 2018-22 total C&I arisings

	2018	2019	2020	2021	2022
WDF HH waste collected	569,500.53	578,189.94	644,835.53	636,796.42	628,556.03
Figures collected using method	1,483,288.81	2,214,994.90	2,209,736.60	2,192,276.20	1,967,668.92
<b>Total - HH</b>	<b>913,788.28</b>	<b>1,636,804.96</b>	<b>1,564,901.07</b>	<b>1,555,479.78</b>	<b>1,339,112.89</b>

#### 4.1.4 Based on Employee Figures

Within Defra's annual UK Statistics on waste, waste from C&I activities are recorded on a national level. Figures are given as far back as 2010 and up to 2021 thus far and so gives a full 10 years of data. These figures can be apportioned to the local authority level using employee figures. Employee figures are taken using NOMIS population data, the dataset and workings out is shown in table 33.

Table 33: Apportioned England C&I arisings, by employee count

Year	England Arisings (tonnes)	England Employee Count	England Arising per Employee	LCR employee count	LCR % of England employee count	M&H Arising (tonnes)
2010	32,000,000	24,738,000	1.29	643,700	2.60%	832,662
2011	33,400,000	24,679,000	1.35	640,700	2.60%	867,109
2012	33,900,000	25,191,000	1.35	650,500	2.58%	875,390
2013	32,800,000	25,525,000	1.29	661,800	2.59%	850,423
2014	31,700,000	26,053,000	1.22	647,500	2.49%	787,846
2015	31,900,000	26,627,000	1.20	673,500	2.53%	806,875
2016	33,100,000	26,915,000	1.23	685,800	2.55%	843,395
2017	36,100,000	27,248,000	1.32	696,900	2.56%	923,300
2018	37,200,000	27,509,000	1.35	716,900	2.61%	969,453
2019	37,200,000	27,872,000	1.33	730,800	2.62%	975,379
2020	33,800,000	27,526,000	1.23	725,200	2.63%	890,495
2021	33,900,000	27,580,000	1.23	734,400	2.66%	902,689

The data shows a significant decrease in National arisings in 2020 compared to 2019 and before, showing the same pattern as the WDI. Although using National data apportioned using employee figures does not make account for local differences and specific situations, it does give some indication or estimation of the plan areas C&I waste arisings. Apportioned arisings peaked in 2019 at 975,379 tonnes and decreased until 2021 where a small increase of 12,194 tonnes has occurred. It is likely this increase will continue and is discussed in the next section.

#### **4.1.5 Conclusion**

The methods used to predict C&I arisings show differing figures between 902,689 and 1,858,748.51 tonnes for the most recent calculation (2021/22). The original WNA predicted the plan area would have arisings of C&I between 1,154,000 and 1,064,000 tonnes from 2015 onwards. It is unlikely that arisings will have levelled out due to economic uncertainties and the covid 19 pandemic affecting the way business were able to run at the time. The Solihull method includes other waste streams which have already been accounted for within this WNA nor does it account for the likelihood of double counting that occurs when using data from the WDI. Using nationally apportioned figures also does not account for regional differences and trends. The figure is likely to be slightly higher than first predicted in the last WNA, as the effects of the recession that was impacting on business at the time, did not have such long lasting impacts as anticipated in the formulation of the published WNA. All the methods show signs of arisings decreasing in recent years, if further decreases occur arisings could settle to match those of the last WNA, projections are discussed in the following section.

#### **4.2 Projecting C&I Waste Arisings**

The above methods show differing trends in C&I arisings, the MEAS method shows arisings to be decreasing since 2020, whereas apportioned national figures show an increase in 2021, the Solihull method shows decreases from 2021. The datasets show varying degrees of increases and decreases, these trends are discussed in this section to determine arisings that may occur up to the end of the plan period.

##### **4.2.1 Extrapolating trends in past data – Defra Method**

This method takes the edited Solihull Defra Reconciled Method (section 4.1.2) to extract trends to estimate future arisings. 2020 and 2021 are likely to be anomaly occurrences due to the unpredictable nature of the Covid-19 Pandemic. Table 34 shows the tonnage and percentage annual change between 2018 and 2022. Table 35 shows the overall change between 2018 and 2022; these figures were then divided by four (to represent the four years change) to give an average annual change of +2.90% which has been applied in Table 36. However, these figures do include the likely anomaly occurrences of 2020 and 2021 and assume there will be a continued increase in figures when the last 2 years of data show significant decreases.

*Table 34: C&I arising changes across 2018-22 from Defra method*

<b>Years</b>	<b>Tonnage Change</b>	<b>% Change</b>
<b>2018-2019</b>	+68,471.04	+4.11%
<b>2019-2020</b>	+807,167.18	+46.55%
<b>2020-2021</b>	-358,685.74	-14.12%
<b>2021-2022</b>	-323,672.09	-14.83%

*Table 35: Overall change 2018-22 (Defra method) averaged to yearly change in C&I arisings*

<b>Years</b>	<b>Tonnage Change</b>	<b>% Change</b>
<b>2018-2022</b>	+193,280.38	+11.61%
<b>2018 -2022 averaged change</b>	+48,320.10	+2.90%

*Table 36: Defra method yearly average change projected forward C&I arisings 2023-27*

<b>% change</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>
<b>+2.90%</b>	1,912,676.23	1,968,168.56	2,025,270.88	2,084,029.90	<b>2,144,493.70</b>

#### **4.2.2 Extrapolating trends in past data – ‘MEAS 2023 Method’**

A similar projection method has been applied here as in 4.2.1, however this data has less signs of anomalies linked to the covid pandemic. Therefore, trends have been calculated using averages and changes across the dataset. Although there are no anomalies linked to covid, 2018 is showing figures that don't follow the trend of the following 4 years. Table 37 shows there is significant increase seen between 2018 and 2019 of 723,016.68 tonnes which does not occur in the years observed between 2019 and 2022. Figures have decreased year on year between 2019 and 2022, with a significant decrease seen in 2022. Therefore, averages of changes between 2019 and 2022 were used as seen in table 38. The first percentage applied (-4.55%) comes from the change between 2019 and 2022 divided by 4 to create an average annual change. This applied gives arisings in 2027 to be 1,060,954.73 tonnes, as seen in table 39. A percentage increase of 1% has also been applied to give an alternative scenario of arisings not continuing to decrease. A -4.55% change is conservative as percentage change between 2021 and 2022 was at the highest at -13.91% but the changes previous of +4.39% and +0.60% bring the average down, making it very difficult to estimate what the changes to the end of the plan period will be and what scenario will occur.

*Table 37: MEAS 2023 method C&I arisings yearly change between 2018-22 tonnages and % change*

<b>Years</b>	<b>Tonnage Change</b>	<b>% Change</b>
<b>2018-2019</b>	+723,016.68	+79.12%
<b>2019-2020</b>	-71,903.89	-4.39%
<b>2020-2021</b>	-9,421.29	-0.60%
<b>2021-2022</b>	-216,366.89	-13.91%

*Table 38: Averaged yearly changes MEAS 2023 method*

<b>Years</b>	<b>Tonnage Change</b>	<b>% Change</b>
<b>2018-2022</b>	+425,324.61	+31.76%
<b>2018 -2022 average change (/4)</b>	+106,331.15	+7.94%
<b>2019-2022</b>	-297,692.07	-18.19%
<b>2019-2022 average change (/4)</b>	-74,423.02	-4.55%

#### **4.2.3 Extrapolating trends in past data – Employee figures**

This method takes the data created by apportioning National figures to the local level using employee figures and using trends to show estimated future arisings. Again 2020 and 2021 have been identified as anomalies due to decreases linked to the Covid-19 pandemic. Table 40 shows percentage difference in arisings between 2010 and 2019, a 1.88% average has been calculated which has been applied to the 2021 figure shown in Table 41. An annual increase of 1.88% shows arisings returning to pre-covid numbers in 2025 and surpassing going forward. If 2020 and 2021 are included in the percentage change averages then the average difference becomes +0.87%. Therefore, there is only 1% difference, to account for worst case scenario and prepare for higher arisings the +1.88% is used. This method estimates arisings not reaching the last WNA estimates of either the pessimistic or optimistic scenarios of 1,154,000 or 1,064,000 tonnes in 2025.

*Table 39: MEAS 2023 method projections 2023-27*

	2023	2024	2025	2026	2027
-4.55%	1,278,183.25	1,220,025.91	1,164,514.74	1,111,529.31	<b>1,060,954.73</b>
+1%	1,352,504.02	1,366,029.06	1,379,689.35	1,393,486.24	<b>1,407,421.10</b>

Table 40: Apportioned England C&I arisings yearly % difference 2010-19

Year	M&H Arising	% Difference
2010	832,662.30	-
2011	867,108.88	4%
2012	875,390.02	1%
2013	850,422.72	-3%
2014	787,845.93	-7%
2015	806,874.60	2%
2016	843,395.13	5%
2017	923,300.43	9%
2018	969,452.91	5%
2019	975,378.87	1%
<b>Average</b>	<b>873,183.18</b>	<b>1.88%</b>

Table 41: Apportioned England C&I arisings projected 2023-27

Year	Estimated Tonnes (+1.88%)
2022	919,646.62
2023	936,922.79
2024	954,523.52
2025	972,454.88
2026	990,723.09
2027	<b>1,009,334.49</b>

#### **4.3.4 Conclusion**

The three methods used to calculate C&I arisings and projections paint very different pictures of the waste stream. The Defra methods is showing figures almost, and at times, doubling the amounts first predicted, whereas the apportioned figures are less than the projections. These methods are giving figures for the end of the plan (2027) to be between 1,009,334.49 and 2,144,493.70 tonnes, whilst the Original WNA projected arisings were predicted to be between 1,154,000 and 1,064,000 tonnes. It is unlikely that the scenario set out in section 4.2.1 would occur as arising estimates calculated are much higher than calculated using the other methods and much higher than last predicted. It is more likely that arisings will follow projections calculated in section 4.2.2 and 4.2.3 giving estimated arisings in 2027 to be between 1,009,334.49 and 1,407,421.10 tonnes. Which is very similar to what was first predicted, there is little evidence to support a significant increase and so figures are likely to stay below the higher range. However, the two preferred methods do have differing trends occurring in the last 5 years with decrease seen continually in section 4.2.2 and small increases occurring in section 4.2.3. However, section 4.2.4 is reliant on national trends and so regionally trends maybe different which is not being reflected in this method. Arisings are likely to be slightly higher than first projections, at the worst case scenario arisings could be 250,000 tonnes more than first projected by 2017. However, as arising estimations have been generally decreasing since 2020 it is just as plausible to assume that decreases could also occur, any further decreases would bring projections closer to those first estimated in the Initial WNA.

### 4.3 C&I Facility Capacity

Table 42 shows C&I facility capacity as of the previous WNA with any anticipated capacity at the time, any updates known since are given. Data, for updates of current tonnes, is taken from the WDI excluding the waste codes Chapters 17, 19 and 20 and 02 01 and Hazardous and Inert C&D waste categories. As these have been covered within the LACW, CD&E, Hazardous and agricultural waste sections. Operational capacity includes pipeline.

Table 42: C&I facility capacity summary

Type Of Facility	Operational Capacity	Additional capacity anticipated	Update as of writing.
<b>Receiving, sorting, and bulking waste</b>			
Materials recycling facility's	140,000 tonnes		<b>WDI 2022 = 5,862.2 tonnes</b> WDI 2021 = <b>6,418.273 tonnes</b> at Roydon Granulation Ltd.
Transfer Stations	440,000 tonnes		<b>WDI 2022 = 39,912.53 tonnes</b> at 22 sites including CA sites, clinical waste and haz and non haz waste transfer. <b>WDI 2021 = 124,198.08 tonnes</b> at 16 sites
<b>Recycling, composting, and reprocessing waste</b>			
Open Windrow Composting	(None)		WDI 2022 = 153 tonnes WDI 2021 = 212.9 tonnes at North End Farm (EWC 03 furniture, paper, and cardboard manufacturing wastes)
Enclosed composting (AD/IVC)	50,000 tonnes	Refood website states 'Capacity to divert 160,000 tonnes away from landfill'	<b>WDI 2022 AD = 67,069.8 tonnes</b> at Refood, Halton (EWC 02 and 04)
Reprocessing	942,000 tonnes (24 sites)		
<b>Treating waste</b>			
Primary (pre-) treatment	Ca.50,000te operational at 1 site (consent for a further phase adding 70,000te was being rolled out at time)		Treatment tonnes showing in Table 12.
Secondary (thermal) treatment	750,000te at Ineos Chlor, Runcorn. Half is contracted to handle waste from Greater Manchester and from Cheshire (subject to final closure of PFI tendering). Capacity provided in 2 even phases scheduled late 2012 (Phase 1) and late 2013 (Phase 2)	Runcorn EfW operational 2014 (1,100,000 tonnes capacity)	Runcorn EfW handles 929,858.51 tonnes of EWC 19 (waste and water treatment wastes), incinerator returns shows municipal from 2021 (included in LACW) RDF before, 12,641 tonnes C&I in 2020.
<b>Disposing of waste</b>			
Non-Inert Landfill	See details provided for LACW		
Inert Landfill			

#### **4.4 Conclusion**

Estimations have shown a range in C&I arisings for the end of the plan period (2027) it has been reasoned arisings at this time are likely to be between 1,009,334.49 and 1,407,421.10 tonnes. These estimated figures are similar to those first projected of between 1,154,000 and 1,064,000 tonnes. Figure 41 shows the previous facility capacity to be at 2,372,000 tonnes. Since then, Refood in Widnes has been built out with a capacity to handle 110,000 tones. Runcorn EfW has also been built out to handle 1,100,000 tonnes although it has handled C&I wastes and RDF at times, since 2021 it has almost exclusively handled municipal wastes from outside the Plan Area. Therefore, as outlined in the Initial WNA, it is considered there is still sufficient capacity for the remainder of the plan period to accommodate predicted arisings.

## **5. Construction, Demolition and Excavation Wastes (CD&E)**

### **5.1 CD&E Arisings**

The Initial Waste Needs Assessment (WNA), published with the JWLP gave estimates of CD&E in pessimistic and optimistic scenarios in tonnes, as shown in Table 43. This would give estimations of between 2,270,000 (2030 optimistic) and 2,385,000 (2030 pessimistic) tonnes for the end of the plan period (2027). The WNA predicted small increases for both scenarios across 2010 to 2030, with an overall increase of 165,000 tonnes for the pessimistic scenario and 70,000 tonnes for the optimistic scenario. There are no requirements for businesses to report CD&E waste arisings and therefore accurate data is limited. The EA WDI does provide data on limited CDE arisings within England at permitted waste management facilities. This means the WDI only holds a limited amount of data regarding CD&E as significant quantities are not managed at permitted facilities, but may be processed and utilised directly on demolition, construction and development sites.

*Table 43: Previous WNA CD&E predictions 2010-30 (tonnes)*

<b>Scenario</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>
<b>Pessimistic</b>	2,220,000	2,233,000	2,280,000	2,336,000	2,385,000
<b>Optimistic</b>	2,200,000	2,220,000	2,231,000	2,253,000	2,270,000

#### **5.1.1 Defra's method - modified**

Defra has formulated a method for calculating annual waste generation from the CD&E sectors, however this method is for estimating national figures. This method has been adapted to estimate at a regional level, to be used for local authorities (LA) in a range of waste needs assessments across the country. Defra sets out categories and sources of information needed in order to estimate CD&E. Many of the sources are unattainable or irrelevant at a smaller scale. For this assessment CD&E waste has been categorised under the EWC (European Waste Catalogue) codes Chapter 17, 19 12 09 or 20 02 02. The Defra methods consider waste received by permitted facilities and incineration facilities (with a waste origin of the plan area), exempt facilities (located within the plan area) and waste recycled as aggregate (with a waste origin of the plan area). Incineration facilities are counted within the WDI figures from 2019 onwards and therefore will already be counted within the data collected from the WDI for permitted sites. Exempt facilities are facilities where small scale waste activities are taking place, generally with small amounts of waste being stored or treated for further storage. They therefore have not been counted due to the small amounts generated and handled. Waste recycled as aggregate is often handled and reused onsite and any movements of this waste would not be recorded through the WDI. Information on recycled aggregates is available from the areas Local Aggregates Assessment (LAA); however, these figures are usually generated from the WDI. As transfer stations have been assessed in the WNA site capacity they have not been removed from the WDI site category list, therefore there is a chance of the double counting. Table 44 shows the recent data available taken from the 2022 WDI (waste received tab) with the specifications: BWC Hazardous removed and only EWC (European Waste Catalogue) Chapter 17, 19 12 09 or 20 02 02 with transfer sites shown both as removed or kept within the total tonnage. The Defra method uses data from permitted facilities where the waste originates from the plan area, described as waste arisings in the Table 44 and Table 45.

*Table 44: 2022 CD&E arisings WDI (tonnes)*

<b>2022</b>	<b>Without Transfer Sites (tonnes)</b>	<b>With Transfer Sites (tonnes)</b>
<b>Arisings plan area</b>	605,535.74	694,193.98
<b>Arisings Plan area (+ Not codable MS)</b>	993,786.90	1,187,178.10

Table 45: 2017-22 CD&E arisings WDI Defra modified method (tonnes)

Year	Arisings + Not codable MS) without transfer (tonnes)	Arisings + Not codable MS with transfer (tonnes)
2017	890,798.33	1,047,128.23
2018	943,969.06	1,077,850.13
2019	1,003,973.61	1,169,843.40
2020	785,257.89	998,384.71
2021	987,467.05	1,160,931.03
2022	<b>993,786.90</b>	<b>1,187,178.10</b>

There was a clear decrease in arisings in 2020, which is most likely to be attributed to the Covid 19 Pandemic. The Pandemic will have caused construction, demolition, and excavation to stop for periods of times or continue at slower rates due to restrictions on building sites and personnel. Despite the dip in arising in 2020 there has been steady arisings of CD&E reported through the WDI. With only an increase from 2018 to 2022 of 102,988.57 (49,817.84?) when discounting transfer sites, there is more of an increase observed when including transfer sites of 140,049.87 (109,327.97?) tonnes. There is no evidence that arisings have been or are going to be the exact same tonnage each year, but the recent years of 2018 to 2022 are showing lows of 943,969.06 (disregarding the anomaly year of 2020) and highs of 1,003,973.61 tonnes. The figures that disregard transfer sites are more likely to be more accurate as transfer sites are recording movement from the site to another waste site there is a chance of double counting this waste at a treatment or disposal site. Therefore, it could be concluded that CD&E waste will stay within the ranges of 943,969.06 and 1,003,973.61 tonnes for the foreseeable. This is discussed further in section 5.2.

### **5.1.2 Apportioning National Arisings Using Dwelling Completions**

In order to gauge whether the tonnes calculated using the method devised in section 5.1.1 are on the right track for estimating CD&E arising, another method has been applied to the plan area for comparison. Similar to the method used in the C&I section of this needs assessment, national figures have been apportioned to the plan area using dwelling completions as an indicator of CD&E arisings. The number of dwelling completions can indicate changes in arisings of CD&E waste, as they involve all three activities and can be large producers of waste. Fluctuations in dwelling completions can give indications on whether CD&E arisings might significantly change. It is acknowledged that housing is not the only infrastructure occurring, however dwelling completions is being used as a proxy for CD&E arisings. Waste per dwelling has been calculated by apportioning national statistics to the Local Authority using housing figures supplied through the evidence base for developing a LCR Recreational Mitigation Strategy (RMS) scheme, as used in the Local Authority Collected Waste (LACW) forecasts. Table 46 shows the figures for England, the total England CD&E arisings are taken from the Defra UK Statistics on Waste publication and dwelling completions are taken from the Office for National Statistics (ONS) document 'House building, UK: permanent dwellings started and completed by local authority' financial year ending 2023 edition. The tonnes per dwelling is then calculated using the national figures, which is to be used in the projections in section 5.2.

Table 46: England CD&E arisings, housing completions and tonnes per dwelling 2010-20

Year	England Arisings (tonnes)	England Dwelling completions	Tonnes per dwelling (England)
2010	53,000,000	89,380	592.97
2011	54,900,000	117,240	468.27
2012	50,500,000	107,800	468.46
2013	51,700,000	112,100	461.20
2014	55,900,000	124,550	448.82
2015	57,700,000	139,850	412.58
2016	59,600,000	146,380	407.16
2017	62,200,000	160,170	388.34
2018	61,400,000	167,030	367.60
2019	62,300,000	173,730	358.60
2020	53,600,000	152,330	351.87

Table 47 shows LCR for the same years as shown nationally and the percentage of dwelling completions within the plan area in comparison to nationally. This percentage is then applied to the total national CD&E arisings to give an estimate of the CD&E arising from within the plan area. This gives an estimate for 2020 of **1,052,084.29** tonnes for the LCR, which is higher than predicted in section 5.1.1 (without transfer tonnage). Although this method is apportioned from a more accurate representation of CD&E arisings, in comparison to using the WDI, it does not consider regional differences in arisings and tonnes per dwelling. There is no available data of national arisings post 2020 and so this data is also not the most up to date representation of current trends. Arisings fell considerably in 2020, as seen in both methods, which can be linked to the effects of the Covid-19 pandemic as CD&E activities were impacted by restrictions. This data set has no recent data and so does not show the trends following from the impacts of the pandemic, it could be assumed that effects were seen in the construction industry into 2021 as restrictions were still occurring, however, there is no data to show this yet.

Table 47: Apportioned plan area CD&E arisings from apportioned national dwelling completions

Year	LCR dwelling completions	LCR % of England dwelling completions	M&H Arising (tonnes)
2010	1000	1.67%	592,973.82
2011	1480	1.59%	693,039.92
2012	2230	1.49%	1,044,666.05
2013	2260	1.83%	1,042,301.52
2014	2780	1.78%	1,247,707.75
2015	2080	1.41%	858,176.62
2016	2130	1.56%	867,249.62
2017	3130	1.41%	1,215,496.04
2018	2770	2.27%	1,018,248.22
2019	4300	2.27%	1,541,990.44
2020	2990	2.05%	<b>1,052,084.29</b>

### **5.1.3 Conclusions**

The methods used above calculate CD&E arisings of between 785,257.89 and 1,052,084.29 tonnes for 2020, only one dataset is able to give a more up to date estimate of 993,786.90 tonnes (2022). The Initial WNA estimated between 2,253,000 (2025 optimistic) and 2,385,000 (2030 pessimistic) tonnes. Therefore, arisings are sitting well below the first estimations made. The amount of CD&E waste generated per site is likely to have decreased significantly, as seen in section 5.1.2, where tonnes per dwelling has decreased by 240 tonnes between 2010 and 2020. This could be due to developers

becoming more conscious of the waste onsite and the economic and environmental benefits of reuse and recycling materials. Developers are also more efficient with developments and consider waste reduction techniques from the design stage. It is also likely that waste is being reused more regularly onsite and so maybe not be recorded at waste sites. Therefore, CD&E is much lower than first predicted as the impacts from the recession were not felt as heavily, the impacts from the pandemic slowing development and changes in habits decreasing average tonnages created per development.

## **5.2 Forecasting CD&E arisings**

### **5.2.1 Extrapolating historic trends (Defra method modified)**

As discussed above the WDI can be used to show trends in waste arisings, regarding the plan area there has been increases and decreases in arisings. Table 48 shows the percentage changes between 2017 and 2022 according to the WDI data, the waste as origin within the plan area includes all facilities with the addition of the Not Codable Merseyside proportion of data. Table 48 shows an increase in CDE waste arisings from 2017 to 2019 of around 6%, during 2019-2020 a significant decrease occurred which can be attributed to the effects of the Covid-19 pandemic. There was then a major uplift in arisings seen in 2020-2021, which brought arisings tonnes back to similar as 2018-2019 but slightly increased compared to pre covid figures. There was then a slight increase in 2021-2022, the smallest increase observed across the years shown. It can therefore be concluded that CD&E waste arisings are on a pathway of slight increase year on year. This method uses figures excluding transfer sites, for a more accurate representation and to account for the risk of double counting.

*Table 48: Yearly % change in CD&E arisings without transfer sites (WDI 2017-22)*

<b>Years</b>	<b>Waste as origin M&amp;H - transfer sites</b>
<b>2017-2018</b>	+5.97%
<b>2018-2019</b>	+6.36%
<b>2019-2020</b>	-21.79%
<b>2020-2021</b>	+25.75%
<b>2021-2022</b>	+0.64%

### **5.2.2 Using average % change as seen across the previous 5 years**

Using the percentage changes shown in table 48, an average has been calculated of 3.39% increase. If the years of 2019-2020 and 2020-2021 are disregarded due to their link to the Covid-19 pandemic, an extremely rare event causing anomalies in data and not a representation of the norm, an average increase of 4.32% is calculated. These percentages are applied to the 2022 figure below in Table 49. It can be assumed that arisings are very unlikely to reach figures as estimated in the Initial WNA of between 2,336,000 and 2,253,000 in 2025 or even at the end of the plan in 2027. It is more realistic that figures will stay on a steady increase and reach somewhere around/between 1,174,048 and 1,227,810 tonnes. These figures are around half of what was first projected in the WNA. Given there is no set method in calculating CD&E arisings, the method of using the WDI and specific EWC chapters/codes does lead to best estimates and not actual arisings. However, they do give a good indication of waste figures and it is unlikely this method is only accounting for half of the actual arisings and therefore, it can be assumed arisings are to be much lower than first predicted.

Table 49: Percentage increase applied to CD&E figures up to 2027 (Defra modified method)

Year	+3.39% tonnes	+4.32% tonnes
2023	1,027,476	1,036,718
2024	1,062,308	1,081,505
2025	1,098,320	1,128,226
2026	1,135,553	1,176,965
2027	<b>1,174,048</b>	<b>1,227,810</b>

### **5.2.3 Projections using predicted dwelling completions**

The figures used for national tonnes per dwelling are shown in Table 46, over the years 2010 to 2020 the average tonnes per dwelling is 430.23 tonnes. This method assumes that all C&D waste generation in England is attributed to dwelling completions, which is not the case, but for the sake of this study this is used to apportion to the Local Authority level, shown in table 47. Even though dwelling completions are generally increasing, the average tonnes per dwelling is decreasing, and so decreases are being observed in C&D generation. Over the 10 reported years dwelling completions have increased by 37.39%, whereas C&D generation saw no change net change. This could be attributed to construction re-using/recycling materials on site, for example if demolition occurs on site of existing buildings this material can be reused on site to contribute to construction. There was a significant decrease in C&D generation in 2020, this again can be attributed to the Covid 19 pandemic. C&D arisings predictions using housing figures provided from the local authorities through the RMS, shown in Table 50. The data shown in Table 50 are calculated using the average tonnage per dwelling from Table 46 (430.23 tonnes). However, tonnes per dwelling have been continuously decreasing nationally since 2010 and in 2020 it was 351.87 tonnes. It is unlikely tonnes per dwelling will start to increase by 80 tonnes until 2027 and so projections have also been calculated using the last 3-year average (2018, 2019 and 2020) of 359.36 tonnes, shown in Table 50.

Table 50: CD&E projections 2027/28 using dwelling completion figures and nation tonnes per dwelling

2022/23-2027/28 Houses projected per year	2022/23-2027/28 Tonnes per year (430.23 tonnes/dwelling)	2022/23-2027/28 Tonnes per year (359.36 tonnes/dwelling)
4,554	1,959,287.55	1,636,508.32

### **5.2.4 Conclusions**

Using trends observed in the WDI data and manipulating average percentage change brings out figures of between **1,174,048** and **1,959,287.55** tonnes of CDE Waste for the end of the plan period (2027). The national data used shows average tonnes per dwelling completed is decreasing, and as the Plan Areas councils have specified housing projections to be evenly spread out annually there is no accommodation made for large increases in C&D, based on housing completions. These figures are below what was first projected in the initial waste needs assessment.

### 5.3 CD&E Facility Capacity

Table 51 shows the facility breakdown from the previous WNA and any update since the publication. The same method has been applied as in arisings (EWC Chapter 17, 19 12 09 and 20 02 02), hazardous removed with Merseyside not codable added.

Table 51: CD&E facility capacity as of the initial WNA and updates added at the time of writing

Type Of Facility	Operational Capacity	Update as of writing.
<b>Receiving, sorting and bulking waste</b>		
Transfer stations	1,290,000te (at>60 stations)	
<b>Disposing of waste</b>		
Non-inert Landfill	425,000te annually.	None is available.
Inert Landfill	3.5 million m3 void –equivalent to 5.5 million - 7 million tonnes of compacted inert waste.	Cronton Claypit received <b>87,546 tonnes</b> of Inert C&D in <b>2021</b> (WDI) <b>2022 = 88,208 tonnes</b> . Discussed in table 52. Bold Heath Quarry received <b>2,421 tonnes</b> inert C&D according to 2022 WDI, discussed below.

#### 5.3.1 Cronton Claypit

Table 52: Cronton Quarry tonnes received and capacity remaining estimations (2018-22 data)

Year	Remaining Capacity end of year (cubic metres) EA Void Capacity Annual Report	WDI tonnes received	Void capacity (cubic metres) – tonnes received	Void capacity (cubic metres) – tonnes received cumulative
<b>2018</b>	617,581	-	-	-
<b>2019</b>	514,199	139,670	477,911	477,911
<b>2020</b>	426,411	85,447.5	428,752	392,463.5
<b>2021</b>	625,148	87,546	338,865	304,917.5
<b>2022</b>	400,000	88,208	536,940	216,709.5

Table 52 shows data for the Inert landfill site Cronton Claypit, Knowsley. The site takes C&D waste specifically fines. As discussed in the previous annual monitoring reports for the WLP, Cronton Claypit was granted environmental permit in April 2013 and began operation in August 2015. The permit allowed for 100,000 tonnes per year to be infilled, but it was expected that further extraction of clay to continue. It was updated in 2016 that the facility had a permit for 200,000 tonnes per annum and in 2015/16 118,000 tonnes of soils were infilled. During 2016/17 no infilling occurred and a survey carried out in October 2017 found that 650,000 m<sup>3</sup> still remained. Again, there was no infilling in 2017/18 but 20,000 m<sup>2</sup> of clay was extracted in 2018. In 2018/19 the remaining capacity was reported to be approximately 600,000 m<sup>3</sup>, with infilling taking place at between 94,000 and 118,000 tonnes per year.

There are clearly some discrepancies between the amount of waste received and the decreases in annual void capacity. However, the site has been reported to be actively extracting clay in previous years, and so extraction might have been in higher quantities than infill. If the 2019 void capacity is taken and the tonnes received are taken away cumulatively it leaves a capacity for 2022 at 216,709.5 tonnes rather than the reported 400,000 tonnes. The last 3 years tonnes received at the sites gives an average of 87,067.17 tonnes. If that is applied to the calculated 2022 void capacity of 216,709.5 tonnes, there would be 2.5 years of capacity available. Taking the EA reported 2022 void capacity of 400,000 and an average of 87,067.17 tonnes being received at the site gives 4.6 years left of void space. This is on the assumption that one cubic metre = 1 tonne of soil. Therefore, the Cronton Claypit sites can be expected to give 2.5 to 4.6 years of capacity, and so this inert landfill will not be available from the end of the plan. If extraction is still occurring the life of the capacity will be prolonged, however extraction was noted to end in 2026 at the time of the initial WNA. This has been discussed with the operator who confirmed the site has an estimated 6 years of capacity available. Large extraction took place in 2019, however due to the material quality and the effect of the covid pandemic on construction there is a 90,000 tonnes stockpile on site, which is slowly being removed.

### **5.3.2 Bold Heath Quarry**

Bold Heath Quarry is located in St Helens, the quarry's landfill lifespan is set to expire within the plan period in September 2025, however an application for a 5 year extension is anticipated from the operator. This is to allow for continued filling of the void space, which is estimated to be around 600,000 tonnes. In 2008 the estimated void space was 1,370,000 m<sup>3</sup>, the last needs assessment predicted annual infill rate for between 2009 and 2015 to be 175,000 tonnes per annum. Followed by a decrease to 150,000 tonnes per annum between 2016 and 2025, annual extraction rates are less than half of the infill rates. Bold Heath Quarry is not shown in the EA void capacity annual report and so analysis is not as detailed as shown for Cronton Claypit. The WDI does show Inert C&D waste received at Bold Heath, however quantities are much smaller than in the last waste needs assessment predictions. The material used to landfill is generally internal with the operator's infrastructure projects and so may not be recorded through the WDI. In 2022 the WDI shows the Quarry receiving only 2,421 tonnes. As there are no reports from the EA regarding void space it is difficult to estimate the position the quarry is in. As they are only receiving small amounts, according to the WDI, it is not a significant capacity supplier for CD&E waste. Contact was made with the quarry operator to assess the site status with respect to the void space, waste tonnes they are receiving and the road map to closure of the quarry for 2025. The extension was discussed and is likely to be sufficient time to fill the remaining void space.

### **5.4 Conclusion**

Estimations of CD&E were particularly pessimistic in the initial NWA, the actual arisings have been much lower and so the new projections are also lower than first given. Although both landfills were due to close before the end of the plan period, it is likely they will both set out to extend operations, by at least 5 years each. This will provide further CD&E landfilling capacity, which will sufficiently cover the plan period. Given that arisings are estimated to be between **1,174,048** and **1,959,287.55** tonnes per annum for 2027, there is enough transfer capacity as well as landfill.

## 6. Hazardous

### 6.1 Hazardous Waste Arisings

The Initial WNA recognised that the approach towards hazardous waste should be different to the other streams of waste. This is because management need should reflect the relative proportions of locally managed arisings, imports and exports and the trends of each. A forecast was adopted with limited further change in waste management need and did not include the need for pessimistic an optimistic scenario forecast. Within the forecast the total management falls to 154,000 tonnes by 2015 and stay consistent at this number under the plan end. It also forecasts local arisings to remain steady from 2013/2014 at approximately 120,000 tonnes. Table 53 shows the data formulated for the original waste needs assessment, the waste projections do not change from 2016 onwards and so are the assumptions to the end of the plan year 2027.

Table 53: Initial WNA hazardous waste predictions 2010- 2016 onwards

Arisings (000 tonnes)	2010	2011	2012	2013	2014	2015	2016 onwards
Local arisings	123.75	122.51	121.29	120.07	119.47	118.88	118.88
Exports	83.58	83.16	82.75	82.33	82.33	82.33	82.33
Retained	40.17	39.35	38.54	37.74	37.14	36.54	36.54
Imports	117.59	117.70	117.82	117.94	117.94	117.94	117.94
Managed/Handled	157.76	157.05	156.36	155.68	155.08	154.48	154.48

#### 6.1.1 Hazardous Waste Data Interrogator (HWDI)

Table 54: HWDI 2018-22 arisings and handled (tonnes)

Year	Waste Arisings M&H	Waste Handled M&H
2018	346,444.53	251,093.25
2019	359,640.39	251,459.14
2020	341,251.59	249,119.65
2021	258,187.61	233,220.68
2022	258,618.73	217,765.40

Hazardous waste movements are recorded through the EA's Hazardous Waste Data Interrogator (HWDI). Table 54 shows Merseyside and Halton's hazardous waste arisings for 2018-2022 (waste with an origin of the plan area) from the HWDI and the amount of Hazardous waste managed at all facilities within the plan area. There is less hazardous waste managed within the plan area than arising, therefore the area is a net exporter, this is discussed further in the imports and exports section. The amount managed within the area was 138,544.72 tonnes higher in 2022 compared to the figure estimated for the years following 2016. Local arisings are significantly higher than predicted in the previous assessment, they are also not at a constant steady rate. Although 2018 to 2020 arisings look stable, there is a large decrease observed in 2021. However, even the lowest level arisings of 2021 are still double what was predicted. The amount of waste managed within the plan area is also relatively stable between 2018 to 2020, with a small increase of 365.89 tonnes between 2018 and 2019. There was then a decrease of 2,000 tonnes between 2019 and 2020. But again, a more significant decrease was observed between 2020 and 2021 of almost 16,000 tonnes. There has only been a very small increase seen in 2022 of 431.12 tonnes, suggesting tonnes are going to steady around 260,000 tonnes. Table 55 shows England's arisings from the HWDI across the same years, there is no significant decrease observed between 2020 and 2021. Therefore, it can be assumed local behaviours regarding hazardous waste has changed. The plan area is creating and handling less hazardous waste.

Table 55: Hazardous waste arisings England 2018-22 (tonnes)

Year	Waste Arisings England
2018	5,159,242.66
2019	5,550,563.76
2020	4,994,228.73
2021	5,447,156.59
2022	6,019,114.75

### **6.1.2 Accounting for Transfer Stations**

The recording of waste entering and leaving a facility means waste can be double counted within the system at transfer stations as it is recorded entering and moving to its next destination where it is recorded again, whether that be at a treatment or disposal facility. Therefore, waste recorded at a transfer station is likely to be recorded again and should be removed from data. The HWDI is not as sophisticated as the Waste Data Interrogator (WDI, and does not categorise facility types, there is no facility specific information so no way to identify Transfer Stations on the HWDI. However, the waste amounts recorded are recorded alongside the wastes fate, including Transfer (D) and Transfer (F). Waste fated to be transferred on is likely to be received at another facility especially due to the nature of disposing of Hazardous waste, it is likely that the final destination is a specialised hazardous waste facility to treat and/or dispose of the waste. Table 56 and 57 show the amount of waste categorised as 'Waste Fate' Transfer (D) or (R) data taken from the HWDI. Transfer has been removed from both waste handled within the plan area and waste arising from the plan area. There are considerable amounts of waste transferred that has arisen from the plan area, although there was a dip in 2019 and 2020, almost 100,000 tonnes of waste arising from within the plan area was fated to be transferred. In comparison to the original waste needs assessment these figures are closer to those initial projections, although there are periods where tonnage exceeds the original projects by significant amounts. Hazardous waste handled within the plan area is closer to the first projections with figures estimated to be 154,00 tonnes from 2016 with a peak seen in 2019 at 42,652 tonnes over the projections. Whereas, waste arisings are significantly higher than projections, arisings within the plan area were projected at 118,000 tonnes 2016 onwards. Figures between 2018 and 2022 have been between 41,988 and 196,762 tonnes higher than the 118,000 tonnes figure. The higher gaps were seen in 2019 and 2020 and are likely to be anomaly years as 2022 is the closest to the original projection in the last 5 years.

Table 56: Hazardous waste handled minus transfer 2018-22 HWDI (tonnes)

Year	Waste Handled	Transfer Fate	Handled-Transfer Fate
2018	251,093.25	63,975.51	187,117.74
2019	251,459.14	54,651.90	196,807.24
2020	249,119.65	52,467.39	196,652.26
2021	233,220.68	51,340.38	181,880.30
2022	217,765.40	54,740.34	<b>163,025.06</b>

Table 57: Hazardous waste arisings minus transfer 2018-22 HWDI (tonnes)

Year	Waste Arisings	Transfer Fate	Arisings-Transfer Fate
2018	346,444.53	89,619.46	256,825.07
2019	359,640.39	44,877.49	314,762.90
2020	341,251.59	28,477.21	312,774.38
2021	258,187.61	86,420.88	171,766.73
2022	258,618.73	98,630.00	<b>159,988.72</b>

## 6.2 Forecasting Hazardous Waste Arisings

### 6.2.1 Using HWDI data (transfer fate removed)

Table 58: Annual % change across 2018-22 and average HWDI transfer removed

Year	Waste arisings annual % change	Waste handled annual % change
2019	22.56%	5.18%
2020	-0.63%	-0.08%
2021	-45.08%	-7.51%
2022	-6.86%	-10.37%
<b>Average %</b>	<b>-7.50%</b>	<b>-3.19%</b>

To project Hazardous waste arisings, data taken from the HWDI (fate transfer removed) has been used. There is no clear trajectory for hazardous waste with increases and decreases observed across the data, with impacts of the Covid Pandemic showing in the 2020 and 2021 data. Hazardous waste is often linked to CD&E arisings; therefore a 1% increase has been applied as it is unlikely that Hazardous waste will increase as much as CD&E, as figures haven't increase since 2019. Also, there are innovations in treatment technologies occurring which recycle some chemical hazardous wastes for reused. Table 58 shows fluctuating percentage changes across the recorded years, which gives further reasoning that it is unlikely hazardous waste arisings are to start increasing and certainly not at the levels as seen in the CD&E forecasting section. Table 59 shows a 1% increase and Table 60 shows decreases using average percentages from the previous data shown in Table 58. Looking at the changes in waste arising from within the plan area and waste handled within the plan area there is a clear decrease in tonnes between 2018 and 2022 and the only increase occurred between 2018 and 2019. It is more likely waste is to carry on decreasing but the rate is difficult to quantify as changes in arisings have been so much more dramatic at times (2020-2021) but are likely to be linked to the pandemic. Whereas waste handled within the area is generally steadily decreasing with a peak decrease in 2021-2022 and so the amount handled could keep decreasing at generally high increasing rates. The +1% is a safety in case the pandemic is still affecting hazardous waste arisings. Figures could start to slowly increase to the end of the plan period but is unlikely. This method projects waste arisings between 108,324.24 and 168,149.75 tonnes. Waste handled is projected to be between 138,340.98 and 171,340.24 tonnes.

Table 59: +1% applied to HWDI transfer removed Hazardous waste data projected forward for 2023-27 (tonnes)

Year	Waste Arisings +1%	Waste Handled +1%
2022	159,988.72	163,025.06
2023	161,588.61	164,655.31
2024	163,204.49	166,301.86
2025	164,836.54	167,964.88
2026	166,484.90	169,644.53
2027	<b>168,149.75</b>	<b>171,340.98</b>

Table 60: Average % change applied to HWDI transfer removed 2022 for projections 2023-27 (tonnes)

Year	Waste Arisings (-7.50%)	Waste Handled (-3.19%)
2022	159,988.72	163,025.06
2023	147,984.63	157,824.56
2024	136,881.22	152,789.96
2025	126,610.91	147,915.96
2026	117,111.19	143,197.44
2027	<b>108,324.24</b>	<b>138,629.44</b>

### 6.3 Hazardous Facility Capacity

The HWDI provides less data detail than the WDI, with no facility category or site details. Therefore, the WDI has been used to review facility capacity for this section, which is summarised in table 61. Although tonnages are much higher than predicted in the previous WNA, there is still enough facility capacity to deal with the increase tonnes being handled within the area. There is enough plus 100,000 transfer capacity and more than triple the amount of reprocessing facility needed. Therefore, the lack of landfill can be accommodated by more favouring facilities such as treatment and reprocessing, any need for landfilling is being met outside the plan area. According to the 2022 HWDI 20,061.51 tonnes were sent to landfill outside the plan area.

Table 611: Hazardous waste capacity as of the initial WNA and updates as of time of writing

Type Of Facility	Operational Capacity	Additional capacity anticipated	Update as of writing.
<b>Receiving, sorting and bulking waste</b>			
Transfer stations	425,000te (13 sites)		<b>2021</b> WDI shows <b>84,673.53</b> tonnes at 19 sites. <b>2022</b> WDI shows <b>92,423.04</b> tonnes at 24 sites.
<b>Reprocessing and treating waste</b>			
Reprocessing facilities	735,000te		WDI <b>2021</b> shows <b>106,478.38</b> being handled at Metal Recycling sites. 2022 shows <b>80,683.11</b> .
Treatment facilities	40,000te (1 site)	Veolia has also announced plans to build a small CHP facility with a capacity of around 12,000te at its treatment/recovery facility at Garston Dock in South Liverpool, not been given consent at the time the needs assessment was finalised, so not counted as part of local capacity.	<b>2021</b> WDI shows <b>83,787.46 tonnes</b> being handled at 10 sites <b>2022</b> shows <b>70,590.67 tonnes</b> . Veolia Garston Dock built out (Chemical Treatment) <b>WDI 2022 = 10,461.47 tonnes</b> . Veolia has increased consented capacity for processing of 58,000 tonnes.
<b>Disposing of waste</b>			
Hazardous Landfill	220,000te (1 site)	Ineos Chlor's landfill site at Randle Island, shown in Table 62.	None
<b>Total capacity last WNA = 1,420,000.00 tonnes (- landfill) = 1,200,000.00 tonnes</b>			

Table 62: Ineos Chlor Landfill estimated waste received 2018-22

Year	Remaining Capacity end of year (m3) EA Void Capacity Report	Estimated waste received per year (m3)
<b>2018</b>	3,062,243	715,666
<b>2019</b>	-	715,666
<b>2020</b>	-	715,666
<b>2021</b>	-	715,666
<b>2022</b>	199,579	

Ineos Chlor’s landfill site at Randle, Halton Island is a hazardous merchant landfill site. There is no data reported on the site through the WDI and so no way to indicate the amount of waste being received at the site. The EA void capacity annual report only has returns from the site for 2018 and 2022, as shown in Table 62. Between the years reported the void space has been in filled with 2,862,664 m3, which spread across the 4 years would be an estimation of 715,666 m3 annually. As reported in 2022 the site has less than 200,000 m3 of void space and so if it is being filled at an average estimate of over 700,000 m3 the site is not going to last to 2023. As of 2022, the HWDI indicates that the plan area exports 20,061.51 tonnes to landfill, none of the waste arisings within the plan area is landfilled within the area. This indicates the area has no capacity of its own for landfill, although Randle Island is not present on the WDI and sites are not shown on the HWDI but there is no landfilling indicated on the HWDI within the plan area. Therefore, hazardous waste is exported to be landfilled outside the plan area.

### **6.3.1 HWDI Data Waste by Fate**

Table 63 shows waste handled within the plan area and its recorded fate showing on the HWDI. Generally, waste handled is decreasing, in particular the amount being treated.

*Table 62: Waste handled within the plan areas fate HWDI 2018-22 (tonnes)*

<b>Waste Fate</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>
<b>Incineration with ER</b>	0.02	-	62.39	148.84	55.54
<b>Incineration without ER</b>	0.49	-	0.78	0.02	-
<b>Landfill</b>	-	-	1.28	0.34	-
<b>Long term storage</b>	-	-	0.14	-	-
<b>Other fates</b>	0.31	2.13	0.65	1.24	-
<b>Recovery</b>	97,316.05	104,648.74	96,861.28	117,033.80	117,008.64
<b>Rejected</b>	27.68	37.87	126.29	367.81	14.02
<b>Transfer (D)</b>	23,403.00	14,024.24	11,147.84	10,941.70	17,580.65
<b>Transfer (R)</b>	40,572.52	40,627.66	41,319.55	40,398.67	37,159.70
<b>Treatment</b>	89,773.19	92,118.50	99,599.43	64,328.27	45,946.87
<b>Grand Total</b>	<b>251,093.25</b>	<b>251,459.14</b>	<b>249,119.65</b>	<b>233,220.68</b>	<b>217,765.40</b>

Table 64 shows waste handled by fate as a percentage of the total waste handled within the area using the data in table 63 above. The majority of the waste handled within the plan area ends up being recovered, large amounts are treated and there are significant tonnages recorded as being transferred. There have been very small amounts of incineration with or without Energy Recovery (ER) and landfill or long-term storage recorded. Some waste is rejected and there are small amounts categorised as other fates not listed. This data includes the fraction of waste arising within the plan area and being treated within the plan area and imports to show all the waste being handled within the plan area. There are changes in the way hazardous waste is being handled, with an increase in recovery and decrease in treatment observed. The majority of treatment is electronic items being treated in Liverpool (HWDI 2022 26,000 tonnes).

Table 63: Waste handled fate as % of total waste handled within the plan area HWDI 2018-22 (tonnes)

Fate	% of 2018	% of 2019	% of 2020	% of 2021	% of 2022	Average
Incineration with ER	0.00%	-	0.03%	0.06%	0.03%	<b>0.02%</b>
Incineration without ER	0.00%	-	0.00%	0.00%	-	<b>0.00%</b>
Landfill	-	-	0.00%	0.00%	-	<b>0.00%</b>
Long-term storage	-	-	0.00%	-	-	<b>0.00%</b>
Other fates	0.00%	0.00%	0.00%	0.00%	-	<b>0.00%</b>
Recovery	38.76%	41.62%	38.88%	50.18%	53.73%	<b>44.63%</b>
Rejected	0.01%	0.02%	0.05%	0.16%	0.01%	<b>0.05%</b>
Transfer (D)	9.32%	5.58%	4.47%	4.69%	8.07%	<b>6.43%</b>
Transfer (R)	16.16%	16.16%	16.59%	17.32%	17.06%	<b>16.66%</b>
Treatment	35.75%	36.63%	39.98%	27.58%	21.10%	<b>32.21%</b>

## 6.4 Facility Requirements

Using the figures projected in section 2 and the percentages seen in table 64, projections of facility capacity needs have been calculated. The 5-year average of the percentages have been used. The higher waste handled projection figure of 171,340.98 tonnes has been used to reflect a worst-case scenario. Table 65 shows the results.

Table 64: Projection of Hazardous waste capacity waste needs for 2027

Fate	Average % of fates	2027 projection
Incineration with ER	0.02%	39.193
Incineration without ER	0.00%	0.178
Landfill	0.00%	0.227
Long-term storage	0.00%	0.020
Other fates	0.00%	0.604
Recovery	44.63%	76,475.663
Rejected	0.05%	82.559
Transfer (D)	6.43%	11,012.855
Transfer (R)	16.66%	28,541.129
Treatment	32.21%	55,188.554

## 6.5 Conclusion

The most up to date hazardous data show arisings in 2022 to be 159,988.72 tonnes and hazardous waste handled to be 163,025.06 tonnes. The plan area is handling only (when transfer sites and movements are removed) 3,036.34 tonnes more than it is creating, meaning the area is becoming close to net self-sufficiency regarding hazardous waste handling. In comparison to the projections made in the original WNA, arisings are around 40,000 tonnes higher than predicted. Waste handled is very similar to the original projections of 154,480 tonnes. This review has estimated arisings at the end of the plan period (2027) to reach between 108,324.24 and 168,149.75 tonnes. Hazardous waste handled in 2017 is estimated to be between 138,629.44 and 171,340.98 tonnes. The large variation in estimates is due to the unpredictability of trends. Waste arisings significantly decreased in 2021 and continued to decrease in 2022 however, it is difficult to predict if decreases will continue at the same accelerated rate or if arisings will level out or even increase again to significant tonnages seen before 2021. Hazardous waste handled has generally been decreasing since 2019 and so it is likely that decreasing will continue, however, it is difficult to predict if figures will level out. Hazardous waste arisings are closely linked to CD&E arisings, which were predicted to be arisings so increases linked to CD&E also need to be acknowledged. It is likely figures will be similar to those first predicted in the last

WNA, however trends in imports and exports have been changing which effects waste handled. The plan area is closer to being net self-sufficient regarding arisings compared to handled waste tonnages. Exports are much higher than first projected, meaning the area is handled less of its own waste, imports and exports are discussed further in section 8. Hazardous waste is generally handled and disposed of at specialised facilities and so may travel further to reach the necessary facility. Hazardous facility capacity shows to be around 1,120,000 tonnes as the area is likely to lose its capacity at Ineos Chlor landfill by the end of the plan period. Therefore, there is enough capacity for the area to handle these projected tonnages to the end of the plan period.

## **7. Other Wastes**

### **7.1 Agricultural Waste**

Agricultural waste is also required to be assessed within a waste plan and was accounted for in the original Waste Needs Assessment (WNA). The estimated quantity of agricultural waste came from a 2007 sub-regional survey, which gave an estimated arising for Merseyside of 210,000 tonnes per annum. However, this figure does not account for arisings from Halton and the figure was derived from a regional survey which was apportioned to the sub-regional level. Therefore, an accurate figure was never provided and due to a range of uncertainties and the small quantity of waste involved the assumption was made that waste arisings would stay steady. Therefore, facility capacities didn't need to account for agricultural waste changing. Existing facilities would continue to handle agricultural waste and so no land was specifically allocated for facilities handling agricultural waste. There is still very little data available regarding agricultural waste, the 2021 Census of farmland shows there were 245 holdings within the plan area, with a total of 16,567.36 Hectares of farmland. The original WNA used data from the 2010 Census shows there was 19,141.18 hectars of farmland, and in 2013 there was 259 farmland holdings. There have been decreases in the number of farm holdings and the total hectares of farmland, therefore it can be concluded that agricultural waste would also decrease. The Waste Data Interrogator (WDI) tracks a proportion of Agricultural waste the European Waste Catalogue (EWC) 02 Agricultural Waste includes waste from agriculture, horticulture, aquaculture, forestry, hunting and fishing, food preparation and processing. The majority of the category is covered within Commercial and Industry waste streams, the code 02 01 is specifically waste from wastes from agriculture and horticulture. There are very small amounts of waste handled in the plan area and arising from the plan area under the code 02 01, shown in Table 66. The figures in Table 66 have come from the WDI using the waste code 02 01 and removing the Basic Waste Category (BWC) Hazardous. The transfer category has not been removed to show the total tonnages handled across the plan area, to avoid double counting however, due to the small quantities of wastes this has not been considered an issue. There are such small amounts recorded as most farming waste is handled on site, and so would not be recorded within the WDI. The majority of waste arising from the plan area is exported to a facility within the North West region. The amounts of waste are insignificant and unlikely to change or increase drastically and the majority of agricultural waste is handled onsite, and so there is no further consideration of agricultural waste, as discussed in the previous WNA.

Table 65: WDI 02 01 waste codes 2018-22

<b>Year</b>	<b>Waste Arisings (tonnes)</b>	<b>Waste Handled (tonnes)</b>
<b>2018</b>	600.94	1,145.59
<b>2019</b>	814.84	962.53
<b>2020</b>	213.99	273.94
<b>2021</b>	101.78	11.59
<b>2022</b>	15.15	0.82

**7.2 Low Level Radioactive Waste (LLRW) and Very Low Level Radioactive Waste (VLLRW)**

The quantity of Low-Level Radioactive Waste (LLRW) Very Low Level Radioactive Waste (VLLRW) was previously estimated using data provided by the EA in 2006, which indicated arisings of waste totalling 3,260 Becquerels. It is not possible to convert this amount into a tonnage amount of waste. LLRWs are primarily material from clinical treatment, most of the material is generated by hospitals (99%) with the rest created by industry (0.4%) and academic facilities (0.1%). Material is disposed of alongside other non-hazardous materials, with most of the waste being disposed of to sewer (99.7%), with the remaining tiny amounts being sent to a hazardous waste site for incineration or burial. There were such small amounts of waste involved, LLRW was assumed to stay constant throughout the plan period and there were little expectations of changes to legislation or economic conditions to cause significant changes to these quantities. Therefore, it was concluded that no new methods of disposal of this material type would be required and so LLRW was not considered further within the WNA, no changes in arisings were expected and no land allocations were necessary. The EA register of Radioactive Substances (Environmental Permitting Regulations) has been reviewed and shows 16 permits held across the plan area, details are shown in Table 67.

Table 66: EA register of radioactive substance for plan area

LA	Permit Type	Permit Holder	Address	Permit Number	Approval Date
Halton	Keeping & Use of Radioactive Materials and Disposal of Radioactive Waste	Advanced Oncotherapy PLC	STFC Daresbury Laboratory, Keckwick Lane, Warrington, WA4 4AD.	SB3397DL	09/03/2022
Halton	Keeping & Use of Radioactive Materials and Disposal of Radioactive Waste	UK Research and Innovation (UKRI)	Daresbury Laboratory, SCI-TECH Daresbury, Warrington, WA4 4AD	TB3496DM	23/09/2021
Knowsley	Keeping & Use of Radioactive Materials and Disposal of Radioactive Waste	St Helens and Knowsley Teaching Hospitals NHS Trust	Whiston Hospital, Prescot, L35 5DR	CB3845	04/10/2010
Knowsley	Keeping & Use of Radioactive Materials and Disposal of Radioactive Waste	St Helens and Knowsley Teaching Hospitals NHS Trust	Whiston Hospital, Prescot, L35 5DR	CC4006	01/12/2008
Liverpool	Keeping & Use of Radioactive Materials and Disposal of Radioactive Waste	Liverpool University Hospitals NHS Foundation Trust	Royal Liverpool University Hospital, Prescot Street, L7 8XP	FB3691DK	11/08/2021
Liverpool	Keeping & Use of Radioactive Materials and Disposal of Radioactive Waste	Liverpool University Hospitals NHS Foundation Trust	Aintree University Hospitals, Longmoor Road, Aintree, L9 7AL	CB3491DB	12/05/2020
Liverpool	Keeping & Use of Radioactive Materials and Disposal of Radioactive Waste	Alder Hey Children's NHS Foundation Trust	Alder Hey Children's Health Park, Eaton Road, Liverpool, L12 2AP.	MB3398DQ	30/09/2015
Liverpool	Keeping & Use of Radioactive Materials and Disposal of Radioactive Waste	University of Liverpool	Oliver Lodge Building, Oxford Street, Liverpool, L69 7ZE	VB3633DJ	19/05/2022
Liverpool	Disposal of Radioactive Waste	S Norton & Co Limited	Bankfield House, Bankfield Mill, Regent Road, Liverpool, L20 8RQ	FB3096DX	02/05/2018
Liverpool	Keeping & Use of Radioactive Materials and Disposal of Radioactive Waste	Liverpool School of Tropical Medicine	Centre for Tropical & Infectious Diseases, Pembroke Place, Liverpool, L3 5QA	WB3433DR	15/06/2016
Liverpool	Keeping & Use of Radioactive Materials and Disposal of Radioactive Waste	The Clatterbridge Cancer Centre NHS Foundation Trust	Clatterbridge Cancer Hospital, 65 Pembroke Place, Liverpool, L7 8YA	ZB3591DS	25/03/2020
St. Helens	Keeping & Use of Radioactive Materials and Disposal of Radioactive Waste	St Helens and Knowsley Teaching Hospitals NHS Trust	St Helens Hospital, Marshalls Cross Road, St Helens, WA9 3DA	YB3635DU	16/07/2012
St. Helens	Keeping & Use of Radioactive Materials and Disposal of Radioactive Waste	IRAS Active Analytics Limited	Units 1-3, Bold Business Centre, Bold Lane, St Helens, WA9 4TX	MB3697DL	18/07/2022
Wirral	Keeping & Use of Radioactive Materials and Disposal of Radioactive Waste	The Clatterbridge Cancer Centre NHS Foundation Trust	Clatterbridge Hospital, Clatterbridge Road, Bebington, Wirral, CH63 4JY	RB3239DJ	01/04/2018
Wirral	Keeping & Use of Radioactive Materials and Disposal of Radioactive Waste	Unilever UK Central Resources Limited	Port Sunlight, Quarry Road East, Bebington, Wirral, CH63 3JW	CB5058	02/08/2007

Wirral	Keeping & Use of Radioactive Materials and Disposal of Radioactive Waste	Unilever UK Central Resources Limited	Port Sunlight, Quarry Road East, Bebington, Wirral, CH63 3JW	CB5023	30/08/2007
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These premises have been granted authorisation to hold and/or dispose of radioactive waste, it can be assumed that this could include the generation of LLW or VLLW which may require disposal offsite. However, it is not possible to give amounts as these are not provided or reported within the permit. The majority of these premises are hospitals who will likely have private contracts to dispose of radioactive waste. There has been no significant change since the last needs assessment, the only new significant premise to open within the plan period has been in The Clatterbridge Cancer Hospital in 2020. There is an available 2022 National Radioactive Waste Inventory provided by the Department for Business, Energy and Industrial which estimates a national total of 1.58 million m3 of LLRW, an increase of 7.2% from 2019.

### **7.3 Wastewater**

The responsibility for managing water treatment wastes lies with United Utilities (UU), the regional water supplier, which operates a network of treatment works. Dwr Cymru Welsh Water also operate a Wastewater Treatment Works (WwTW) at Heswall which is responsible for waste water treatment/disposal for the wider Heswall area (but not the supply of drinking water as this falls to UU). The Heswall site does not show on the WDI or the Welsh equivalent and so is not included in Tab 68,, At the time of the last WNA Merseyside Environmental Advisory Service (MEAS) had meetings with UU during which the representatives they gave no indication for the need of new sites and so this is not considered further within the WNA. It was also noted that UU also operates a sewage sludge incinerator at Shell Green, Widnes, a regionally significant site for the Mersey Belt as it receives water treatment waste from within the plan area as well as by pipeline from Greater Manchester. However, there is no data available for the Shell Green Incinerator on the WDI but sludge treatment is accounted for within the WDI. The WDI 2022 shows waste handled at UU facilities across plan area 2,195,814.29 tonnes and the 2018 data set shows 2,171,756.29 tonnes, there has been an increase of 20,000 tonnes across the last 5 years, which is not hugely significant. Table 68 shows United Utilities WwTW within the plan area showing on the WDI and tonnage received. This is not the complete picture of the tonnage handled by United Utilities and only represents a fraction of their waste treatment network. However, it does show that tonnes within the United Utilities network shown on the WDI has not changed drastically across the last five years. There was a spike in tonnage in 2021 of 5.6 million tonnes (rounded), this is likely to be an anomaly year and could be attributed to the covid 19 pandemic.

Table 67: United Utilities treatment works within the plan area 2018-22 tonnage handled

Facility WPA	Facility	2018	2019	2020	2021	2022
Wirral	Birkenhead WWTW Sludge Treatment Facility	242,392.00	215,624.00	221,350.00	204,000.00	164,962.00
Liverpool	Fazakerley W W T W	66,680.00	82,722.00	45,440.00	105,458.00	114,556.01
Halton	Halewood Wastewater Treatment Works	5,010.00	7,381.56	7,651.17	12,686.88	7,827.68
Knowsley	Huyton WwTW	66,588.00	60,377.00	62,061.00	46,363.00	80,402.00
Liverpool	Liverpool Wastewater Treatment Works Sludge Treatment Installation	1,411,522.79	1,660,188.00	1,592,199.47	2,948,590.34	1,550,205.60
Halton	Runcorn WwTW Sludge Treatment Installation	108,315.00	120,281.00	114,736.00	120,004.00	113,370.00
St Helens	St Helens WwTW	110,835.00	102,452.00	140,323.00	86,309.00	95,157.00
Halton	Widnes WwTW	149,166.50	50,148.50	50,201.00	39,334.00	48,055.00
Knowsley	Woolton WwTW	11,247.00	15,589.00	15,163.00	22,836.00	21,279.00
<b>Total</b>	<b>10 Facilities</b>	<b>2,171,756.29</b>	<b>2,314,763.06</b>	<b>2,249,124.64</b>	<b>3,585,581.22</b>	<b>2,195,814.29</b>

United Utilities has set out a Water Resource Management Plan (WRMP) running from 2019 till 2045, the plan sets out UUs strategy to achieve long-term water supplies in the Northwest area. The plan also discusses wastewater services and how they will continue to deliver this service, as well as make improvements. Due to the insignificant changes in wastes handled at United Utilities facilities there is no need to consider wastewater arisings, the responsibility to cope with wastewater lies with United Utilities and so does no need to be discussed further within this review.

## 8. Imports and Exports

### 8.1 Introduction

Waste arising within the plan area have been discussed by waste type (LACW, CD&E, C&I and Hazardous). Due to the complexity of calculating these waste types and the restraints regarding available and transparent data, the WDI will be used to assess imports and exports. The waste streams are separated into HIC (Household, Industrial and commercial), Inert C&D and hazardous. Imports and exports were calculated using the Environmental Agency (EA) Waste Data Interrogator (WDI) waste received tab from 2018 to 2022. Imports were calculated by selecting the plan area as the waste facility sub region and excluding the plan area and waste not codable Merseyside from waste origin. Exports were calculated by selecting waste origin as the plan area (including waste not codable Merseyside) and removing the plan area from facility sub region. Table 69 shows an overview of import data by waste type. Table 70 shows an overview of export data by waste type. Table 71 shows imports minus exports to show the difference. Data has also been taken from the Hazardous Waste Data Interrogator (HWDI) and is discussed in the Hazardous waste section.

Table 68: Overview of imports data by waste type WDI 2018-22 (tonnes)

Imports	2018	2019	2020	2021	2022
HIC	2,737,336.62	3,267,245.78	4,739,748.03	3,694,956.99	3,760,316.22
Inert C+D	473,145.83	418,119.98	327,392.16	308,853.34	397,396.06
Hazardous (WDI)	146,391.41	154,977.82	141,569.69	153,697.56	163,163.47
<b>Total</b>	<b>3,356,873.86</b>	<b>3,840,343.58</b>	<b>5,208,709.88</b>	<b>4,157,507.90</b>	<b>4,320,875.75</b>

Table 69: Overview of exports data by waste type WDI 2018-22 (tonnes)

Exports	2018	2019	2020	2021	2022
HIC	1,261,636.01	1,870,903.17	1,893,722.85	1,650,097.02	1,431,858.49
Inert C+D	333,554.51	343,140.72	365,121.22	558,119.26	688,071.69
Hazardous (WDI)	161,596.59	127,066.06	104,467.04	97,500.68	100,621.07
<b>Total</b>	<b>1,756,787.10</b>	<b>2,341,109.95</b>	<b>2,363,311.11</b>	<b>2,305,716.95</b>	<b>2,220,551.25</b>

Table 70: Overview of imports minus exports by waste type

Import-Export	2018	2019	2020	2021	2022
HIC	1,475,700.61	1,396,342.60	2,846,025.18	2,044,859.97	2,328,457.73
Inert C+D	139,591.32	74,979.26	-37,729.06	-249,265.92	-290,675.63
Hazardous (WDI)	-15,205.18	27,911.76	37,102.64	56,196.88	62,542.40
<b>Total</b>	<b>1,600,086.75</b>	<b>1,499,233.63</b>	<b>2,845,398.76</b>	<b>1,851,790.94</b>	<b>2,100,324.50</b>

Table 71 shows imports minus exports and shows that the plan area is overall a huge **net importer** of waste. Exports of waste have generally stayed consistent across the 5-year data set used in this report between 1,756,787.10 and 2,363,311.11 tonnes. Even with the occurrence of the covid pandemic affecting patterns in imports, exports have stayed relatively consistent. There was an increase in exports between 2018 and 2020 of 606,524.01 tonnes but since 2020 exports have begun to decrease. Whereas imports had a considerably larger increase between 2018 and 2020 of 1,851,836.02 tonnes and then drastically decreased in 2021 by 1,051,201.98 tonnes and a small increase of 163,367.85 tonnes occurred. Imports have sat between 3,356,873.86 and 5,208,709.88 tonnes across the 5 years. There are huge amounts of HIC waste coming to the area compared to being exported. There was more Hazardous waste leaving the area than being imported in 2018 but from 2019 onwards more hazardous waste is being imported than exported. There has also

been a change in trend in waste movements of Inert C&D, in 2018 more waste was imported than exported but from 2019 onwards more Construction and Demolition (C&D) waste has been exported than imported. There are such significant amounts of HIC imported overall more waste is still imported than exported, despite the changes in movements of hazardous and C&D waste. The plan area has many transports routes in and out of the area such as train links to areas such as Manchester and Chester as well as extensive road links with major motorway links such as the M62, M57, M58 and M6. There are also ports running along the Liverpool docks which allows for waste to be transferred and received from ships. There are also a range of specialised waste facilities across the area which means surrounding areas lacking these facilities are likely to send it into the plan area. These factors all contribute to the movements of waste, they are discussed further in section two.

In terms of self-sufficiency the plan area has steadily been importing more waste than it has been exporting overall as shown in Table 72. The facilities within the area are handling more waste from outside the plan area, however percentages are teetering around the 50% mark. In 2020 more waste was technically imported waste, however this is by a tiny percentage and this is due to an increase in imports in HIC waste as discussed above. Imports of waste are discussed and checked through Duty to Cooperate requests; no issues have been identified with wastes being received outside of the plan area as of yet. These figures do include transfer stations and so there is likely to be double counting of waste but it builds a full picture of waste movements and waste being handled within the plan area.

*Table 71: Overall waste handled and imports and difference in % imports of handled WDI 2018-22 (tonnes)*

<b>Tonnes</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>
<b>Total Handled</b>	8,214,604.24	9,241,342.82	10,299,265.74	10,830,185.97	9,288,283.67
<b>Imports</b>	3,356,873.86	3,840,343.58	5,208,709.88	4,157,507.90	4,320,875.75
<b>Handled - Imports</b>	4,857,730.38	5,400,999.24	5,090,555.86	6,672,678.07	4,967,407.92
<b>% Imports</b>	40.86%	41.56%	50.57%	38.39%	46.52%

There are issues when using the WDI and HWDI as data sources for waste movements as they hold data reporting on the receiving of waste a facility only within England, but not waste arising or being exported to Northern Ireland, Scotland, Wales and Outside of the UK. This means that waste imported from outside of England is recorded but waste exported from within the plan area to outside England is not reported. Therefore, for parity, figures have excluded waste arising from outside England for both imports and exports in Table 73. Table 73 shows imports minus exports with the waste imported from outside of England excluded. The same trends are shown with overall more waste being imported into the plan area than exported from. Except for the balance of waste movements when comparing 2021 and 2022, when only looking at movements within England. There are some differences when looking at the individual waste streams. HIC follows a similar pattern except where an increase in the gap between exports and imports occurred, in figures just including England the plan area is moving towards net sufficient rather than farther away. Regarding Inert C&D, the pattern is the exact same. Hazardous waste movements are different in 2019 as data in Table 73 shows more exports than imports. This is just an acknowledgement that there are inconsistencies when using the WDI and HWDI to review waste movements, imports from outside England have been discussed within each waste stream breakdown. Figures including waste movements outside of England build a full picture of imports to facilities into the plan area which is important when reviewing capacity needs and builds a full picture of waste tonnages dealt with within the plan area.

Table 72: Imports minus waste imported from outside England by waste type WDI 2018-22 (tonnes)

Import-Export	2018	2019	2020	2021	2022
HIC	1,475,700.61	1,396,342.60	2,846,025.18	2,044,859.97	2,328,457.73
Inert C+D	139,591.32	74,979.26	-37,729.06	-249,265.92	-290,675.63
Hazardous (HWDI)	-53,511.06	-7,652.01	17,041.11	34,431.22	38,863.35
<b>Total</b>	<b>1,499,425.42</b>	<b>1,355,359.52</b>	<b>2,569,848.36</b>	<b>2,344,663.60</b>	<b>1,869,077.23</b>

## 8.2 Imports and Exports by Waste Category

### 8.2.1 HIC

Table 74 shows HIC wastes export and import data, it shows that HIC waste is imported into the plan area in significant quantities, in 2020 imports peaked at 4,739,748.03 tonnes. In comparison exports are much lower and have stayed relatively steady between 1,261,636.01 and 1,893,722.85 tonnes across the last five years reported. Exports increased from 2018 to 2020, a decrease was observed in 2021 and then again in 2022, but level are still higher than the low of 2018. Imports also increased from 2018 to 2020 and decreased in 2021 however, a slight increase occurred in 2022.

Table 73: HIC exports and imports data (WDI 2018-22)

HIC	2018	2019	2020	2021	2022
Exports	1,261,636.01	1,870,903.17	1,893,722.85	1,650,097.02	1,431,858.49
Imports	2,737,336.62	3,267,245.78	4,739,748.03	3,694,956.99	3,760,316.22
<b>Imports-Exports</b>	<b>1,475,700.61</b>	<b>1,396,342.60</b>	<b>2,846,025.18</b>	<b>2,044,859.97</b>	<b>2,328,457.73</b>

Table 75 shows imports of HIC by area. There are significant amounts of HIC coming to facilities within the plan area from within the North West. There are many facilities that hold contracts to take LACW from surrounding Local Authorities (LA). There are also significant amounts (>100,000 tonnes) imported from Wales, West Midlands, Yorks and Humber and from Outside of the UK. The patterns in movements are seen for all recorded years.

Table 74: Imports of HIC by area (WDI 2018-22)

HIC Imports (tonnes)	2018	2019	2020	2021	2022
East Midlands	26,153.32	47,989.78	103,761.57	448,529.88	17,023.15
East of England	21,012.65	20,222.90	11,115.39	8,438.54	7,608.50
London	18,922.79	19,305.74	16,938.07	19,566.03	23,288.82
North East	14,932.07	9,549.08	6,160.38	34,148.27	10,189.88
North West (excluding M&H)	2,130,941.66	2,570,489.26	3,956,529.68	2,333,270.76	3,069,268.94
Northern Ireland	10,292.15	5,716.89	3,085.09	1,241.84	484.07
Outside UK	72,504.18	67,600.08	139,213.11	109,544.48	117,439.90
Scotland	45,664.38	35,536.93	34,786.61	23,667.91	28,335.18
South East	12,011.51	12,574.44	9,628.08	133,675.16	18,668.38
South West	21,117.49	11,725.65	12,619.99	10,746.46	10,359.21
Wales	109,624.71	145,310.66	188,644.99	234,097.89	196,863.78
West Midlands	156,757.88	194,586.41	185,400.08	248,662.57	170,875.18
Yorks and Humber	97,401.83	126,637.97	71,864.99	89,367.21	89,911.23
<b>Totals</b>	<b>2,737,336.62</b>	<b>3,267,245.78</b>	<b>4,739,748.03</b>	<b>3,694,956.99</b>	<b>3,760,316.22</b>

Table 76 shows exports of HIC by area. There are significant amounts of HIC waste being exported from the plan area to the surrounding North West Waste Planning Authorities (WPAs), however 2022 showed a significant low of waste being exported to the North West. There is also a significant amount of waste exported to North East, this is likely to be the movement of LACW from Kirkby Rail Station up to Teesside where it is incinerated. There is also a large amount going to Yorks and Humber, the amount

being exported to London has increased across the years. These movements are likely to stay consistent to the end of the plan period, and there have been no issues regarding HIC waste movements noted through Duty to Cooperate (DtC) discussions.

Table 75: Exports of HIC by area (WDI 2018-22)

HIC Exports (tonnes)	2018	2019	2020	2021	2022
East Midlands	16,405.77	32,410.45	15,890.40	34,094.07	30,401.56
East of England	4,912.15	1,788.35	5,575.35	6,859.28	6,335.73
London	13,071.29	8,582.26	11,064.55	21,729.41	29,685.82
North East	222,246.34	603,392.42	693,866.36	466,521.28	362,197.45
North West (excluding M&H)	802,444.13	1,007,752.89	902,020.29	852,938.41	663,473.02
South East	7,819.05	17,544.10	17,275.95	20,375.94	24,123.69
South West	15,435.37	18,342.75	424.18	1,776.43	554.99
Wales	115,381.24	84,903.76	79,943.47	60,476.54	96,620.44
West Midlands	20,570.33	44,879.48	67,284.52	113,702.52	115,859.10
Yorks and Humber	43,350.33	51,306.71	100,377.78	52,787.39	58,508.69
Blanks (mobile plants)	0.00	0.00	0.00	18,835.74	44,098.00
<b>Totals</b>	<b>1,146,254.77</b>	<b>1,785,999.41</b>	<b>1,813,779.38</b>	<b>1,589,620.48</b>	<b>1,335,238.06</b>

### 8.2.2 Inert C&D

Table 77 shows Inert C&D imports and exports from 2018 to 2022. There has been a change in the pattern of Inert C&D waste movements in and out of the plan area. In 2018 and 2019 there was almost double the amount of waste being imported compared to exported. However, a shift occurred in 2020 where the plan was almost level, there was 5,152.57 tonnes more waste being exported. Since then, there has been a huge increase in the amount of C&D waste being exported out of the plan area, figures in 2022 were almost double of those in 2020. The amount of C&D waste imports decreased between 2018 and 2021, an increase has only been observed in 2022. Exports have continually increased since 2018, the most significant increase was between 2020 and 2021 of 176,225.51 tonnes.

Table 76: Inert C&D imports and exports (WDI 2018-22)

Inert C&D Tonnes	2018	2019	2020	2021	2022
<b>Exports</b>	333,554.51	343,140.72	365,121.22	558,119.26	688,071.69
<b>Imports</b>	473,145.83	418,119.98	327,392.16	308,853.34	397,396.06
<b>Import-Export</b>	139,591.32	74,979.26	-37,279.06	-249,265.92	-290,675.63

Table 78 shows Inert C&D imports by area, the majority of imports are from the North West WPAs, followed by London and West Midlands.

Table 77: Inert C&D imports by area (WDI 2018-22)

Inert C&D Imports (tonnes)	2018	2019	2020	2021	2022
East Midlands	4,237.60	720.06	2,483.71	5,157.89	1,579.40
East of England	2,230.26	1,476.64	514.98	211.54	160.21
London	23,004.32	26,791.55	29,328.52	28,333.85	29,033.24
North East	41.30	3.15	59.51	4,252.51	4,082.65
North West (excluding M&H)	410,093.09	354,027.66	272,822.34	242,203.59	313,457.32
Northern Ireland	12.76	40.62	47.31	32.57	38.07
Outside UK	3,501.90	1,916.14	0.00	518.65	71.82
Scotland	0.26	560.38	167.71	716.05	1,604.23
South East	800.07	579.37	325.32	266.03	325.54

<b>Inert C&amp;D Imports (tonnes)</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>
South West	324.34	207.75	96.18	418.47	60.38
Wales	3,150.80	1,420.47	2,064.01	1,765.64	13,005.86
West Midlands	23,601.15	26,073.01	17,589.77	21,999.84	28,827.23
Yorks and Humber	2,147.98	4,303.19	1,892.80	2,976.71	5,150.12
<b>Totals</b>	<b>473,145.83</b>	<b>418,119.98</b>	<b>327,392.16</b>	<b>308,853.34</b>	<b>397,396.06</b>

Table 79 shows Inert C&D exports by area. In 2022 the majority of exports were to the surrounding North West WPAs or to a mobile plant. Aside from 2022 the majority of waste has been exported to the North West, a large quantity also has been exported to Yorks and Humber each year. The amount of C&D waste exported to West Midlands significantly increased in 2020 and further again in 2021. The large increase in exports observed in 2021 and 2022 can be seen to be going out to 'Blanks' which when looking at the facility type on WDI has been categorised as a mobile plant. This mobile plant took a huge proportion of C&D wastes arising from the plan area, it is taking almost as much exported to the surrounding North West region WPAs. This portion of waste is being exported from Liverpool and is all soils, the plant is a bespoke mobile plant operated by Vertase F.L.I Limited, likely being used for soil cleaning.

*Table 78: Inert C&D exports by area (WDI 2018-22)*

<b>Inert C&amp;D Exports (tonnes)</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>
East Midlands	24.72	300.63	2,148.22	4,261.29	3,525.36
East of England	0.00	20.00	67.50	35.69	130.70
London	0.79	52.37	37.34	53.41	4.75
North East	389.54	0.00	24.90	0.00	0.00
North West (excluding M&H)	250,393.48	255,620.52	273,240.50	228,835.82	295,896.16
South East	14.68	1.94	1.00	7.69	3.73
South West	0.42	13.26	0.00	114.28	0.10
Wales	65,347.06	64,888.06	32,576.49	49,349.02	53,654.26
West Midlands	1,485.61	1,847.45	35,249.50	184,311.53	29,608.33
Yorks and Humber	15,898.20	20,396.49	21,775.79	29,243.53	12,358.32
Blanks (mobile plants)	0.00	0.00	0.00	61,907.00	292,890.00
<b>Totals</b>	<b>333,554.51</b>	<b>343,140.72</b>	<b>365,121.22</b>	<b>558,119.26</b>	<b>688,071.69</b>

### **8.2.3 Hazardous**

The previous waste needs assessment used the figures shown in Table 80, projections were to be the same from 2013 onwards and so up to the end of the plan period (2027). Data showed imports exceeding export and so making the plan area a net importer of hazardous waste. The original data shows little changes in tonnages with waste exported decreasing from 2010 to 2013 and imports slightly increasing.

*Table 79: Initial WNA hazardous waste exports and imports 2010-13 onwards*

<b>Hazardous (tonnes)</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013 onwards</b>
<b>Exported waste</b>	83,580	83,160	82,750	82,330
<b>Imported waste</b>	117,590	117,700	117,820	117,940
<b>Exports - Imports</b>	+34,010	+34,540	+35,070	+35,610

Table 81 shows imports and exports of hazardous waste shown on the HWDI from 2018 to 2022. The HWDI is showing that more waste has been exported throughout 2018 to 2022. Merseyside and Halton are net exporters, exporting between 95,351.28 and 108,181.26 tonnes across 2018, 2019 and 2020. Again, a significantly different trend is observed in 2021 as imports increase but exports decrease

closing the gap between the numbers, giving a net exporting number of just below 25,000 tonnes. Despite M&H hazardous waste arisings significantly decreasing in 2021 the amount handled stayed relative to the previous years because imports significantly increased. Waste movements in 2021 showed the plan area being close to self-sufficiency but the increase in exports in 2022 increased the gap again.

*Table 80: Hazardous waste exports and imports (HWDI 2018-22)*

<b>HWDI (tonnes)</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>
<b>Exports</b>	234,999.62	257,530.90	237,704.75	197,663.35	215,935.26
<b>Imports</b>	139,648.35	149,349.64	145,572.81	172,696.42	175,081.93
<b>Exports-Imports</b>	95,351.27	108,181.26	92,131.94	24,966.93	40,853.33

Table 82 shows imports and exports reported through the HWDI with the transfer fate removed, as this can lead to double counting, as discussed previously in the Hazardous waste arisings section. When the transfer fate is removed from the data trends change as exports are observed to decrease year on year and the generally between 2018 and 2022 exports have increased. This leads to more exports than imports in 2022 making the area a net exporter again, as seen in the last needs assessments data. Exports are much higher than first predicted of 82,000 tonnes; imports are also higher but closer to the 117,000 tonnes first projected. The last waste needs assessment projected figures to be the same from 2023 onwards, but this has not been the case with all the data collected between 2018 and 2022 showing changes year on year. The last waste needs assessment could never have considered the effects of the pandemic due to the unprecedented and unpredictable nature of the event. The pandemic would have affected imports and exports due to the restrictions, in 2021 exports decreased which could be attributed to the pandemic as there was a small increase in 2022 which could show signs of recovery from the pandemic.

*Table 81: Hazardous waste minus transfer fate imports and exports (HWDI 2018-22)*

<b>HWDI – Transfer Fate (tonnes)</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>
<b>Exports</b>	96,366.28	107,372.17	103,661.85	117,162.81	131,331.08
<b>Imports</b>	166,332.91	225,329.96	219,783.98	165,677.52	128,294.75
<b>Exports-Imports</b>	-69,966.63	-117,957.79	-116,122.13	-48,514.71	3,036.33

Table 83 shows Hazardous waste imports by area according to the HWDI and table 84 shows exports according to the HWDI. For tables 16 and 17 HWDI data has been used, the transfer fate has been kept in to show the full extent of waste movements, this could lead to double counting but gives a broader view of where waste is coming from and travelling too. Table 83 shows that the majority of imports of hazardous waste are coming from within the North West region, followed by large amounts (>10,000 tonnes) coming in from the North East, South East, Wales, West Midlands, and Yorks & Humber.

*Table 82: Hazardous waste imports by area (HWDI 2018-22)*

<b>Hazardous Imports (tonnes)</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>
East Midlands	6,485.01	6,279.36	5,855.23	7,625.28	8,899.17
East of England	5,786.97	5,621.65	4,416.40	6,897.94	9,470.59
London	2,569.73	3,494.96	3,231.35	3,099.90	3,179.73
North East	9,887.82	7,545.09	9,217.55	13,736.60	14,757.29
North West	37,592.76	53,392.66	49,053.32	52,232.70	54,374.70
Northern Ireland	2,422.97	5,217.28	4,721.98	5,176.72	4,349.07
Scotland	6,815.87	4,431.76	7,466.77	8,969.19	6,754.33
South East	15,848.29	5,867.36	4,938.40	13,329.63	10,121.17

<b>Hazardous Imports (tonnes)</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>
South West	7,902.23	5,757.19	6,049.19	8,688.42	8,439.41
Unknown	0.00	69.37	104.33	60.29	111.23
Wales	14,477.91	17,297.48	14,667.56	13,821.74	15,756.16
West Midlands	9,075.47	11,471.35	12,433.69	15,443.05	12,849.45
Yorks & Humber	20,783.32	22,904.13	23,417.06	23,614.96	26,019.63
<b>Total</b>	<b>139,648.35</b>	<b>149,349.64</b>	<b>145,572.81</b>	<b>172,696.42</b>	<b>175,081.93</b>

Table 84 shows hazardous waste exports by area according to the HWDI. Exports again follow a similar trend of imports, with the majority going within the North West region, followed by large amounts (>10,000 tonnes) coming in from the North East, West Midlands and Yorks & Humber. There are large amounts of waste categorised under 07 01 01 and 07 06 01 ‘washing liquids and mother liquors’ being exported to Trafford from Knowsley and Wirral total for further transport (65,862.60 tonnes). There is an element of double counting with the figures as transfers have been left in however, the full picture of waste movement is shown.

*Table 83: Hazardous waste exports by area (HWDI 2018-22)*

<b>Hazardous Exports (tonnes)</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>
East Midlands	12,041.67	12,470.03	12,643.09	11,083.81	9,413.41
East of England	10,428.86	4,761.32	17,687.76	9,133.60	2,780.76
London	16.86	229.77	118.95	70.47	159.37
North East	9,271.90	6,156.98	10,376.28	11,982.75	24,713.08
North West	110,523.12	164,084.88	136,037.70	114,466.15	124,726.51
South East	11,850.35	941.53	3,791.37	1,804.98	1,850.96
South West	11,356.73	2,665.82	5,260.70	5,445.62	6,608.85
West Midlands	16,128.37	14,967.38	17,387.55	16,720.08	17,091.15
Yorks & Humber	53,381.77	51,253.19	34,401.35	26,955.89	28,591.17
<b>Total</b>	<b>234,999.62</b>	<b>257,530.90</b>	<b>237,704.75</b>	<b>197,663.35</b>	<b>215,935.26</b>

### **8.3 Conclusion**

Overall, the plan area is a net importer of waste and as of 2022 the total of waste handled within Merseyside and Halton is 46.52% imported waste. Waste movements are discussed through Duty to Cooperate requests, which have not identified any issues with the amounts of waste coming into the plan area by authorities outside of the plan area. Duty to Cooperate requests would also raise any issues regarding the capacity or closure of a facility and any reason an area would need to stop importing waste. Therefore, DtC requests or any future system will continue to be assessed for any issues going forward. The area is likely to remain a net importer, as exports are likely to stay consistent, they are showing signs of decrease while imports are increasing. There are many specialised facilities within the plan area as well as, excellent transport connections such as road, rail, and ferry.

### **8.4 Duty to Cooperate**

Table 85 shows Duty to Cooperate requests Merseyside and Halton have received since the last JWLP monitoring report in 2019. There were no issues with waste movements raised, those discussed are to proceed as they have been.

Table 84: Duty to Cooperate requests for Merseyside and Halton (2019-2024)

Monitoring report	Duty to cooperate request from
2019-2020	<ul style="list-style-type: none"> <li>• Hertfordshire</li> <li>• Kent</li> <li>• Northumberland</li> <li>• South London</li> </ul>
2020-2021	<ul style="list-style-type: none"> <li>• East Riding</li> <li>• Hampshire</li> <li>• Hertfordshire</li> </ul>
2021-2022	<ul style="list-style-type: none"> <li>• Hampshire</li> <li>• Norfolk</li> <li>• South Yorkshire</li> </ul>
2022-2023	<ul style="list-style-type: none"> <li>• Cheshire East</li> <li>• Hertfordshire</li> <li>• Nottinghamshire</li> </ul>
2023-2024	<ul style="list-style-type: none"> <li>• Bradford</li> <li>• Hampshire</li> <li>• Sandwell</li> </ul>

## **9. Conclusion**

This review of the Joint Waste Local Plan’s Waste Needs Assessment of 2013 shows that waste arisings in the plan area total an estimated **3,314,399.86 tonnes** as of 2022. This comprises of LACW, C&I, CD&E and hazardous wastes. It has been assumed, through the methodologies shown in this review, that arisings may reach 3,572,372.94 tonnes by the end of the plan period (2027). There are many contributing factors that will affect this number, such as national and local policy being introduced generally with the aim to reduce waste, increase recycling rates, and move waste fates up the waste hierarchy. Increasing housing and population would tend to drive waste figures up, however waste per head has seen a recent decline in LACW collections and regarding CD&E waste per housing in a new development has continued to fall for many years. The amount of hazardous waste the plan area has handled and also hazardous arisings have fallen for the last 5 years and are likely to continue to fall and eventually level out. Hazardous waste figures have been relatively stable and only small increases are predicted to the end of the plan period. This review has also concluded that the plan area is a significant net importer of waste overall. The area has extensive road, rail and port transport links and so huge tonnages of waste passes through the area, as well as received at many specialised facilities across the Merseyside and Halton area. This review has shown figures generally as predicted by the last waste needs assessment, and figures that have been catered for within the facilities that have been brought forward since the beginning of the plan.