



Norfolk County Council

**Norfolk Minerals and Waste
Development Framework**

Annual Monitoring Report
Waste Data 2017-18

May 2019



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Contents

		Page
1	Introduction	4
2	Core Output Indicators: Waste	5
2.1	Waste Categories	5
2.2	Landfill	6
2.3	Imported waste to landfill	9
2.4	Renewable energy generation	9
2.5	Local Authority Collected Municipal Waste	10
2.6	Waste Recovery	11
2.7	Waste Handled in Norfolk	15
2.8	New Capacity	16
2.9	Assessment of progress against Policy CS4	18
2.10	Conclusion for waste management	22
	Appendix A: Landfill capacity calculations	23

1. Introduction

Section 35 of the Planning and Compulsory Purchase Act 2004 (amended by the Localism Act 2011) requires every local planning authority to produce a monitoring report. The MR should contain information on the implementation of the Minerals and Waste Development Scheme (MWDS), the extent to which the policies set out in Local Development Documents are being achieved. The Monitoring Report for 2017-18 has been published in three parts, as follows:

1. Waste Data (this part of the Monitoring Report)
2. Minerals data is reported in the Local Aggregate Assessment and Silica Sand Assessment
3.
 - Review of the Norfolk Minerals and Waste Development Scheme
 - Policy performance and implementation
 - Monitoring and enforcement

Sections 13-16 of the Planning and Compulsory Purchase Act 2004 (amended by the Localism Act 2011) establishes a duty for waste planning authorities to keep planning issues under review. This Waste Data Monitoring Report presents information on the annual production and management of wastes at facilities in Norfolk. This information is then used to assess the delivery of the relevant local plan policies, particularly the waste management targets, waste management capacity requirements, and the estimated waste arisings these policies are based on.

2.0 Core Output Indicators: Waste

2.1 Waste Categories

The List of Wastes Regulations 2005 defines the way waste types are categorised. These terms are outlined in the table below and have been used throughout this document. However, when reporting on new capacities as a result of approved planning permissions, the terminology used in the application is retained and therefore may vary from the categories in the table below.

Waste Categories	Definitions
Inert	Non-hazardous waste as defined by The List of Wastes Regulations 2005 (excluding construction and demolition waste) which will not decompose. Includes: subsoil, concrete, hard-core, brickwork, stone, glass, concrete, tiles, ceramics.
Construction and Demolition	Non-hazardous construction and demolition waste as defined by the List of Wastes Regulations 2005. Including: bricks, concrete, wood, metal, soil, glass, tiles, ceramics, plastic.
Non-Hazardous	All non-hazardous waste as defined by The List of Wastes Regulations 2005 not included in other sections. Therefore, this category excludes inert and construction/ demolition waste. This category includes, for example: municipal (household), commercial and industrial wastes, and scrap metal.
Hazardous	All hazardous waste (except hazardous clinical waste) as defined by The List of Wastes Regulations 2005. For example: asbestos, acids, oils, petroleum products, paint, mercury, solvents, undepolluted end-of-life vehicles.
Clinical	Hazardous and non-hazardous human and animal healthcare wastes as defined by the List of Wastes Regulations 2005.

Annual surveys of waste inputs have been carried out since 1995. The last survey was carried out for the period April 2017 to March 2018. Data has been obtained on the quantity of waste recovered, quantity of waste disposed of (within and outside the County) and the remaining airspace capacity of landfill sites. This monitoring report also lists the quantity of waste imported into the County, the quantity of energy recovered from landfill sites and new capacity permitted in 2017/18.

Waste operators with an environmental permit from the Environment Agency are required by law to submit, to the Environment Agency, information relating to the throughput of waste at their site; this information has been requested from the Environment Agency to fill in the gaps left by operators not responding to Norfolk County Council's own survey. This information is not in the precise format that would be ideal for our purposes and so some assumptions based on past survey returns have been necessary; the overall volume of waste is correct but the precise origins or destinations of the waste have had to be estimated in some cases where they have been reported as 'not codeable' or 'east of England'. For sites where no up-to-date data is available estimates of volumes based on previous responses, and local site knowledge, have been made.

2.2 Landfill

Non-hazardous landfill sites

Non-hazardous waste comprises waste which decomposes and can include materials as diverse as household waste, paper, vegetable matter and food processing waste. During the reporting period no non-hazardous waste was deposited into landfill sites within Norfolk. Non-hazardous landfill sites also take a quantity of inert waste for restoration and engineering purposes. In the reporting year 192,000 tonnes of inert waste was taken by 2 non-hazardous landfill sites listed below.

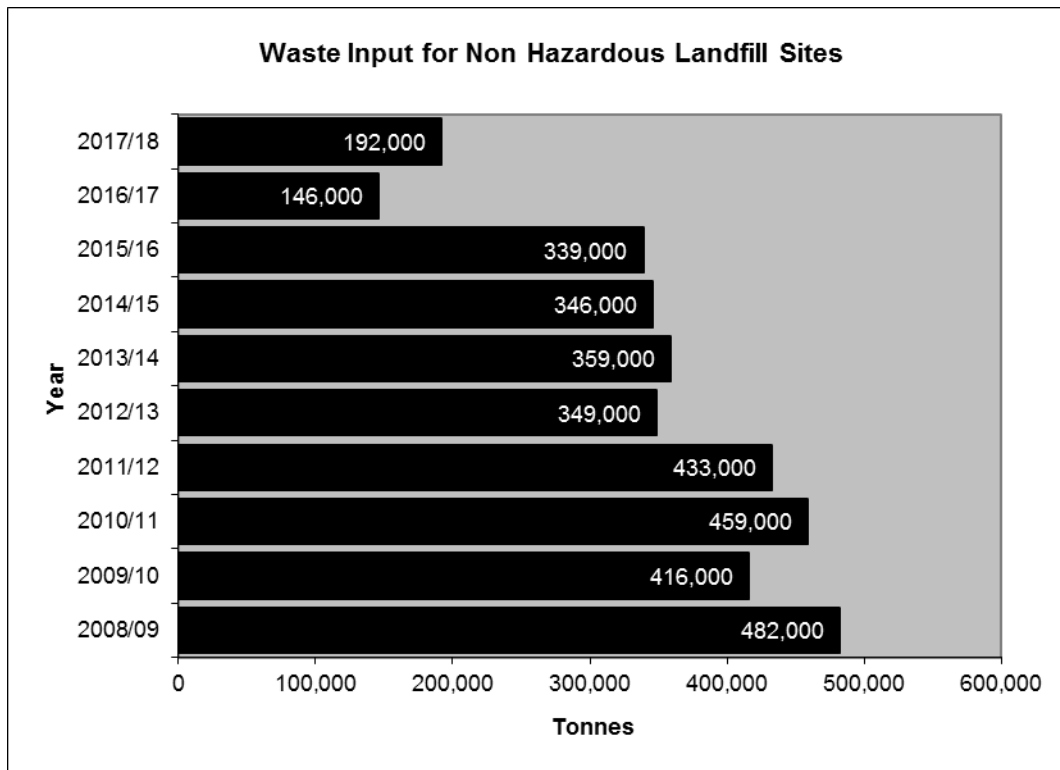
Aldeby	FCC Environment (UK) Ltd
Blackborough End	FCC Environment (UK) Ltd

The permitted landfill site at Feltwell, operated by FCC Environment (UK) Ltd is currently inactive and did not receive any waste during 2017/18.

All the waste taken into the non-hazardous landfill sites was used for engineering purposes and therefore had no impact on the void space remaining within the sites.

At 31/03/18 the volume of permitted void capacity (remaining landfill space) was estimated to be 5.09 million cubic metres.

- Planning Application C/2/2009/2011 contains the most recent publicly available information on the remaining landfill space in Blackborough End landfill site. This planning application, dated May 2009, states (in a report provided by GP Planning Ltd, on behalf of the operator) that "remaining void for the site is currently calculated at 6.5 million cubic metres."
- At the end of July 2016 Aldeby landfill permanently ceased taking waste for disposal and has no remaining capacity. Restoration of the site was still continuing throughout 2017/18.
- There are no recent planning applications providing capacity information for Feltwell.
- Some information about remaining capacity for individual sites is gathered as part of the County Council's annual survey. Some landfill sites choose not to provide this information. The information contained in any survey responses provided to the County Council is considered to be confidential and commercial information. If capacity information is not provided, then the remaining capacity is calculated, using the quantity of waste received at the site.



To calculate how long the remaining non-hazardous landfill voidspace will last, conversion factors have been applied for the density of inert waste (1 tonne occupies 0.67 cubic metres) and non-hazardous waste (1 tonne occupies 1 cubic metre).

The length of time that the remaining non-hazardous landfill voidspace will last has been calculated using the forecast waste arisings for Municipal, Commercial and Industrial and imported London waste in the Norfolk “Core Strategy and Minerals and Waste Development Management Policies DPD”. Table A.2 of the Core Strategy forecasts the annual quantity of non-hazardous waste disposal to landfill until 2026/27. This table has been updated in Appendix A of this AMR, taking into account the non-hazardous landfill void capacity as at 31/03/2018. **With the current void capacity and the forecast non-hazardous waste disposal quantities to landfill, the existing landfill capacity is calculated to last until 2035/36.**

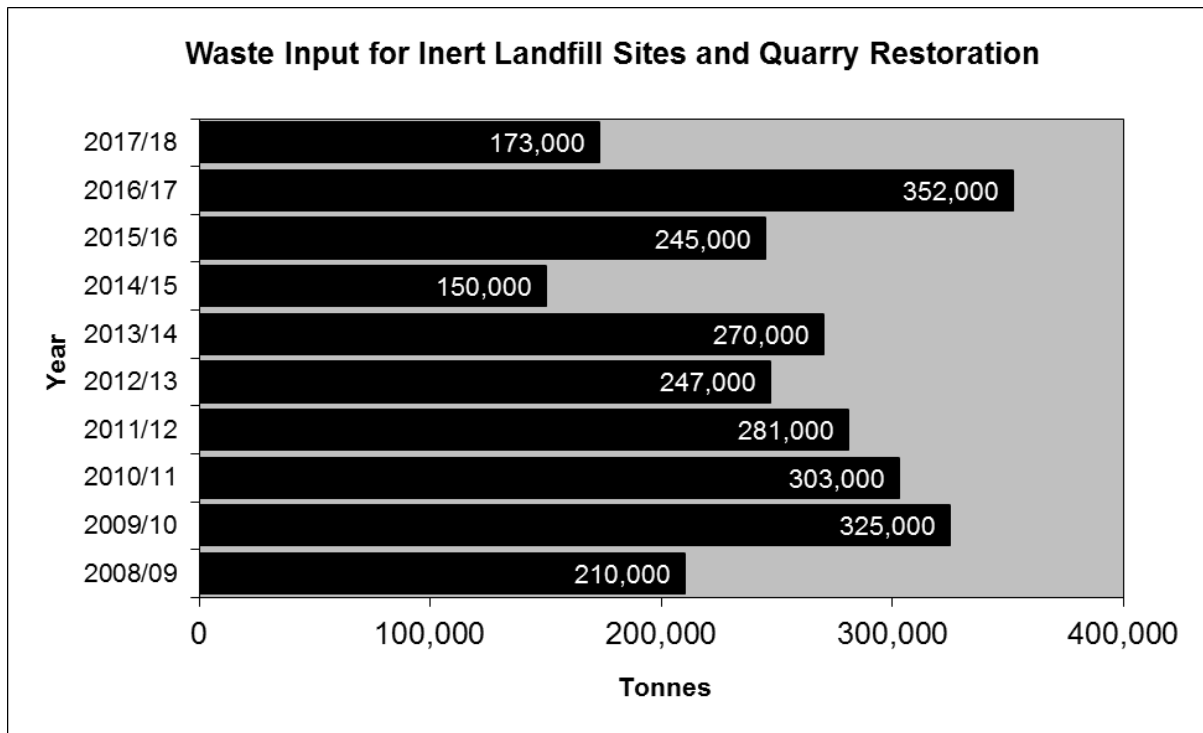
It should be noted that, as at the end of April 2016 Blackborough End landfill site stopped taking waste and is currently inactive, although the site has a large remaining void capacity. Feltwell landfill site is also currently inactive (and has been since 2012), although it has remaining void capacity. Therefore, there are currently no active non-hazardous landfill sites in Norfolk.

Inert landfill sites and quarry restoration using inert waste

Waste input in 2017/18 into inert landfill sites and for quarry restoration was over 173,000 tonnes. This compares with 352,000 tonnes in 2016/17 and 245,000 tonnes in 2014/15. The 173,000 tonnes deposited in 2017/18 consisted of 61,750 tonnes used in quarry restoration and 111,250 tonnes deposited in inert landfill sites. At 31 March 2018 the volume of permitted air-space was estimated to be 1,195,450 cubic metres.

After applying a conversion factor for the density of inert waste (1 tonne occupies 0.67 cubic metres), and assuming that waste inputs remain the same as the average for the last three years (257,000 tonnes), it is calculated that inert landfill and quarry restoration sites will last 6.9 years, until early 2025.

However, evidence for the Minerals and Waste Core Strategy uses a Government survey forecast of a 40% increase in construction and demolition waste over the plan period (to 2026). Assuming the 40% increase occurs as an incremental year on year increase of 2.5% per annum in inert waste requiring inert landfill/quarry restoration, it is calculated that existing **inert landfill and quarry restoration sites will last just over 4 years, until 2022**. Inert waste is also used for engineering works, including the capping of non-inert landfill sites and the restoration of mineral workings. It is important to note that the actual quantity of construction and demolition waste arising in the future will be subject to economic conditions.



2.3 Imported Waste to landfill

Waste imported to Norfolk's landfill sites and for quarry restoration, from outside the county, in 2017/18 was as follows:

Inert landfill sites and quarry restoration		Non-hazardous landfill sites	
From within the region, but outside the county	From outside the region	From within the region, but outside the county	From outside the region
1,420 tonnes	1,186 tonnes	6,834 tonnes	0 tonnes

The quantity of waste imported from outside the county and deposited at inert landfill sites and quarry restoration sites is equivalent to 1.5% of the total deposited at these sites. For non-hazardous landfill sites the equivalent is 3.6%.

2.4 Renewable energy generation

The current installed capacity for energy generation at Norfolk's landfill sites in 2017/18 was the equivalent of 9.67 megawatt hours (MWh).

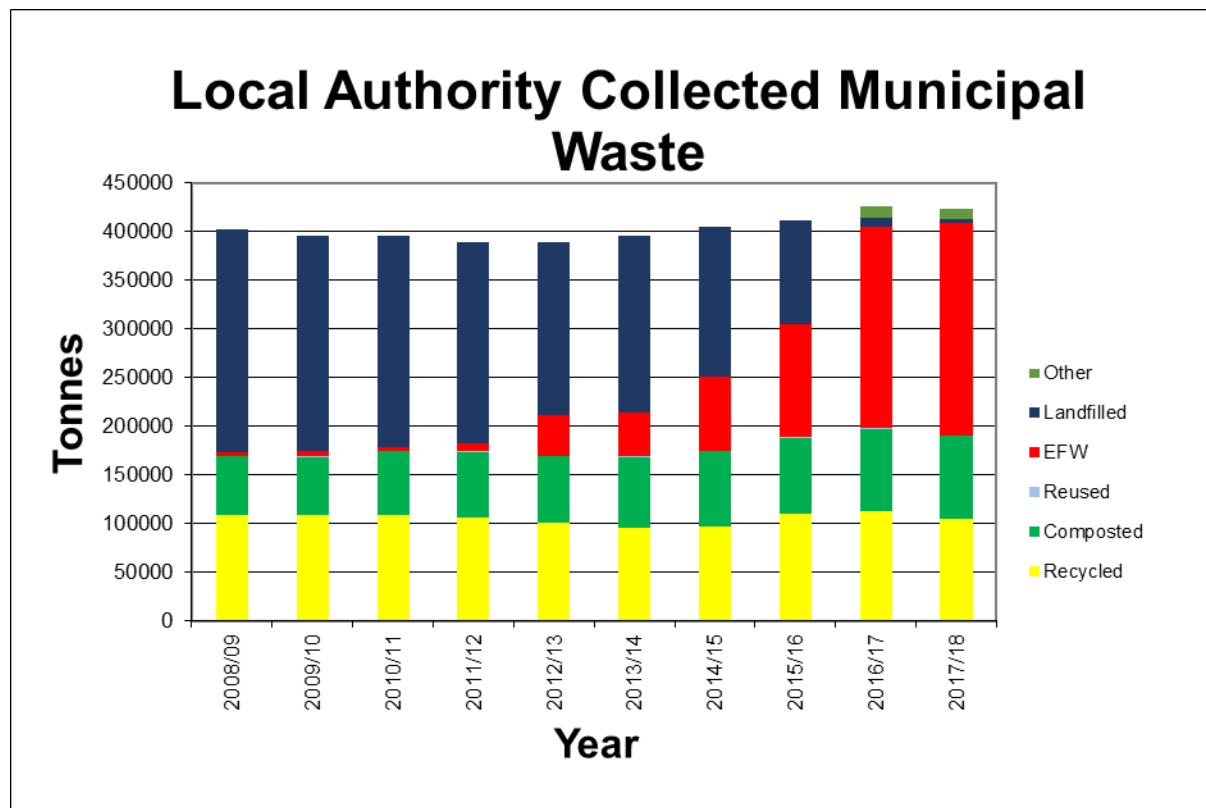
SITE	Current maximum capacity MWh	Actual MWh generated in 2017/18
Beetley	0 (0.2MW engine removed Feb 2018)	384
Blackborough End	3.3 *	17,523 *
Costessey	0.598 (January 2018 engine downsized from 1.15MW to 0.598MW)	1,981
Mayton Wood	0.33	2,218
Monringthorpe	0.05	383
Strumpshaw	0.014 (engines on site but inoperable)	0
Docking	0.1	763
Edgefield	1.21 *	2,685 *
Attlebridge	1.065 *	5,132 *
Feltwell	1.003 *	3,409 *
Aldeby	2.0 *	18,068 *
TOTAL	9.67 at March 2018	52,546

* data from Renewable Energy Foundation

2.5 Local Authority Collected Municipal Waste

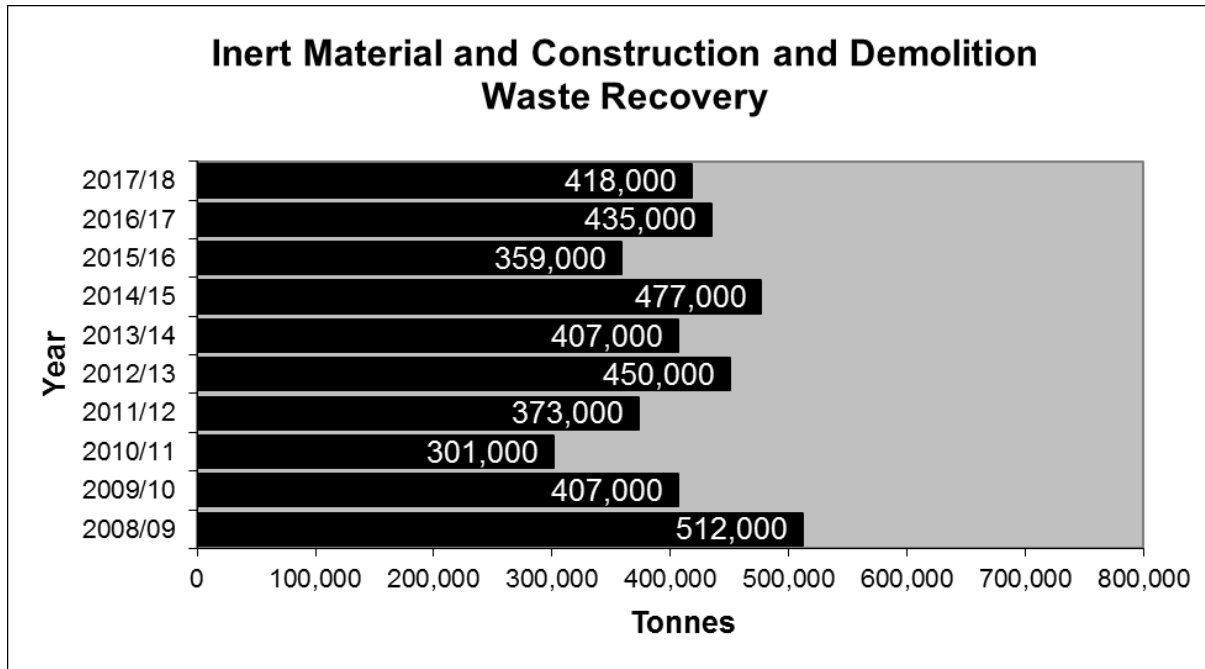
Below is a table outlining the quantity of local authority collected municipal waste (LACMW) arising in Norfolk and how it was managed in 2017/18. The proportion of LACMW sent to landfill came to 1.01%; which is lower than in any previous year on record. This reduction in LACW disposed of to landfill over the last two years is due to a significant increase in the quantity and percentage of waste recovered as either Refuse Derived Fuel or by incineration with energy recovery. The category of 'other' is predominantly street sweepings which are treated to recover aggregates and other recyclables with other fractions being disposed of. LACMW in Norfolk over the reporting year totalled 422,640 tonnes, a 0.7% decrease compared with the previous year 425,657) which was the highest amount arising since 2004/05. The lowest amount of LACWM arising in the intervening years was 388,579 tonnes in 2012/13.

Management type	Quantity managed	
	Tonnes	Percentage
Recycled	105,078	24.86
Composted	84,710	20.04
Reuse	1,208	0.29
Refuse Derived Fuel	159,017	37.62
Incinerated with energy recovery	58,925	13.94
Landfilled	4,256	1.01
Other	9,446	2.24
TOTAL	422,640	100

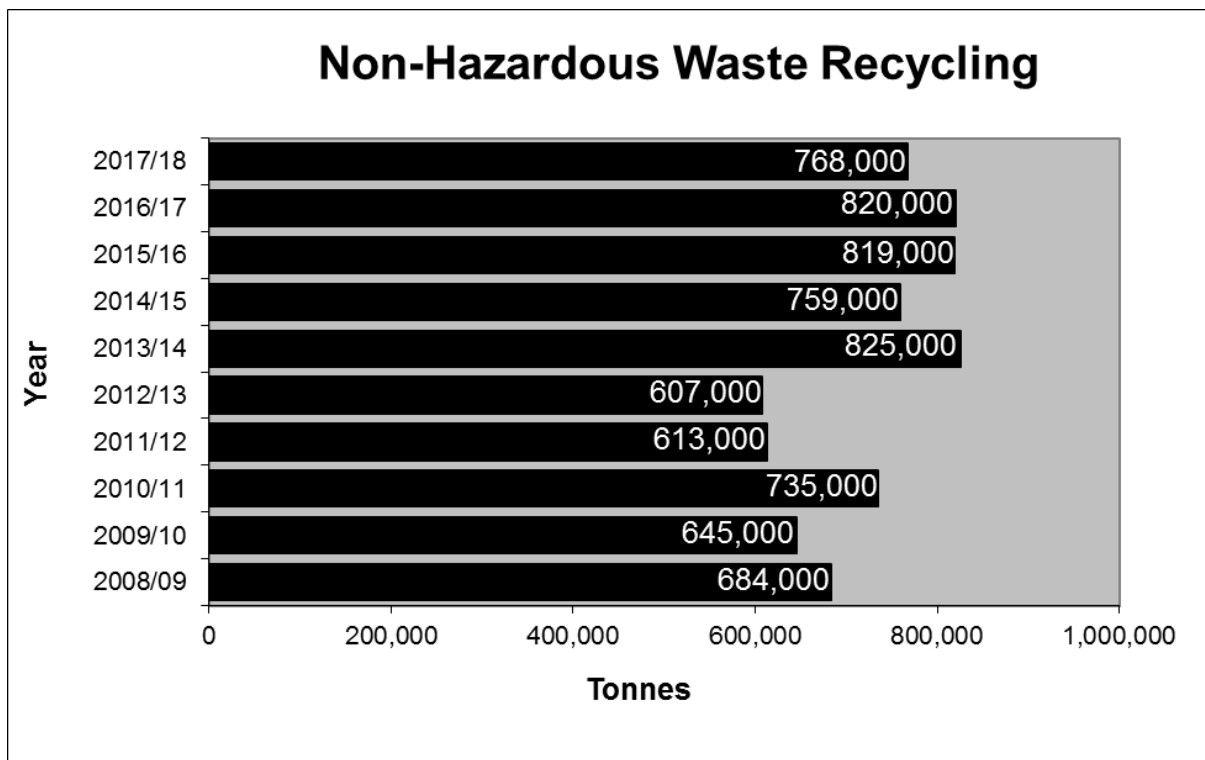


2.6 Waste Recovery

It is estimated that in 2017/18 over 418,000 tonnes of the inert and construction & demolition waste, received at transfer stations and recycling centres, was recovered. This includes waste recovered at quarries as well as waste management facilities.



The quantity of non-hazardous waste recycled/composted in 2017/18 was over 768,000 tonnes. This compares with over 820,000 tonnes in 2016/17 and 819,000 tonnes in 2015/16.



The origins of waste received at Norfolk’s transfer stations, treatment and recovery facilities in 2017/18 were as follows:

	Waste type (quantity in tonnes)					
	Inert	C&D	Non-hazardous	Hazardous	Clinical	Total
Received from within Norfolk	213,408	313,399	1,556,971	27,149	860	2,111,787
Received from outside Norfolk, but within the region	13,546	12,282	234,794	9,847	12	270,481
Received from outside the region	5,712	1,592	23,793	3,880	217	35,195
TOTAL WASTE RECEIVED	232,666	327,273	1,815,558	70,876	1,089	2,417,464

In 2017/18 imported waste represented 12.6% of the total waste received at transfer stations and recovery facilities in Norfolk. There has been a decrease of 57,000 tonnes (16%) in the quantity of waste imported to Norfolk facilities in 2017/18.

After being sorted and/or treated at Norfolk's transfer stations, treatment and recovery facilities, the destination of waste outputs from these sites in 2017/18 was as follows:

Waste management method	Waste type (quantity in tonnes)					
	Inert	C&D	Non-hazardous	Hazardous	Clinical	Total
Disposal to landfill within Norfolk	62,864	14,852	0	0	0	77,716
Exported for disposal to landfill within the region	0	12,185	96,366	802	455	109,808
Disposal to landfill outside the region	0	0	4,749	2,002	166	6,917
TOTAL WASTE TO LANDFILL	62,864	27,037	101,115	2,804	621	194,441
Incineration/ power station within Norfolk *	0	0	480,508	0	421	480,929
Exported for energy recovery by incineration within the region	0	10,366	104,049	138	4	114,557
Energy recovery by incineration outside the region	0	431	185,415	443	0	186,289
TOTAL WASTE TO ENERGY RECOVERY	0	10,797	769,972	581	425	781,775
Recycled or composted in Norfolk	163,560	174,472	468,389	3,696	0	810,117
Exported for recycling or composting within the region	19,246	4,470	83,233	1,128	0	108,077
Recycling or composting outside the region	0	2,451	217,272	10,840	0	230,563
TOTAL RECYCLED OR COMPOSTED	182,806	181,393	768,895	15,664	0	1,148,758

*The majority of waste recorded in the 'incineration/power station in Norfolk' row of the above table, was received at the EPR renewable energy plant at Thetford which burns poultry litter.

The quantity of waste exported for disposal to landfill outside of Norfolk increased by 10% from 105,000 tonnes in 2016/17 to 116,000 tonnes in 2017/18. The quantity of waste exported for energy recovery by incineration outside of Norfolk has remained relatively stable over the reporting period at approx. 300,000 tonnes. The quantity of waste exported for recycling outside of Norfolk decreased by 19% from 414,000 tonnes in 2016/17 to 338,000 tonnes in 2017/18.

The following table shows the quantity of waste handled in Norfolk by each type of waste management facility. The table does not include any End-of-Life Vehicle depollution sites because most of these sites have planning permission granted by the relevant district council instead of the County Council.

Waste may be handled at more than one facility. For example, green waste received at a household waste recycling centre will also be composted at one of the compost facilities.

Facility Type	Compost	HWRC	Incineration/ Power station	Transfer / Treatment of inert waste	Metal Recycling	Transfer / treatment of waste
No. of sites	11	20	6	25	8	61
Input from outside Norfolk but within region (tonnes)	18,321	0	84,995	3,417	34,653	129,093
Input from outside region (tonnes)	293	0	217	6,999	0	27,685
Input from within Norfolk (tonnes)	153,849	74,842	395,840	228,287	58,725	1,200,241
Recycled or compost (tonnes)	108,944	58,044	31,250	194,962	91,482	664,074
Sent to landfill within Norfolk (tonnes)	0	0	0	15,514	0	62,202
Sent to landfill outside Norfolk (tonnes)	78	2	101	0	0	116,543
Incineration / Power Station within Norfolk * (tonnes)	0	0	480,929	0	0	0
Energy recovery by incineration outside Norfolk (tonnes)	1,288	16,811	0	0	1	282,746

It should be noted that the inputs are unlikely to match the outputs for all facility types. For example, at composting facilities a portion of the weight of waste input is lost through the composting process; other facilities may have recycled previously stockpiled waste.

*The majority of waste recorded in the incineration/power station row of the above table, was received at the EPR renewable energy plant at Thetford which burns poultry litter. The exact origin of this material is difficult to ascertain as material from within the region and within Norfolk may be mixed before its origin can be accurately identified.

2.7 Waste Managed in Norfolk

The total waste managed in 2017/18 was 1,986,413 tonnes.

To reduce double counting waste that may be handled at more than one facility, this figure is calculated from:

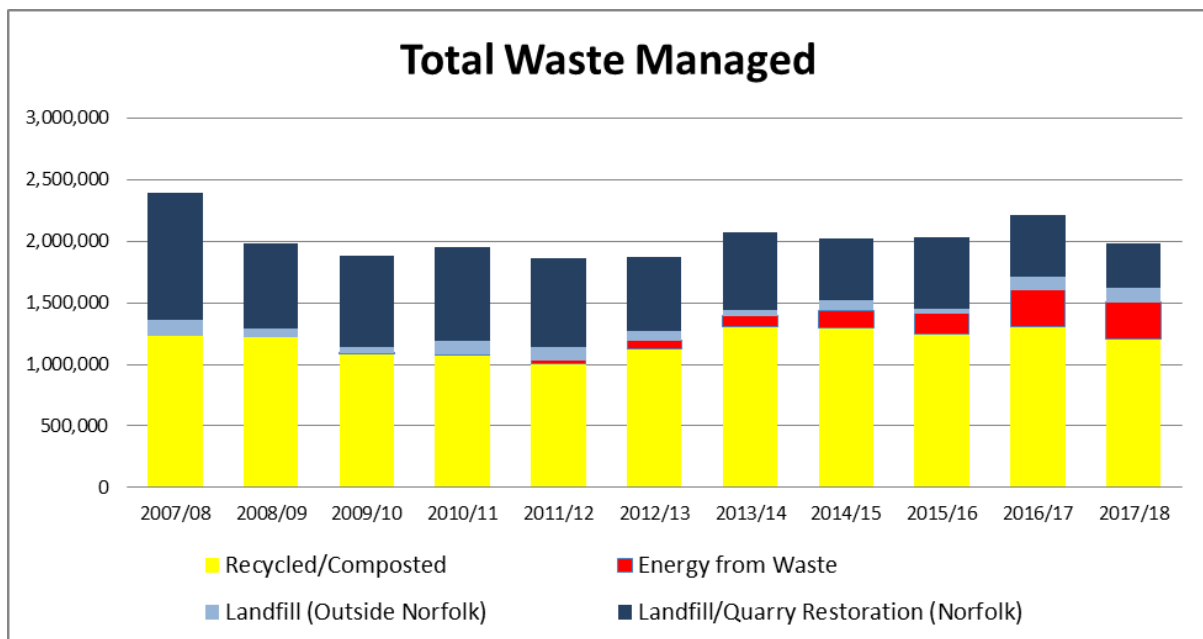
- the total amount of waste landfilled in Norfolk
- the total amount of waste handled at waste management facilities in Norfolk that was then disposed of in landfill sites located outside Norfolk
- the total amount of waste recycled/composted or segregated for recycling/composting at waste management facilities in Norfolk
- the total amount of waste handled at waste management facilities in Norfolk that was then sent to energy from waste facilities

Management type	Quantity managed	
	Tonnes	Percentage
Recycled / Composted	1,203,326	60.6
Energy from waste	300,846	15.1
Landfill (outside Norfolk)	116,725	5.9
Landfill/ quarry restoration (in Norfolk)	365,516	18.4
TOTAL	1,986,413	100

In addition to the total waste recorded in the graph below, the EPR Thetford renewable energy plant has been operational for over 10 years and burns between 360,000 - 450,000 tonnes of poultry litter per annum.

The total amount of waste handled in 2017/18 has reduced by 10% compared to the 2016/17 total. The percentage of the waste recycled / composted has increased from 59.1% to 60.6%.

The quantity of waste sent for recovery at energy from waste facilities has remained relatively stable at approximately 300,000 tonnes.



There are several treatment facilities for **sewage sludge** and wastes such as landfill leachate which operate at Water Recycling Centres in Norfolk. These facilities receive significant quantities of such waste from Norfolk and the neighbouring counties. Not all of these sites or all of the operations are included within the waste survey conducted by Norfolk County Council. In the calendar year 2017 approximately 735,000 tonnes of waste were received at those facilities not subject to the waste survey, with two-thirds of this waste being received from neighbouring counties, which represents a significant amount of existing capacity for wastewater treatment within Norfolk (this information is contained within the Environment Agency's Waste Data Interrogator).

2.8 New Capacity in Norfolk

The table below demonstrates the increased waste management capacity as approved in the period between 1 April 2017 and 31 March 2018. These sites were:

Location	Applicant	Type of facility	Anticipated throughput (tonnes per annum)	Type of waste (waste class)
C/3/2017/3008 Unit 2a Paynes Business Park, Dereham Road, Beeston, PE32 2NQ	Atlas Metal Recycling Ltd	Materials Recycling Facility	10,000tpa	Non-hazardous and/or inert
C/3/2017/3002 Stone Road, Hockering, Dereham, NR20 3PZ	Monk Plant Hire	Inert Recycling Facility	Additional 85,000tpa	Inert
C/3/2017/3018 A47 bypass site, North Tuddenham, NR20 3DE	Martyn Green Grab Hire	Materials Recycling Facility	9,500tpa	Inert
C/1/2017/1002 Blackwater Pit, Helhoughton Road, Hempton, Fakenham, NR21 7DY	Gamble Plant Ltd	Materials Recycling Facility	Additional 10,000tpa	Non-hazardous and/or inert

In addition to the above facilities, the following additional sewage treatment capacity received planning permission in 2017/18:

Location	Applicant	Type of facility	Anticipated throughput (tonnes per annum)	Type of waste (waste class)
C/7/2017/7009 Land off Mill Road, Burston, Diss, IP22 5TW	Anglian Water Services Ltd	Sewage pumping station	Not specified	Sewage
C/7/2017/7007 Land north west of Audley Cottage, Audley End, Burston, IP22 5TX	Anglian Water Services Ltd	Sewage pumping station	Not specified	Sewage
C/3/2017/3001 Land South of 105/107 The Street, Bridgham, NR16 2RU	Anglian Water Services Ltd	Sewage pumping station	Not specified	Sewage
C/7/2017/7008 Land off Gissing Road, Burston, Diss,	Anglian Water Services Ltd	Sewage pumping station	Not specified	sewage
C/2/2017/2008 Highway Land, Off A148, Hillington, PE31 6DE	Anglian Water Services Ltd	Sewage pumping station	Not specified	sewage
C/1/2017/1007 Land off Barney Road, Fulmodeston,	Anglian Water Services Ltd	Sewage pumping station	Not specified	sewage
C/1/2017/1006 Arable field opposite No 35 Croxton Road, Fulmodeston, NR21 0NJ	Anglian Water Services Ltd	Sewage pumping station	Not specified	sewage
C/6/2017/6001 Land off Cley Road, close to the junction with Lords Lane, Bradwell	Anglian Water Services Ltd	Sewage pumping station	Not specified	sewage
C/5/2017/5005 Land off Low Road, Drayton, Norwich, NR8 6RR	Anglian Water Services Ltd	Sewage Pumping station	Not specified	sewage

2.9 Assessment of progress against Policy CS4

The Minerals and Waste Core Strategy Policy CS4 states that between 2010 and the end of 2026 “there is a need to provide about 163,000 tonnes of new recycling, composting and source-segregated anaerobic digestion capacity, about 703,000 tonnes of recovery (residual waste) infrastructure and about 2,060,000 tonnes of new inert landfill/quarry restoration voidspace.”

These figures were calculated based on the existing capacity in the financial year 2008/9. This included 684,000 tonnes of non-hazardous waste recycling and composted, plus the composting facility for 20,000 tpa at Bracon Ash permitted in 2008. In the ten years from 2008/9 to 2017/18 the average quantity of non-hazardous waste recycled at Norfolk facilities was 727,500 tonnes per annum, although this has fluctuated and has increased in the last five years. It should be noted that this is likely to double count material that is treated at more than one facility (for example green waste segregated at a transfer station and then composted at a separate facility).

The recycling/composting and recovery (residual waste treatment) capacities required are based on forecast municipal and commercial and industrial waste arisings (detailed in Appendix A of the Core Strategy). Facilities to treat sewage or natural agricultural waste (such as manure and silage) were not included in the calculations for need in policy CS4.

Additional non-hazardous landfill capacity was calculated to not be needed in the plan period, which is to the end 2026. The existing capacity is now calculated to last until 2035/36, but the landfill sites with remaining void capacity are currently inactive and not accepting any waste.

Additional recycling/recovery capacity for C&D waste was not calculated to be needed in the plan period, therefore additional permitted facilities for this waste type are not detailed below.

Since 2009/10 the following additional waste management capacity has been permitted by Norfolk County Council:

Recycling/composting facilities

Year	Recycling capacity permitted (tonnes)	Composting capacity permitted (tonnes)
2009/10	3,500 = 50% of throughput at transfer station in Frans Green	45,000 (Marsham)
2010/11	3,000 = 50% of new HWRC throughput at Dereham	0
2011/12	13,500 = 50% of throughput of transfer station at Sculthorpe = wood recycling, Mattishall = 50% of additional HWRC capacity at Thetford 25,000t <i>Material recycling facility at Attlebridge.</i>	40,000 <i>(TMA Bark supplies, Hockering)</i> <i>This permission was not implemented and therefore is not included in the total.</i>

Year	Recycling capacity permitted (tonnes)	Composting capacity permitted (tonnes)
	<i>This permission was not implemented and therefore is not included in the total.</i>	
2012/13	12,500 = plastic & card, Shropham (<i>this operation ceased in 2016</i>) = end-of-life vehicles, North Walsham	12,500 (expected green waste input to Anglian Water, Kirby Bedon facility)
2013/14	Total 82,000 consisting of: 7,500 = 50% additional capacity for transfer/treatment Carl Bird Ltd, North Walsham 3,750 = 50% transfer/treatment Skippy Skip Hire, West Winch 12,500 = 50% transfer/treatment Monk Plant Hire Hockering 6,250 = 50% transfer/treatment Monk Plant Hire Dereham 2,000 = aircraft components, KLM, Norwich 50,000 = 50% additional capacity at M Gaze and Co Ltd, Thurlton	0
2014/15	15,000 = 50% additional capacity for transfer/treatment at Pips Skips, East Tuddenham = 50% additional capacity for AR Kent & Son, Pulham Market	50 (community composting, Roughton) 30,000 anaerobic digestion (Buyinfo Ltd, Edgefield) <i>This permission was not implemented and therefore is not included in the total</i>
2015/16	2,000 1,000 = ELV dismantling, Norman Wenn Ltd, East Tuddenham = 50% transfer/ treatment at Attleborough Skip Hire 30,000 = tyre recycling, Mr Gawn, Tattersett (<i>This permission was not implemented and therefore is not included in the total</i>)	25,000 composting Edgefield (<i>this is a permanent permission on an existing temporary site and therefore does not increase the permitted capacity and is not included in the total</i>)
2016/17	984 = 50% of additional capacity for road sweepings at King's Lynn, NEWS = 50% transfer station at Downham Market	0
2017/18	10,000 = 50% of capacity at Beeston MRF = 50% additional capacity at Hempton MRF	0
TOTAL	142,484	57,550

Where a facility is a transfer station, it has been assumed that a minimum of 50% of the throughput will be recycled/composted, however it is recognised that this figure

may be higher. Transfer stations are likely to be taking a percentage of construction and demolition waste as well as the household, commercial and industrial waste that policy CS4 plans for.

In addition, planning permission was granted in 2011/12 for an anaerobic digestion facility with an annual throughput of 360,000 tonnes at British Sugar's Wissington site. This facility is permitted to treat pressed sugar beet and vinasses from the production process. This facility has not been included in the additional capacity because the waste treated was previously used as animal feed and did not enter the waste stream. Therefore, it is considered that this capacity is in addition to the requirements in Policy CS4.

There is the potential for part of the additional capacity permitted at M Gaze and Co Ltd in 2013/14 to be for composting, but the additional capacity is for the site as a whole which comprises of waste transfer/treatment, composting, oil recovery and waste water treatment operations.

There is calculated to be an additional 57,550 tpa composting capacity and 142,484 tpa recycling capacity for household, commercial and industrial waste which received planning permission in the period 2009/10-2017/18. **Therefore, the additional recycling/ composting capacity requirements over the plan period have now been met.**

Recovery (residual waste treatment) infrastructure

No additional recovery (residual waste treatment) infrastructure was permitted in 2009/10 or 2010/11.

A biomass CHP plant fuelled by waste wood with an annual throughput of 20,000 tonnes was permitted in 2011/12. No additional recovery (residual waste treatment) infrastructure has been permitted in 2012/13, 2013/14 or 2014/15.

Permission was granted in 2015, to increase the throughput of an existing waste management facility at Rackheath (PHS Environmental Ltd) from 75,000 tpa to 150,000 tpa. The permitted operations include processing waste (mainly local authority collected municipal waste) into Refuse Derived Fuel (RDF) prior to energy recovery off-site. This permission would provide 75,000 tonnes of additional residual waste treatment capacity to continue to move the management of waste up the hierarchy, by diverting it from landfill.

Permission was granted in 2016 for the pyrolysis of 700 tonnes of plastic per annum. No additional recovery (residual waste treatment) infrastructure was permitted in 2017/18.

Therefore, there remains a need for nearly 608,000 tpa additional recovery (residual waste treatment) infrastructure capacity over the plan period in accordance with policy CS4. There is the potential for some of this capacity to be provided by recycling/composting facilities instead of recovery (residual waste treatment) facilities if necessary. Some of this forecast capacity need is for pre-treatment prior to disposal only and the existing transfer stations would be providing part of this service.

It should also be noted that there is a waste management facility producing Refuse Derived Fuel (RDF), at Costessey, with a permitted throughput of 219,000 tpa in

their Environmental Permit. Planning permission (ref. C/7/2012/7015) was granted for RDF production to take place at this existing waste management facility in September 2012. This planning permission did not increase the throughput or types of waste that could be treated at the facility and the RDF is produced from residual waste which would previously have been treated at the facility, but then sent to landfill. Therefore, the change in the treatment process at an existing waste management facility is not considered to provide any additional recovery (residual waste treatment) infrastructure.

Existing **inert landfill and quarry restoration** capacity is recorded in section 2.2 as 1,195,450 cubic metres on 31 March 2018. This capacity is calculated to last until between 2022 and 2025. Therefore, there is still insufficient capacity for the plan period (until the end of 2026).

2.10 Conclusions for waste management

A summary of the main waste data to be drawn from the 2017/18 survey of waste management facilities is as follows:

- The total amount of Local Authority Collected Municipal Waste decreased in the year 2017/18 compared to 2016/17;
- Waste input into non-hazardous landfill sites in 2017/18 was 192,000 tonnes, an increase of approximately 32% on the 2016/17 figure and about 34,000 tonnes below the 3-year average of 226,000 tonnes;
- Norfolk's non-hazardous landfill capacity is calculated to last until 2035/36 based on the forecasts of waste arisings in the Minerals and Waste Core Strategy;
- The landbank for inert landfill and quarry restoration sites stands at 6.9 years, assuming waste inputs remain the same as the average for the last three years, or 4 years assuming waste inputs increase by 2.5% per annum;
- The quantity of inert and construction & demolition waste recovered in 2017/18 was 418,000 tonnes; which is similar to the 10-year average of 413,900 tonnes;
- The quantity of non-hazardous waste recycled/composted in 2017/18 (768,000 tonnes) was 52,000 tonnes lower than the quantity recycled in 2016/17, and was about 40,600 tonnes higher than the 10-year average of 727,400 tonnes; and
- The overall quantity of waste handled in Norfolk in 2017/18 (1,986,413 tonnes) was 222,868 tonnes less than 2016/17 (a decrease of 11%), and 859 tonnes less than the 10-year average of approximately 1,987,272 tonnes.
- The Norfolk Waste Site Specific Allocations Plan was adopted on 28 October 2013. The plan covers the period until the end of 2026 and allocates specific sites that are considered suitable in principle and available for development as waste management facilities. The allocated sites would provide for enough waste management capacity to meet the needs within Norfolk for the plan period.

Waste is produced as the result of human activity. As economic activity increases, along with a consequent increase in house building, population and household formation it is to be expected that amounts of waste generated would increase. The figures of total waste managed in Norfolk would seem to reflect this with amounts increasing to a high point in 2007/2008 before falling during subsequent years of lower economic activity, followed by an increase in 2013/14. However, the total waste managed reduced again in 2014/15, mainly due to a reduction in inert waste used in quarry restoration in that year. In 2015/16 and 2016/17 the total waste managed increased again to the highest level since 2007/08. However, the total waste managed in 2017/18 decreased by 11% from the previous year, mainly due to a reduction in inert waste used in quarry restoration that year. Therefore, the total waste managed will need to be monitored over subsequent years to see if an upward trend develops or if the previous decreases since 2007/08 are re-established. Waste planning should be trend based as any individual year can contain anomalies due to the methods of data collection and the impacts of individual events which may generate large amounts of waste. A review of the Minerals and Waste Local Plan began in 2017 and this will provide an appropriate point for reassessing waste trends.

APPENDIX A

Non-hazardous landfill capacity assessment

Table A1

Year	MSW & C&I and imported London waste to landfill (Table A.2 of the Core Strategy)	Remaining non-hazardous landfill capacity (starting at 4,536,330m ³)
2018/19	393,468 m ³	4,142,862
2019/20	372,012 m ³	3,770,850
2020/21	349,131 m ³	3,421,719
2021/22	327,852 m ³	3,093,867
2022/23	305,278 m ³	2,788,589
2023/24	282,708 m ³	2,505,881
2024/25	260,142 m ³	2,245,739
2025/26	237,518 m ³	2,008,221
2026/27	215,023 m ³	1,793,198
2027/28	Estimate 215,000 m ³	1,578,198
2028/29	Estimate 215,000 m ³	1,363,198
2029/30	Estimate 215,000 m ³	1,148,198
2030/31	Estimate 215,000 m ³	933,198
2031/32	Estimate 215,000 m ³	718,198
2032/33	Estimate 215,000 m ³	503,198
2033/34	Estimate 215,000 m ³	288,198
2034/35	Estimate 215,000 m ³	73,198
2035/36	Estimate 215,000 m ³	-141,802

Non-hazardous landfill capacity at 31/03/2018 was 5,097,000m³. 11% of non-hazardous voidspace is assumed to be taken up by inert waste (560,670 m³, leaving 4,536,330 m³ voidspace for non-hazardous waste.

The adopted Norfolk Minerals and Waste Core Strategy only contains forecast waste arisings and the associated need for landfill capacity covering the period up to 2026/27. Therefore, an assumption that a maximum of 215,000 tonnes per annum would continue to be disposed of to landfill in the years after 2026/27 has been used for the purposes of calculating how long the existing landfill capacity will last.

Inert landfill and quarry restoration capacity assessment

Table A2

Year	Inert waste (tonnes)	Inert waste (m3)	Remaining inert landfill and quarry restoration capacity (starting at 1,195,450 m ³)
2018	415,000	278,000	917,450
2019	424,000	284,000	633,450
2020	433,000	290,000	343,450
2021	441,000	295,000	48,450
2022	450,000	302,000	-253,550

The forecast inert waste arisings detailed in the table above are the same as those used to assess the need for additional inert landfill/quarry restoration capacity in the Norfolk Minerals and Waste Core Strategy.

It should be noted that non-hazardous landfill sites also received a proportion of inert waste (historically approximately 11% of the waste they receive). Therefore, there is the potential for an additional 560,670m³ to be available for inert waste disposal in Norfolk's existing non-hazardous landfill sites, which would provide around two years' additional capacity.