Lincolnshire Minerals and Waste Local Plan - Evidence Base

Project: Lincolnshire Waste Needs Assessment 2021 – Overview Report

Final Issue

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Executive summary

This report presents the outcomes of the Lincolnshire Waste Needs Assessment (WNA) update exercise undertaken by BPP Consulting. The WNA was completed to update the evidence base supporting the review of the Lincolnshire Minerals and Waste Local Plan. The WNA determines whether a predicted need for additional waste management capacity exists in Lincolnshire by quantifying and characterising the principal waste streams arising and producing forecasts/estimates of the amount of waste that needs to be managed, whilst taking into account the potential contribution of the existing available waste management capacity within Lincolnshire.

The WNA 2017 found that a total of over two million tonnes of waste (2.116) arose within Lincolnshire in 2016. This update exercise has confirmed that figure as a robust value to plan for finding a value of 2.114 Mt in 2019. The quantities of principal categories of waste arising are shown in Figure 1 below:

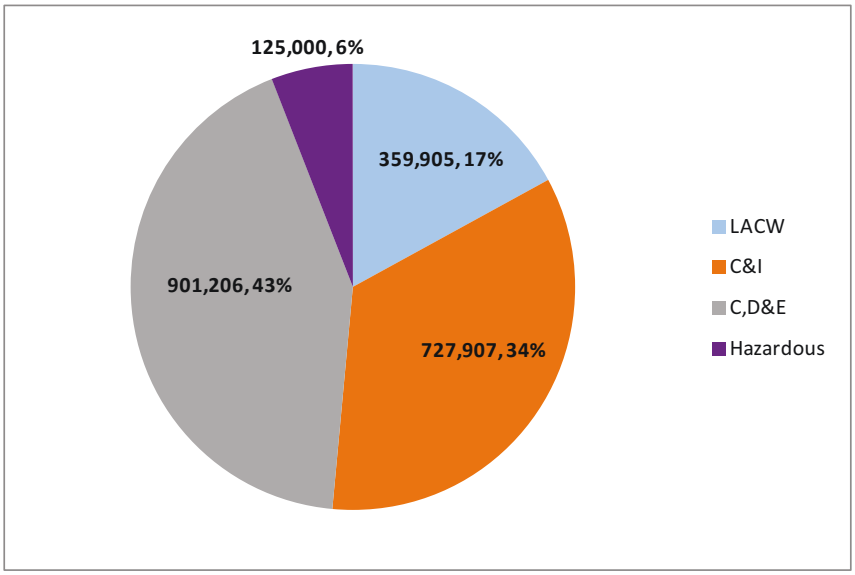

Figure 1: Quantities of Principal Waste Types Arising in Lincolnshire 2019 (tonnes)

This WNA update has found that there appears to be sufficient existing consented capacity to meet predicted waste management requirements for Lincolnshire through to 2045, with surpluses identified in built waste management capacity, and sufficient combined void space across the consented inert and non-inert landfill estate.

Abbreviations & Glossary of Terms

Abbreviations

Abbreviation	Explanation
AD	Anaerobic Digestion
AMR	Authority Monitoring Report
C & I	Commercial & Industrial Waste
C, D & E / CDEW	Construction, Demolition & Excavation Waste
DEFRA	Department for Environment, Food and Rural Affairs
EA	Environment Agency
EfW	Energy from Waste
EWC	European Waste Catalogue
GVA	Gross value added
HWRCs	Household Waste Recycling Centres
LACW	Local Authority Collected Waste
MRF	Material Recycling Facility
nPPG	national Planning Practice Guidance
NPPW	National Planning Policy for Waste
RDF	Refuse Derived Fuel
WDF	WasteDataFlow
WDI	Waste Data Interrogator
WNA	Waste Needs Assessment
WPA	Waste Planning Authority

Glossary of Terms

Term	Definition
Agricultural Waste	Waste produced on a 'farm' in the course of 'farming'. Agricultural waste takes both 'natural' (or organic) and 'non- natural' forms e.g. plastics.
Anaerobic Digestion	A process to manage organic matter including green waste and food waste broken down by bacteria in the absence of air, producing a gas (biogas) and nutrient rich solid or liquid (digestate). The biogas can be used to generate energy either in a furnace, gas engine, turbine or to power vehicles, and digestate can be applied to land as a fertiliser.
Biodegradable Waste	Waste that can break down over time due to natural biological action/processes, such as food, garden waste and paper.
Commercial Waste	Waste arising from premises which are used wholly or mainly for trade, business, sport, recreation or entertainment, excluding municipal and industrial waste.
Construction, Demolition & Excavation Waste	Controlled waste arising from the construction, repair, maintenance and demolition of buildings and structures.
Energy from Waste	The conversion of the calorific value of waste into energy, normally heat or electricity through applying thermal treatment of some sort. May also include the production of gas that can be used to generate energy.
Environment Agency	The body responsible for the regulation of waste management activities through issuing permits to control activities that handle or produce waste. It also provides up-to-date information on waste management matters and deals with other matters such as flood protection advice.
Green waste	Biodegradable plant waste from gardens and parks such as grass or flower cuttings and hedge trimmings, from domestic and commercial sources suitable for subjecting to composting.
Hazardous Waste Landfill	Sites where hazardous waste may be disposed by landfill. This can be a dedicated site or a single cell within a non-hazardous landfill, which has been specifically designed and designated for depositing hazardous waste.
Hazardous Waste	Waste requiring special management under the Hazardous Waste Regulations 2005 due to it posing potential risk to public health or the environment (when improperly treated, stored, transported or disposed). This can be due to the quantity, concentration, or its characteristics.
Household Waste	Waste from households collected through kerbside rounds, bulky items collected from households and waste delivered by householders to household waste recycling centres and 'bring recycling sites', along with waste from street sweepings, and public litter bins.
Household Waste Recycling Centres	A facility that is available to the public to deposit waste not collected through kerbside collection (otherwise known as a civic amenity sites).

Term	Definition
Incineration	The controlled burning of waste. Energy may also be recovered in the form of heat (see Energy from Waste).
Industrial Waste	Waste arising from any factory and from any premises occupied by an industry (excluding mines and quarries).
Inert Landfill	Landfill site permitted to only accept inert waste for disposal.
Landfill (including land raising)	The permanent disposal of waste to land, by the filling of voids or similar features, or the construction of landforms above ground level (land-raising).
Landfill Directive	European Union requirements restricting the landfilling of biodegradable municipal waste and requiring pre treatment of all waste destined to be landfilled and separate disposal of hazardous, and non hazardous and inert wastes.
Local Authority Collected Waste	All waste collected by a Local authority. Includes household waste and business waste where collected by a Local authority and non municipal fractions such as construction and demolition waste. LACW is the definition used in statistical publications, which previously referred to municipal waste.
Materials Recycling Facility (MRF)	A facility for sorting recyclable materials from the incoming waste stream.
Non-inert Landfill	A landfill permitted to accept non-inert (biodegradable) wastes e.g. municipal and commercial and industrial waste and other non-hazardous (including inert) wastes. May only accept hazardous waste if a special cell is constructed.
Other Recovery	A subset of recovery on the waste hierarchy below recycling and composting. Includes energy from waste and backfilling of mineral workings
Recovery	Subjecting waste to processes that recover value including recycling, composting or thermal treatment to recover energy.
Recycling	Extracting materials from the waste stream for reprocessing into products (the same e.g. glass bottles) or a different one e.g. aggregate)..
Recovery to land	Activities involving the permanent deposit of inert waste for specific purposes not classed as disposal. Generally subject to permitting. May include backfilling of mineral workings.
Refuse Derived Fuel	A fuel produced to a contract specification by processing the combustible fraction of waste.
Residual Waste	Waste remaining after materials for re-use, recycling and composting/organic waste treatment e.g. anaerobic digestion have been removed.
Waste Local Plan	A statutory development plan prepared (or saved) by the waste planning authority setting out polices in relation to the management of waste arising within the area and provision of development to manage waste arising within that area.
Waste Planning Authority (WPA)	The local authority responsible for waste development planning and control. In this case Lincolnshire County Council.
Waste Transfer Station	A site to which waste is delivered for bulking prior to transfer to another place for further processing or disposal.

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1.0 Introduction

1.1 This report presents the outcomes from a comprehensive Waste Needs Assessment (WNA) exercise undertaken by BPP Consulting. This WNA updates the evidence base supporting the review of the Lincolnshire Minerals and Waste Local Plan. The WNA involves establishing future waste management requirements and estimating whether existing capacity will be sufficient to meet these needs or whether additional capacity needs to be planned for. The WNA quantifies and characterises the principal waste streams arising in the Plan Area and produces forecasts/estimates of the amount of waste that needs to be managed into the future, whilst taking into account the contribution of the consented and permitted waste management capacity. This work is undertaken in the context of the National Planning Policy for Waste (NPPW)[1] and the national Planning Practice Guidance[2] (nPPG), which expects that:

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

1.2 To achieve this the following steps have been followed:

1. Scope target waste streams;
2. Generate robust baseline waste arisings values;
3. Generate realistic and meaningful forecasts of future waste arisings;
4. Identify appropriate relevant targets for the management of waste e.g., to ensure that waste is managed in accordance with the waste hierarchy;
5. Assess current capacity;
6. Quantify future capacity needs accounting for cross boundary movements of waste;
7. Establish any associated future gaps in waste management capacity; and
8. Identify facility and site requirements to fill any identified projected gap.

[1] https://www.gov.uk/government/publications/national-planning-policy-for-waste

[2] http://planningguidance.planningportal.gov.uk/blog/guidance/waste/

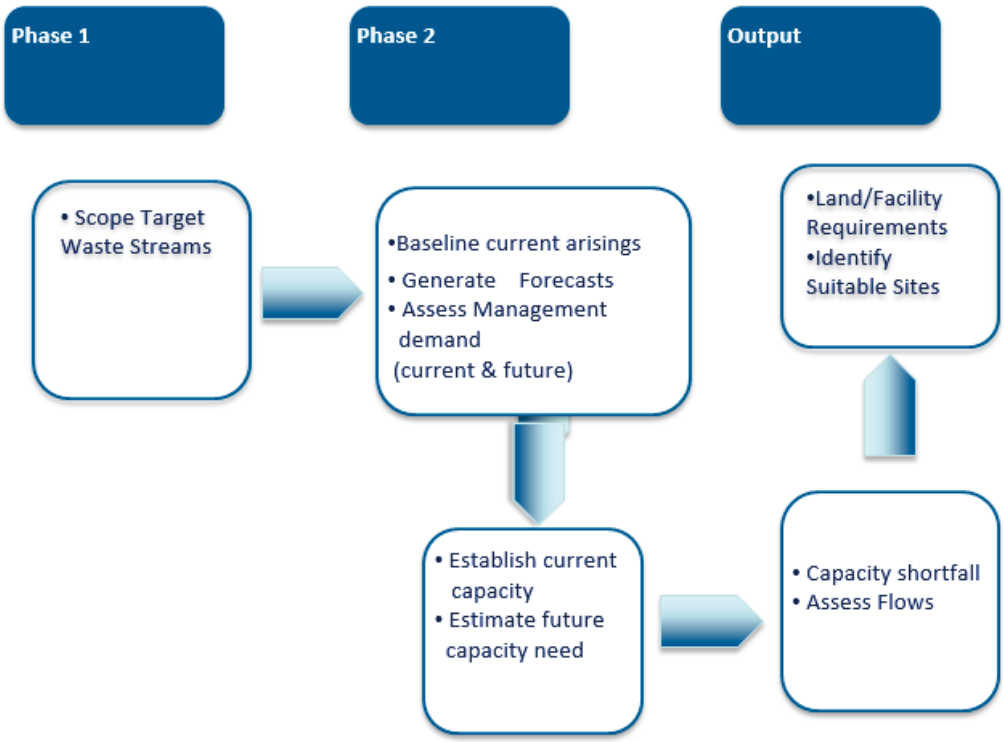

Figure 2: Schematic of Waste Needs Assessment Production Process

Figure 2 shows the phases involved in producing a Waste Needs Assessment:

- Phase 1 = Scope Target Waste Streams
- Phase 2a = Baseline current arisings; Generate Forecasts; Assess Management demand (current and future)
- Phase 2b = Establish current capacity; Estimate future capacity need
- Output 1 = Capacity shortfall; Assess Flows
- Output 2 = Land/Facility Requirements

1.3 The outcome of waste stream-specific assessments, are presented in a suite of five supporting reports that form part of the evidence base behind this main report. These assess current and forecast arisings and determine appropriate targets that may be included in the Lincolnshire Minerals and Waste Local Plan. The reports are as follows:

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

1.4 Since arrangements for the management of Low Level Radioactive, Agricultural, and Waste Water have been found to be sufficient in the Other Waste

Report[3], that considered these waste streams, these streams have not been considered further. The waste streams considered in this report exercise, are therefore as follows:

- Local Authority Collected (Municipal/household);
- Commercial & Industrial;
- Construction, demolition & excavation; and
- Hazardous.

[3] BPP Consulting Waste Needs Assessment 2021 Scoping report for Other Waste Report 5.

2.0 Principal Data Sources

The principal data sources used to generate the underlying evidence for the Waste Needs Assessment are as follows:

Environment Agency Waste Data Interrogator (WDI)

2.1 Operators of all sites permitted to manage waste (other than incinerators/energy from waste plants and specialist hazardous waste treatment plants) submit quarterly returns on the quantities, types and origin of waste received and, where applicable, destination of waste removed at their sites. These returns are collated by the Environment Agency and are included in a national database known as the Waste Data Interrogator (WDI). This is released approximately nine months after the end of the calendar year to which the data relates. The 2019 WDI (that includes data for the year 2019) is the current version available. This now includes inputs to facilities such as energy from waste plants and incinerators.

Environment Agency Hazardous Waste Data Interrogator (HWDI)

2.2 When hazardous waste is moved, forms called consignment notes are completed to track its movement and submitted to the Environment Agency. These are collated by the Environment Agency and are integrated into a national database known as the Hazardous Waste Interrogator (HWI). This is released around nine months from the end of the calendar year that is reported. The 2019 HWDI (that reports 2019 data) is the current version available.

Register of activities exempt from the need for an Environmental Permit

2.3 To reduce the regulatory burden on certain low risk waste management activity, a range of activities are exempt from permitting. Exemption from permitting is gained by simple registration of the activity on the Environment Agency website. The activities range from the bonfires and deposit of certain specified waste to confer agricultural benefit. A register is maintained of all registered exemptions. The Environment Agency provides an updated listing of registered exemptions on request. The dataset provided to inform this project covered the period 1 January 2016 through to 31 December 2019, as exemptions expire after 3 years. The listing of registered U1 exemptions covering the use of C,D&E waste for construction was accessed to inform the C,D & E waste baseline.

Environment Agency Remaining Landfill Void

2.4 The Environment Agency provides an annual listing of remaining void at landfills under the Environmental Permitting Regulations. The dataset used to inform this project covered the period to the end of 2019. It does not account for void that might be used for landfill, which at that date, had not been granted an environmental permit such as void being created through active mineral

working. This means some void with planning consent but no permit is not included. This additional void has been added on the advice of LCC.

Lincolnshire County Council Planning Records

2.5 The county council keeps records of all consented waste sites in Lincolnshire.

Quantities of Waste Produced in Lincolnshire

2.6 The WNA has found that just over 2 million tonnes of wastes arose within Lincolnshire in 2019. The principal components are:

- Local Authority Collected Waste c360,000 tonnes
- Commercial & Industrial Waste c730,000 tonnes
- Construction, Demolition & Excavation c900,000 tonnes
- Hazardous Waste c125,000 tonnes

The profile is illustrated in Figure 1 of the Executive Summary of this report.

Capacity Assessment Overview

2.7 The capacity of existing waste management facilities in Lincolnshire (the Plan area) has been assessed using information about planning consents issued, supplemented by reference to the permitted sites listed in the Environment Agency Register of Permits, the Environment Agency Waste Data Interrogator (WDI) for inputs and outputs of operational sites. The data from these sources together captures both operational and non-operational facilities with planning consent.

2.8 Examination of these datasets indicate the following capacity types exist within the Plan area:

Non-inert Waste

- Organic Waste Treatment inc composting and anaerobic digestion;
- Mixed Waste Recycling in the form of sorting sites inc MRFs;
- Material specific recycling such as Metal Recycling Sites;
- Other Recovery for residual waste inc energy from waste;
- Non-Hazardous Landfill for residual waste,
- Liquid Waste Treatment.

Inert Waste

- Recycling in the form of recycled aggregate production sites;

- Inert Landfill;

Hazardous Waste

- Waste Treatment

Sources of Facility Capacity Data

2.10 Facility capacity data has been collated from a review of input data compiled by the Environment Agency over 5 years plus a review of the register of Lincolnshire planning applications.

2.11 Where the planning permission gives an express limit, this is taken to apply as it represents the consented capacity. Where no limit is specified the operational capacity of existing sites was estimated following consideration of the quantity of waste inputs to each site recorded in the WDI over the 5-year period 2015-2019. The peak value recorded over the five-year period has been taken, on the basis that the site could manage that quantity of waste on an ongoing basis. In addition, to allow for the possibility that the peak operating value is not an absolute limit, a 15% 'freeboard' has been added. These additions are intended to reflect the maximum realistic throughput of the facility, as opposed to theoretical capacity.

Assumed void space to tonne conversion factors

2.12 Where waste is destined for landfill it is necessary to account for the fact that mass does not necessarily equal volume. That is to say 1 tonne of waste may not occupy 1 m^3 of capacity. Estimates of landfill void requirement therefore need to account for the density of waste material under consideration.

2.13 For the purposes of this WNA it has been assumed that 1.6 tonnes of inert waste can be accommodated within one cubic metre of void, while a single tonne of non inert residual waste may be accommodated within one cubic metre of void. This latter value is greater than that of 0.85 t/m^3 applied historically, as very little 'black bag' waste is now sent direct to landfill, most, if not all, will have undergone some pre-treatment (as required by the Landfill Directive), making it significantly more dense than untreated mixed municipal (and similar wastes).

3.0 Existing Capacity in Lincolnshire by Waste Management Method

Organic Waste Treatment (Composting, Anaerobic Digestion)

3.4 Various types of facility exist to recycle organic waste including windrow composting, in-vessel composting and anaerobic digestion (AD). Windrow composting is used primarily for the processing of garden and green waste and other vegetation. Kitchen and commercial food waste can only be processed in enclosed systems such as in-vessel composting plant (IVC) and AD facilities to meet the requirements of the Animal By-Products Regulations.

3.5 Taking the sites reporting through WDI 2019 as indicative of active sites receiving waste other than agricultural, a review shows the following:

- 3 operational anaerobic digestion plants offering a total of c148,000 tpa of capacity; and
- 5 operational composting sites offering a total of c88,000 tpa of capacity.

Giving a combined operational capacity of c236,000 tpa.

These are displayed in Tables 1and 2 below

Table 1: Lincolnshire LACW & C&I Operational AD Capacity in Lincolnshire in 2019, (tonnes per annum)

Site Name	Operator	Waste stream	Cited capacity in Planning	Peak 5-year input WDI	Max Capacity
Hemswell Cliff	Hemswell Biogas Ltd	C&I	90,000	99,930	99,930
Clapgate Farm	Clapgate Farm Energy Ltd	Agri, C&I	15,000	4,052	15,000
Manor Farm	Holbeach Biogas Ltd	Agri, C&I	24,000	32,726	32,726
All Sites	**Total Operational AD Capacity**	**n/a**	**n/a**	**n/a**	**147,656**

Table 2: Lincolnshire LACW & C&I Operational Composting Capacity in Lincolnshire in 2019, (tonnes per annum)

Site Name	Operator	Waste stream	Cited capacity in Planning	Peak 5-year input WDI	Max Capacity
Sturgate Airfield	Land Network (Gainsborough) Ltd	HC&I	-	5,956	5,956
South Elkington Estate	Land Network (North East Lincolnshire) Ltd	HC&I	24,999	13,959	24,999
Ansons Farm	M E C Recycling Ltd	HC&I	-	23,485	23,485
Honey Pot Lane Composting site	Mid UK Recycling Ltd	C&I	25,000	24,986	25,000
Greenaway Green Waste Services	Mr J & Mrs J Ashe	HC&I	-	7,778	7,778
All Sites	**Total Operational Composting Capacity**	**n/a**	**n/a**	**n/a**	**87,218**

3.6 In addition to the above, there are a number of sites for which consent to operate has been granted, but did not report through the WDI and are therefore taken as not receiving waste in 2019 as follows:

- 6 anaerobic digestion plants offering a total of c207,000 tpa of capacity; and
- 2 composting sites offering a total of c26,000 tpa of capacity.

This capacity would be additional to the above if implemented giving a combined non-operational capacity of c233,000 tpa.

These are displayed in Tables 3 and 4 below.

Table 3: Lincolnshire LACW & C&I Non Operational AD Capacity in Lincolnshire in 2019, (tonnes per annum)

Site Name	Operator	Waste stream	Cited capacity in Planning	Peak 5-year input WDI	Max Capacity
Angel Wells Farm	Andigestion Ltd	C&I	34,000	0	34,000
East Kirkby	A E L Biogas Ltd	Agri, C&I	26,325	6,955	26,325
Glebe Farm	Alan Hawks (Farms) Ltd		49,000	0	49,000
Decoy Farm (AD)	Material Change Ltd	HC&I	30,000	0	30,000
Holdingham Biogas	Holdingham Biogas	C&I	34,300	0	34,300
Land east of A1, Gonerby Moor	Moor Bio-Energy Ltd	Agri, C&I	-	0	33,000
All Sites	**Total Non Operational AD Capacity**	**n/a**	**n/a**	**n/a**	**206,625**

Table 4: Lincolnshire LACW & C&I Non Operational Composting Capacity in Lincolnshire in 2019, (tonnes per annum)

Site Name	Operator	Waste stream	Cited capacity in Planning	Peak 5 year input WDI	Max Capacity
Clarkeson Organic Recycling	Clarkeson Organic Recycling	C&I	25,000	15,681	25,000
Composting Facility	Cranberry Compost Producers	C&I	-	227	227
All Sites	**Total Non Operational Composting Capacity**	**n/a**	**n/a**	**n/a**	**25,227**

Conclusion

3.7 The above review indicates that in total there is 469,000 tpa of consented capacity in Lincolnshire capable of processing organic waste, of which 354,281 tpa of anaerobic digestion capacity to manage the organic fraction (biowaste) from the LACW and C&I waste streams.

Material Recycling Facilities (MRF)

3.8 When recyclates such as plastics, metals, paper, cardboard, glass are collected together as mixed streams, or 'comingled', the collected material needs to pass through a materials recycling facility (MRF), to separate the individual material streams for reprocessing. The level of complexity of a MRF operation depends on the level of segregation of the feedstock i.e., the recyclable materials when collected. The increasing trend towards collection of comingled materials requires MRFs with a greater level of sophistication in separation. This results in the capital cost of such facilities rising and the per tonne processing costs dropping with size - economies of scale mean that fewer larger facilities tend to be developed.

3.9 Review of WDI 2019 indicates the following:

- 2 operational MRFs (Barkston & Caythorpe) being utilised to manage both LACW and C&I waste offering a total of 560,000 tpa of consented capacity; and
- 1 operational MRF dedicated to C&I waste only (Baston Fen MRF) offering a total of 50,000 tpa of consented capacity.

As set out in Table 5 below.

Table 5: Lincolnshire LACW & C&I MRF Capacity in Lincolnshire in 2019, (tonnes per annum)

Site Name	Operator	Waste stream	Cited capacity in Planning	Peak 5 year input WDI	Max Capacity
Barkston	Mid UK Recycling Ltd (New Earth Solutions)	HC&I	360,000	246,947	360,000
Caythorpe	Mid UK Recycling Ltd (New Earth Solutions)	HC&I	200,000	153,039	200,000
Baston Fen	PMK Recycling Limited	HC&I	50,000	43,235	50,000
All Sites	**Total Operational MRF Capacity**	**n/a**	**n/a**	**n/a**	**610,000**

A number of other sites are classed as Material Recycling Facilities in the Environment Agency dataset, but it is believed these have been wrongly classified, and hence their capacity has been counted under other headings.

Conclusion

3.10 The above review indicates that in total there is 610,000 tpa of consented capacity in Lincolnshire capable of processing recyclates from the LACW and C&I waste streams.

Material Specific Recycling Capacity

3.11 When recyclates such as plastics, metals, paper, cardboard, glass are collected separately the individual material streams can go directly for reprocessing back into a raw material. This is the point at which the material ceases to be waste, but in most cases the receiving site must still be permitted until the material has been converted.

3.12 Review of WDI 2019 indicates the following:

- 4 operational specialists sites handling plastics that may be sourced from both LACW and C&I waste streams offering a total of c172,000 tpa of consented capacity plus
- 4 tyre recycling facilities offering c26,000 tpa of capacity; and
- 2 operational waste oil recycling facilities offering c8,000 tpa of capacity.

As set out in Table 6 below.

Table 6: Lincolnshire LACW & C&I Material Specialist Recycling Capacity in Lincolnshire in 2019, (tonnes per annum)

6a – Specialist Plastic Recyclers

Site Name	Operator	Waste stream	Cited capacity in Planning	Peak 5-year input WDI	Max Capacity
Hemswell Business Park	Clean Tech Europe Limited	HC&I	-	72,617	72,617
Bourne	Enva Plastics Ltd	C&I	40,000	32,572	40,000
Autby House MRF	J & A Young (Leicester) Ltd	C&I	50,000	27,921	50,000
Belvoir Way	Luxus Ltd	C&I	-	8,604	8,604
All Sites	**Total Plastics Recycling Capacity**	**n/a**	**n/a**	**n/a**	**171,221**

6b – Tyre Recyclers

Site Name	Operator	Waste stream	Cited capacity in Planning	Peak 5-year input WDI	Max Capacity
Bardney Tyre Recycling Facility	Artic Trucking Co Ltd	C&I	-	2,682	2,682
Bulldog Remoulds Ltd	Bulldog Remoulds Ltd	C&I	-	2,576	2,576
Reed Point	Envirotyre UK Ltd	C&I	10,400	10,409	10,409
Vacu Lug Traction Tyres Limited	Vacu-Lug Traction Tyres Ltd	C&I	-	10,036	10,036
All Sites	**Total Tyre Recycling Capacity**	**n/a**	**n/a**	**n/a**	**25,703**

6c – Waste Oil Recyclers

Site Name	Operator	Waste stream	Cited capacity in Planning	Peak 5-year input WDI	Max Capacity
Ark Road	EF Biofuels	C&I	2,400	330	2,400
Lincolnshire Waste Oil	LWOL Ltd	C&I	5,000	5,109	5,109
All Sites	**Total Waste Oil Capacity**	**n/a**	**n/a**	**n/a**	**7,509**

Conclusion

3.13 The above review indicates that in total there is c206,000 tpa of consented capacity in Lincolnshire capable of recycling specific wastes from the LACW and C&I waste streams.

Metal Recycling Capacity

3.14 Scrap metal principally comes from industrial sources along with demolition and some households. Hence, they are regarded as offering capacity for the management and recycling of the LACW and C&I waste streams. Review of the WID 2019 indicates 11 operational Metal Recycling Sites offering a total ofc216,000 tpa of consented capacity sourced predominately from the C&I waste stream.

As set out in Table 7 below.

Table 7: Lincolnshire LACW & C&I Metal Recycling Capacity in Lincolnshire in 2019, (tonnes per annum)

Site Name	Operator	Waste stream	Cited capacity in Planning	Peak 5-year input WDI	Max Capacity
Orange House	2 Recycling Ltd	C&I	25,000	10,289	25,000
Land At New Bungalow	A Riddel Scrap Metal & Skip Hire Ltd	C&I	50,000	0	50,000
Plot 7 (aka 6a Dale Street	City Scrap Ltd	C&I	-	3,.012	3,012
European Metal Recycling Ltd - A T F & Scrap Yard	European Metal Recycling Ltd	C&I	-	15,734	15,734
East Road Salvage ATF	Messrs Howes & Garrick	C&I	-	51,975	51,975
Lincolnshire Processed Scrap Metal	Messrs J & Y Bullen and JD & D Croft	C&I	-	187	187
Nationwide Metal Recycling Ltd	Nationwide Metal Recycling Ltd	C&I	-	4,303	4,303
T Shooter (Boston) Ltd	Peterborough Metal Recycling Ltd	C&I	-	4,591	4,591
Port of Boston, The Docks	Peterborough Metal Recycling Ltd	C&I	-	18,491	18,491
The Ranch Scrapyard	S G Boswell & Sons.	C&I	-	21,349	21,349
A T F & Fridge Storage Site	Sims Group U K Ltd		-	2,549	2,549
All Sites	**Total Metal Recycling Capacity**	**n/a**	**n/a**	**n/a**	**215,805**

Conclusion

3.15 The above review indicates that in total there is c216,000 tpa of consented capacity in Lincolnshire capable of recycling metal wastes from the LACW, C&I and C,D& E waste streams.

3.16 In addition to the MRS capacity, 10 operational vehicle dismantling sites, plus two non-operational sites with a basis to assess capacity offer a total of c16,000tpa of capacity. As set out in Table 8 below. Five sites have not made returns to the WDI

during the five-year period 2015-2019 and have no maximum tonnage set. These have been assumed to have ceased operating and given such sites will often operate under District level permission of Certificates of Lawfulness, may well have been redeveloped.

Table 8: Lincolnshire LACW & C&I ELV Recycling Capacity in Lincolnshire in 2019, (tonnes per annum)

Site Name	Operator	Waste stream	Cited capacity in Planning	Peak 5-year input WDI	Max Capacity
Amazon 4x4 Breakers Ltd	Amazon 4x4 Breakers Ltd	C&I	-	120	120
Amazon 4x4 Ltd	Amazon 4x4 Ltd	C&I	-	20	20
Global Auto Salvage	Global Auto Salvage Ltd	C&I	-	699	699
I Mole Autospares	I Mole Autospares	C&I	-	267	267
A A V Exports	M Zvirbule	C&I	1,000	0	1,000
The Salvage Yard	Messrs J & D McNally	C&I	-	47	47
Riverside Auto Breakers	Messrs M & A Hussain	C&I	1,200	126	1,200
Brown's Autobreakers	Messrs MK & M Brown	C&I	-	1,023	1,023
The Workshop (Fenside Motors)	Mr Craig Macdonald and Mrs Christie Macdonald	C&I	-	353	353
Nick Young Tractor Parts Ltd	Nick Young Tractor Parts Ltd	C&I	-	29	29
The Breakers Yard	S L Dobney	C&I	-	680	680
Hanbeck Farm	Spicer Recycling Ltd	C&I	4,999	0	4,999
Gorse Lane, Grantham	T R Clark & Sons	C&I	-	522	522
The Boundary	Traynors Ltd	C&I	-	2,589	2,589
Windley's Salvage Ltd	Windley's Salvage Ltd	C&I	-	1,941	1,941
All Sites	**Total ELV Recycling Capacity**	**n/a**	**n/a**	**n/a**	**15,489**

Conclusion

3.17 The above review indicates that in total there is c16,000 tpa of consented capacity in Lincolnshire capable of recycling ELV from the C & I waste streams. Given End of Life vehicles (known as ELVs) are classed as hazardous waste until they have been depolluted, the capacities of the above sites managing these exclusively have been counted in the hazardous waste capacity assessment, as has the waste oil recycling capacity shown in Table 6 above.

Transfer Capacity

3.18 Waste transfer capacity refers to the reception and bulking of collected wastes, both residual and separated recyclates, prior to onward management elsewhere. Some separation for recycling may also take place at such facilities. Transfer capacity can be accommodated at dedicated sites or at sites where other waste management activities take place. For example, sites accepting C&I waste for onwards transfer may also accept skip waste for recycling.

3.19 The capacity of the principal dedicated waste transfer facilities handling either LACW or C&I or a combination of both (MSW) in Lincolnshire is provided at the sites shown in Table 9.

Table 9: Lincolnshire LACW & C&I Waste Transfer Capacity, (tonnes per annum)

Site Name (and operator)	Principal Waste Type Managed	Permitted capacity	Peak Deposit value +15%	Preferred Value	Notes
Bourne WTS (Bullimore)	LACW/CDEW	-	11,650	11,650	c30% of input LACW
Boston WTS (LCC)	LACW	72,753	60,412	72,753	
Gainsborough WTS (LCC)	LACW	45,300	29,711	45,300	
Grantham WTS (LCC)	LACW	64,038	50,407	64,038	
Lincoln Central Depot (Biffa)	MSW	18,623	1,942	18,623	
Louth WTS (LCC)	LACW	-	53,222	53,222	
Sleaford WTS (LCC)	LACW	40,300	25,522	40,300	
Total	**n/a**	**n/a**	**n/a**	**305,886**	

3.20 In addition to the facilities listed in Table 9, there are 11 household waste recycling sites provided by Lincolnshire Council Council. They also provide capacity that may be counted as transfer capacity as waste delivered by the public to these sites is segregated, bulked and then transported for onward management. The assessed capacities are shown in Table 10. Following the convention of taking the highest actual input over the past 5 years plus (15%) giving a total capacity of c83,000 tpa.

Table 10: Lincolnshire HWRC Capacity, (tonnes per annum)

Site Name	Peak 5yr Deposit value	Peak Deposit value + 15% Capacity Value
Boston	8,369	9,624
Bourne	4,931	5,671
Gainsborough	4,262	4,901
Grantham	6,473	7,444
Great Northern Terrace	12,661	14,560
Kirkby On Bain	4,213	4,845
Leadenham	1,299	1,494
Louth	6,589	7,577
Market Rasen	2,586	2,974
Skegness	4,999	5,749
Sleaford	5,307	6,103
Spalding	10,369	11,924
Totals	**70,757**	**82,867**

Conclusion

3.21 The above review indicates that when the HWRC capacity is added to the WTS capacity in Table 9 in total there is c389,000 tpa of consented capacity in Lincolnshire capable of transferring wastes from the LACW and C&I waste streams.

CDEW Recycling Capacity

Inert recycling capacity

3.22 The Lincolnshire C,D& E waste report identifies a total of 22 facilities undertaking recycled aggregate or soil production with a total combined capacity of 742,500 tpa.

Non inert Recycling Capacity

3.23 Of the 22 sites identified as undertaking inert waste recycling producing an output, 4 sites received mixed skip waste with a total maximum capacity of 51,000 tonnes per annum. These were assumed to convert 80% of their input to inert products, leaving 20% as non-inert materials either destined for recycling: such as metals and wood or disposal as trommel fines and residual waste. It is assumed that half of the 20% of non-inert inputs is recycled giving an initial capacity of 5,000 tpa. In addition, there are 9 further consented skip waste transfer sites offering capacity of c 93,000 tpa. Analysis of fates of inputs indicate that a recycling rate of 93% is achievable. Applying this to the total capacity of 93,000 tpa gives a recycling capacity of c86,000 tpa. Adding the 5,000 tpa from the 4 sites identified as producing recycled aggregate, gives a total of 91,000 tpa.

Table 11: Lincolnshire Skip Waste Recycling Capacity in Lincolnshire in 2019, (tonnes per annum)

Site Name	Operator	Waste stream	Cited capacity in Planning	Peak 5-year input WDI	Max Capacity
County Waste	County Waste Services (Lincs) Ltd (Kwik skips)	C,D&E	-	3,429	3,429
Lincs Rubbish Clearance Services	Lincs Rubbish Clearance Services (Skip Hire Lincoln)	C,D&E	-	2,768	2,768
Tunnel Bank	Mr Martin Gamble & Mr Lewis Gamble	C,D&E	-	3,194	3,194
The Recycling Centre	Mr P J Riddel	C,D&E	-	63,234	63,234
Camp Farm	Mr S E & G A Thompson	C,D&E	-	2,134	2,134
M & M Services	M & M Services	C,D&E	-	11,102	11,102
The Warehouse, Riverside Ind Est, Boston	Silver Skips Lincolnshire Ltd	C,D&E	-	4,157	4,157
Tessmill - Woodland Drive	Kesteven Skip Hire	C,D&E	-	2,569	2,569
All Sites	**Total Skip Waste Recycling Capacity**	**n/a**	**n/a**	**n/a**	**92,587**

Liquid Waste Treatment Capacity

3.24 There are two principal facilities that accept liquid waste for treatment within Lincolnshire, that of Alpheus Environmental and Anglian Water, both located at Canwick. Analysis of inputs to each of these sites indicates the following:

- Approximately 10% of the c70,000 tpa input to the Alpheus facility is classed as hazardous. Hence available capacity for non hazardous waste is taken to be 63,000 tpa.
- Approximately 25% of inputs to the Anglian Water facilities was septic tank emptyings. These may be classed as LACW waste. Hence available capacity for non hazardous waste is taken to be 20,000 tpa.

3.25 In addition to the above, there are a number of holding lagoons accepting sludges from effluent treatment associated with food and drink preparation, and a number of mobile plants that may apply this waste to land. This capacity has not been counted as the final application to land does not necessarily require planning consent.

3.26 In addition to this the Bourne Effluent Treatment Plant operated Pinguin Foods (Christion Salveson Food Services Ltd) processed c163,000 tonnes in 2019. This is believed to be an onsite treatment works dealing with effluent from the production process. This gives a total capacity of 246,000tpa.

Hazardous Waste Management Capacity

3.27 Table 9 of the Hazardous waste capacity assessment presents a summary of capacity of the different types of facilities managing hazardous waste within Lincolnshire. In total, at the end of 2019, there was intermediate capacity for managing waste of around 67,000 tonnes per annum, including an amount of final fate capacity. This includes vehicle depollution yards, 2 specialist hazardous waste management facilities, one for WEEE and one for fluorescent lights plus a proportion of liquid waste management capacity. This assessment indicates that capacity exceeds the predicted arisings suggesting that, overall, Lincolnshire will continue to be net self sufficient in hazardous waste for the Forecast period.

Energy from Waste Capacity

Table 12: Permitted/Operational Energy from Waste Capacity in Lincolnshire 2019

Facility Name	Operator	Consented Capacity (tpa)	Notes
Boston Energy Production Facility (Gasification)	Biomass UK No.3 Limited	137,000	Consented for waste wood and RDF WDI 2019 shows c9,ooo tonnes wood
Sleaford Renewable Energy Plant	GREP1 Limited	>6,000	Input predom straw but some waste wood WDI 2019 shows c6,ooo tonnes wood
Lincolnshire Energy from Waste Facility	FCC Environment (Lincolnshire) Limited	c178,000	Black bag residual waste. Actual tonnage limited by heat load. WDI 2019 & WDF shows 166,000t LACW and 11,500t C&I
All Sites	**Total**	**321,000**	

Built Capacity Summary

3.28 Table 13 presents a summary of consented capacity of the different types of facilities investigated. In total at the end of 2019 there was intermediate capacity for managing waste of over 2.2Mtonnes per annum in Lincolnshire plus 0.32Mt of final fate residual waste capacity plus 67,000 tpa of hazardous waste management capacity. It should be noted that any capacity assessment only presents a snapshot at a particular point in time as the permitted estate is in a state of flux with sites closing and new sites coming on stream over time.

Table 13: Lincolnshire Built Non-inert Waste Management Capacity, 2019 (tonnes per annum).

Capacity Type	Facility Type	Operational capacity
Recycling/composting	AD	355,000
Recycling/composting	Composting	114,000
Recycling/composting	MRF	610,000
Recycling/composting	Material Specific Recycling	199,000
Recycling/composting	Metal Recycling	216,000
Recycling/composting	CDEW Recycling	91,000
Recycling/composting	**Subtotal**	**1,585,000**
Liquid Waste T'ment	**Subtotal**	**246,000**
Waste Transfer	MSW Waste Transfer	306,000
Waste Transfer	HWRC	83,000
Waste Transfer	**Subtotal**	**389,000**
Hazardous Waste	**Subtotal**	**67,000**
EfW	Residual/RDF	315,000
EfW	Biomass	>6,000
EfW	**Subtotal**	**>321,000**

Permanent Deposit to Land Capacity

3.29 Permanent Deposit to Land Capacity consists of:

- Inert waste landfill capacity & that permitted as Recovery to Land Capacity; and
- Non-inert waste landfill capacity

Permanent Deposit to Land Capacity -Inert Waste

3.30 Table 14 presents the consented permanent deposit to land capacity for inert waste:

Table 14: Consented Inert Waste Permanent Deposit to Land Capacity in Lincolnshire

Site	Remaining Capacity (m3)	Status
Brauncewell Quarry	1,230,832	Operational as inert landfill
Colsterworth Triangle	560,000	Operational
Creeton	275,000	Operational as Recovery to Land
Harmston Quarry	100,000	Operational as inert landfill
Manby Airfield	unknown	Operational as Recovery to Land
South Thoresby	70,000	Operational as Recovery to Land
South Witham Quarry (East)	160,000	Operational as Recovery to Land
Warren Landfill	270,000	Inactive
Whisby Quarry	480,000	Inactive
Total	**>3,145,832**	

Non-Inert Landfill

3.31 Information sourced from the Environment Agency was primarily used and verified against information obtained from Lincolnshire County Council sources. The Agency dataset identifies 8 consented landfill sites with remaining void permitted as non-hazardous waste landfill capable of accepting non-inert waste and an amount of inert waste for restoration and operational purposes in Lincolnshire in 2019 as shown in Table 15.

Table 15: Permitted/Operational Non-inert Landfills in Lincolnshire 2019

Facility Name	Consented Void m3 (end 2019)	Notes
Colsterworth	3,531,782	Permit application to increase input to 200,000tpa and limit waste type to trommel fines (CDE) and inerts
Gainsborough	1,832,419	
Kenwick	0	This site is identified in the EA dataset as having 547,848 m3 of capacity. However, the permission has now expired.
Kirkby On Bain	76,437	
Leadenham	>112,267	Planning permission for non-hazardous waste landfill covers most of the quarry, but the EA value relates solely to the southern area. The site had been mothballed for a number of years, but has recently reopened following closure of a number of other sites. It is expected to become one of the most important landfill sites in the county. To reflect this new status, the operator is to open up the large northern area for landfill. Actual capacity will be substantially greater than that stated.
Nettleton Bottom Quarry	0	Permission has now lapsed. Therefore taken to be 0
North Hykeham	334,011	
Whisby	2,595,652	
Total	**>9,144,539**	

3.24 The total remaining void identified at the end of 2019 amounts to at least 9.14Mm^3. Allowing for a 15% surcharge for restoration purposes (1.37Mm3) leaves at least c7.77Mm3 of non-inert waste disposal capacity. It should be noted that the above is a minimum value, as the Environment Agency dataset does not account for capacity that has planning consent but is not yet covered by an environmental permit. As identified in connection with Leadenham in Table 15 above.

4.0 Assessing the Capacity Gap in Lincolnshire

Net Self Sufficiency

4.1 Having established available capacity within the Plan area, this is then compared with the projected capacity requirements determined in the waste stream specific reports, in order to ascertain if there is likely to be any waste management capacity gap in future. That is to say, Lincolnshire County Council is to set out planning for waste on the basis that overall, it is to provide sufficient capacity to manage the tonnage of waste equivalent to that predicted to arise within the Plan area over the Plan period. This does not necessarily mean that every tonne of waste produced in a Plan area ought to be managed within that Plan area, rather that overall, there should be a balance of provision.

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

Waste Management Requirements

4.4 To arrive at management requirements for waste produced in Lincolnshire, the proposed targets have been applied to the forecasts as presented in the background waste stream specific assessments reported in the suite of supporting reports. The proposed targets are presented in Table 16 below:

Table 16: Lincolnshire Non-inert Waste Management Requirements at Forecast Milestone years[4]

Fate	Source	2025	2030	2035	2040	2045
Recycling & Composting	LACW	55%	60%	65%	65%	65%
Recycling & Composting	C&I	60%	65%	70%	75%	75%
Recycling & Composting	CDEW	10%	10%	10%	10%	10%
Residual waste Energy Recovery	LACW	40%	35%	30%	30%	30%
Residual waste Energy Recovery	C&I	7%	5%	4%	2.5%	2.5%
Residual waste – Non-Inert Landfill	LACW	5%	5%	5%	5%	5%
Residual waste – Non-Inert Landfill	C&I	12%	10%	5%	2.5%	2.5%
Residual waste – Non-Inert Landfill	CDEW	25%	20%	15%	10%	5%

[4] All the values are generated through the processes described in the waste stream specific reports that form part of the supporting evidence base to this WNA.

4.5 The resulting management requirements for waste forecast to be produced in Lincolnshire are summarised in Table 17. The progression to the target milestones is compared with baseline year of 2019, taken to apply to 2020.

Table 17: Lincolnshire Non Inert Waste Management Requirements at Forecast Milestone years (tonnes)[5]

Fate	Source	2025	2030	2035	2040	2045	Peak and Cumulative Capacity Requirement (tonnes) rounded
Recycling & Composting	LACW	205,817	230,250	254,164	258,374	262,640	**262,640**
Recycling & Composting	C&I	444,000	487,650	532,423	578,340	586,336	**586,336**
Recycling & Composting	CDEW	90,100	90,100	90,100	90,100	90,100	**90,100**
Recycling & Composting	**Total**	**739,917**	**808,000**	**876,687**	**926,814**	**939,076**	**939,076**
Residual waste Energy Recovery	LACW	149,685	134,312	117,306	119,250	121,218	**149,685**
Residual waste Energy Recovery	C&I	51,800	37,512	30,424	19,278	19,545	**51,800**
Residual waste Energy Recovery	**Total**	**201,485**	**171,824**	**147,730**	**138,528**	**140,763**	**201,485**
Residual waste Non-Inert Landfill	LACW	18,711	19,187	19,551	19,875	20,203	**0.52M**
Residual waste Non-Inert Landfill	C&I	88,800	75,023	38,030	19,278	19,545	**1.48M**
Residual waste Non-Inert Landfill	CDEW	225,000	180,000	135,000	90,000	45,000	**3.99M**
Residual waste Non-Inert Landfill	**Total**	**332,511**	**274,210**	**192,581**	**129,153**	**84,748**	**5.99M**

4.6 How the waste management capacity requirements identified in Table 17 above might be met is discussed below.

[5] All the values are generated through the processes described in the waste stream specific reports that form part of the supporting evidence base to this WNA.

Recycling & Composting Capacity Requirement

4.7 Recycling and composting sit at the same tier of the waste hierarchy and may therefore be considered interchangeable in terms of the movement of waste up the hierarchy. Recycling of waste involves the provision of a waste material of a suitable quality so it can be used to substitute for virgin materials as a feedstock in a production process. For example, the use of newspapers to replace virgin timber pulp for newsprint production or the use of glass cullet in place of silica sand to produce glass bottles. Recycling generally occurs at the production site, which is referred to as the reprocessor. The key contribution that waste management facilities make is providing for materials to be delivered to reprocessors in a form and/or quality that enables their use as a feedstock.

4.8 The waste management capacity requirements to support the achievement of recycling targets for LACW and C&I waste streams varies depending on the collection method used. In particular, whether materials are separated at the point of collection and so are collected using segregated collection vehicles or whether recyclate is co-mingled at the point of collection.

4.9 Where materials are source-separated, it is possible for them to be delivered to and bulked up in separate storage areas within a depot/waste transfer station, from where the bulk recyclates are then transported directly to reprocessors. In contrast to this, where materials are collected 'co-mingled' they will need to be processed through a MRF for separation and it would be from there that the recyclates would be sent on to reprocessors. Even for co-mingled materials they may be bulked at intermediate sites (transfer stations) before being transported on to a MRF for processing.

4.10 Therefore it should not be assumed that a tonne of waste to be recycled necessarily requires an equivalent tonne of MRF capacity to be provided. Rather provision of bulking capacity might suffice for source separated recyclate from the LACW and C&I waste streams in particular. In that context c390,000 tpa of waste transfer capacity has been identified.

4.11 In contrast to recycling, composting or treatment of organic waste requires specific facilities. The nature of the facilities required is largely determined by the nature of the organic waste requiring treatment.

4.12 Table 18 shows the capacity requirements for non-inert waste recycling and composting identified in Table 10, applying the milestones utilised to calculate management profiles across the Plan period presented in the individual waste stream reports. When compared against the total assessed management capacity (Table 13), the estimated peak requirement of 939,000 tpa is significantly less than the Plan Area recycling/composting capacity. This shows that no shortfall of capacity is predicted during the forecast period.

Table 18: Lincolnshire Waste (Non-Inert) Recycling & Composting Capacity Requirement at Milestone years (tonnes)

	2025	**2030**	**2035**	**2040**	**2045**	**Peak or Cumulative Capacity Requirement rounded**
LACW	205,817	230,250	254,164	258,374	262,640	262,500
C&I	444,000	487,650	532,423	578,340	586,336	586,400
CDEW	90,100	90,100	90,100	90,100	90,100	90,100
Total	**739,917**	**808,000**	**876,687**	**926,814**	**939,076**	**939,000**
Plan Area Recycling Capacity (Table 4)	**1,585,000**	**1,585,000**	**1,585,000**	**1,585,000**	**1,585,000**	**1,585,000**
Surplus/ Shortfall	**+845,000**	**+777,000**	**+708,000**	**+658,000**	**+646,000**	**-**

Non inert Residual Waste Management

4.14 Predicted management capacity requirements for non-inert residual waste at forecast milestone years are shown in Table 19. The peak quantity of residual waste for which management capacity is needed is 534,000 in 2025. It has been assumed that, after recycling, diversion to energy from waste will be maximised leaving a residue of between 2.5 and 25% from each stream requiring landfilling in non hazardous waste landfill (Table 15). This results in a peak energy recovery capacity requirement of 202,000tpa in 2025 and a total cumulative landfill requirement of c6.0 million tonnes.

Table 19: Lincolnshire Residual (Non-Inert) Waste Management Capacity Requirement at Forecast Milestone years (tonnes)

Fate	Source	2025	2030	2035	2040	2045	Peak or Cumulative Capacity Requirement (tonnes) rounded
Energy Recovery	LACW	149,685	134,312	117,306	119,250	121,218	149,685
Energy Recovery	C&I	51,800	37,512	30,424	19,278	19,545	51,800
Energy Recovery	**Total**	**201,485**	**171,824**	**147,730**	**138,528**	**140,763**	**201,485**
Non Inert Landfill	LACW	18,711	19,187	19,551	19,875	20,203	**0.52M**
Non Inert Landfill	C&I	88,800	75,023	38,030	19,278	19,545	1.48M
Non Inert Landfill	CDEW	225,000	180,000	135,000	90,000	45,000	**3.99M**
Non Inert Landfill	**Total**	**332,511**	**274,210**	**192,581**	**129,153**	**84,748**	**5.99M**
All Sites	**Grand Total**	**533,996**	**446,034**	**340,311**	**267,681**	**225,511**	**-**

Table 20: Lincolnshire Residual (Non-Inert) Waste Management Energy Recovery Capacity Requirement at Forecast Milestone years (tonnes)

	2025	2030	2035	2040	2045
Total from Table 11	201,485	171,824	147,730	138,528	140,763
Capacity (Table 13)	321,000	321,000	321,000	321,000	321,000
Surplus/ Shortfall	**+119,500**	**+149,000**	**+173,000**	**+182,500**	**+180,000**

Inert Waste Management

4.15 It is estimated that around 900,000 tonnes of C,D & E waste was produced in Lincolnshire in 2019, the majority of which was inert. Inert waste can be managed through two principal routes - recycled to aggregate or topsoil or deposited for beneficial purposes on land, (recovery to land) depending on the nature of the waste. The peak quantity of waste requiring conversion to aggregate is c 495,500 tpa in 2045, applying the recommended targets. This compares with combined capacity at the 22 facilities undertaking recycled aggregate or soil production of 742,500 tpa. Hence, as shown in Table 21, this indicates that there is sufficient consented capacity in Lincolnshire to meet the proposed targets with a peak utilisation rate of around 53%. The limiting factor is likely to be the availability of suitable feedstock.

Table 21: Lincolnshire Inert C,D & E Waste Recycling Capacity Requirement at Forecast Milestone years (tonnes)

	2025	2030	2035	2040	2045
Recycled Aggregate	315,350	360,400	405,450	450,500	495,550
Consented Capacity	742,500	742,500	742,500	742,500	742,500
Total	**+427,500**	**+382,000**	**+337,000**	**+292,000**	**+247,000**

4.16 Table 14 shows 9 consented sites in Lincolnshire (in 2019) offering at least 3.15Mm3 of inert waste management capacity by permanent deposit to land. Over the forecast period the overall permanent deposit to land requirement for inert waste equates to 7.2m tonnes divided by 1.6 tonnes per m3 (mass to volume of inert waste) = 4.5Mm3 void as shown in Table 22. Hence a shortfall of management capacity of this type is indicated of c 1.35Mm3 in the absence of a capacity value for Manby Airfield.

4.17 However, capacity will also be provided at non-inert waste landfills which require inert waste for operational use and restoration material. Table 15 shows 6 sites offering over 9.0Mm3 of capacity in total. A 15% surcharge for restoration purposes would provide a further 1.37Mm3 of inert waste management capacity, leaving no capacity shortfall over the forecast period. This is in the context of the missing capacity value for Manby Airfield and additional consented and to be permitted no-hazardous waste disposal capacity at Leadenham.

Table 22: Lincolnshire Inert C,D & E Waste Deposit to Land Requirement at Forecast Milestone years (tonnes & m3)

Year	Tpa	Tonnes Cumulative	m3
2020	311,218	311,218	194,511
2021	310,114	621,333	388,333
2022	309,010	930,343	581,464
2023	307,906	1,238,249	773,906
2024	306,802	1,545,052	965,657
2025	**270,300**	**1,815,352**	**1,134,595**
2026	270,300	2,085,652	1,303,532
2027	270,300	2,355,952	1,472,470
2028	270,300	2,626,252	1,641,407
2029	270,300	2,896,552	1,810,345
2030	**270,300**	**3,166,852**	**1,979,282**
2031	270,300	3,437,152	2,148,220
2032	270,300	3,707,452	2,317,157
2033	270,300	3,977,752	2,486,095
2034	270,300	4,248,052	2,655,032
2035	**270,300**	**4,518,352**	**2,823,970**
2036	270,300	4,788,652	2,992,907
2037	270,300	5,058,952	3,161,845
2038	270,300	5,329,252	3,330,782
2039	270,300	5,599,552	3,499,720
2040	**270,300**	**5,869,852**	**3,668,657**
2041	270,300	6,140,152	3,837,595
2042	270,300	6,410,452	4,006,532
2043	270,300	6,680,752	4,175,470
2044	270,300	6,951,052	4,344,407
2045	**270,300**	**7,221,352**	**4,513,345**

4.18 The cumulative disposal requirement for non-inert waste is estimated to be just less than 6.0 M tonnes as shown in Table 23 (estimated at 1 tonne per m3). Hence sufficient capacity to accommodate the Plan area needs for non-inert waste exists, even when it is assumed 1.37 Mm3 of void is used by inert waste for restoration purposes. In fact, the non-inert landfill capacity remaining after Lincolnshire's forecast non-inert landfill need is met would amount to at least 3.0Mm3. This capacity might be called upon to meet a wider need for diminishing landfill capacity.

Table 23: Predicted Non-inert Landfill Requirement for Lincolnshire over forecast period

Year	CDE	LACW	C&I	Annual Total	Cum Total
2020	231,874	18,128	103,300	353,302	353,302
2021	230,770	18,253	100,883	349,906	703,208
2022	229,666	18,371	98,466	346,503	1,049,711
2023	228,562	18,487	96,050	343,099	1,392,809
2024	227,458	18,602	93,633	339,693	1,732,502
2025	**225,250**	**18,711**	**88,800**	**332,761**	**2,065,263**
2026	216,240	18,816	86,045	321,101	2,386,364
2027	207,230	18,916	83,289	309,435	2,695,799
2028	198,220	19,013	80,534	297,767	2,993,566
2029	189,210	19,103	77,778	286,091	3,279,657
2030	**180,200**	**19,187**	**75,023**	**274,410**	**3,554,067**
2031	171,190	19,268	67,625	258,083	3,812,150
2032	162,180	19,345	60,226	241,751	4,053,901
2033	153,170	19,417	52,827	225,414	4,279,315
2034	144,160	19,484	45,429	209,073	4,488,388
2035	**135,150**	**19,551**	**38,030**	**192,731**	**4,681,119**
2036	126,140	19,618	34,280	180,038	4,861,157
2037	117,130	19,682	30,529	167,341	5,028,498
2038	108,120	19,746	26,779	154,645	5,183,143
2039	99,110	19,810	23,028	141,948	5,325,091
2040	**90,100**	**19,875**	**19,278**	**129,253**	**5,454,344**
2041	81,090	19,941	19,331	120,362	5,574,706
2042	72,080	20,006	19,385	111,471	5,686,177
2043	63,070	20,072	19,438	102,580	5,788,757
2044	54,060	20,137	19,491	93,688	5,882,445
2045	**45,050**	**20,203**	**19,545**	**84,798**	**5,967,243**

Hazardous Waste Management

4.19 The background evidence report found that the combined hazardous waste management capacity offered by facilities within Lincolnshire equates to around 67,000 tonnes per annum, and this exceeds the peak projected overall annual arising of hazardous waste over the forecast period of c51,500 tonnes.

Capacity Gap Summary

4.20 The findings from the preceding waste management capacity gap assessment in Lincolnshire are shown in Tables 24 and 25 below. Table 25 assumes that inert waste requiring permanent deposit to land will go to non-inert landfill once capacity at Lincolnshire inert waste landfill is exhausted.

Table 24: Lincolnshire Capacity Assessment & Milestone Built Capacity Gap Analysis at Forecast Milestone Years (tonnes)

Capacity Type	2025	2030	2035	2040	2045
Recycling & Composting (Table 18)	**+845,000**	**+777,000**	**+708,000**	**+658,000**	**+646,000**
Energy Recovery (Table 20)	+119,500	+149,000	+173,000	+182,500	+180,000
Aggregate Recycling (Table 21)	+427,500	+382,000	+337,000	+292,000	+247,000
Hazardous Waste	+15,500	+15,500	+15,500	+15,500	+15,500
Grand Total Surplus	**+1.407M**	**+1.32M**	**+1.23M**	**+1.15M**	**+1.09M**

Table 25: Lincolnshire Void Assessment & Milestone Capacity Gap Analysis at Forecast Milestone Years (Mm3)

Capacity Type	2025	2030	2035	2040	2045
Non-Inert Landfill (Table 22)	+7.08	+5.59	+4.46	+3.69	+3.18
Inert Deposit to Land (Table 23)	+1.67	+0.82	-0.023	-0.87	-1.7
Grand Total Surplus (diff)	**+8.75**	**+6.41**	**+4.437**	**+2.82**	**+1.48**

Conclusion

4.21 The Waste Needs Assessment 2021 Update shows that no capacity shortfall is forecast whether that be measured by management type or as an overall requirement for Lincolnshire to maintain net self sufficiency over the forecast period to 2045.

4.22 Given that the WNA has found that Lincolnshire will remain net self sufficient throughout the forecast period, with significant surpluses in capacity, the imperative to track significant flows from Lincolnshire to facilities outside the county is significantly reduced. However, it is recommended that the resilience of key flows identified in the individual waste stream reports be confirmed with receiving WPAs, by way of enquiries conducted under the Duty to Cooperate.