Lincolnshire Local Aggregate Assessment (reporting 2021 data)

July 2022

Lincolnshire COUNTY COUNCIL
Working for a better future

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Summary

The National Planning Policy Framework (NPPF) requires mineral planning authorities to plan for a steady and adequate supply of aggregates by preparing annual Local Aggregate Assessments (LAAs). Each LAA is required to:

a) forecast the demand for aggregates based on both the rolling average of 10-years sales data and other relevant local information;

b) analyse all aggregate supply options, as indicated by landbanks, mineral plan allocations and capacity data; and

c) assess the balance between demand and supply, the economic and environmental opportunities and constraints that might influence the situation and conclude if there is a shortage or a surplus of supply and, if the former, how this is being addressed.

This is the tenth LAA for Lincolnshire and includes the most recent published aggregate sales and reserves data for the county relating to 2021. It is also the seventh LAA to be produced since the first part of the Lincolnshire Minerals and Waste Local Plan (LMWLP), the Core Strategy and Development Management Policies document (CSDMP), was adopted in June 2016 and the sixth following the adoption of the Site Locations document (SLD) on 15 December 2017. The key points from this LAA are set out in the table at the end of this summary.

Sand and gravel

In 2021 Lincolnshire had 10 active sand and gravel quarries and extraction sites producing aggregates from reserves within the county. In addition, there was one site currently working reserves located in an adjacent county, one that was inactive, one pending commencement of operations and a further five sites that were dormant.

Lincolnshire is subdivided into three sand and gravel production areas in the LMWLP known as the Lincoln Trent Valley Production Area, the Central Lincolnshire Production Area, and the South Lincolnshire Production Area. In previous years, the sales and landbank data has been reported separately for each of these production areas. Unfortunately, during 2021 there was a reduction in the number of operators in the Central Lincolnshire Production Area. As a result, dividing the data between the production areas would no longer comply with the confidentiality undertaking agreed with Industry. The 2021 data is therefore only reported for the county as a whole.

In 2021 aggregate sales for the county amounted to 2.763 million tonnes (mt). This maintains a recent rise in sales with the 10-year average for the period 2012 to 2021 now reaching 2.265mt per annum.

After considering local factors, national growth projections and recent production levels, it has been concluded that the calculation of landbanks should continue to be based on the rolling 10-year average sales. On this basis, the permitted reserves for the county of 21.927mt at the end of 2021 provided a landbank of 9.681 years.

At the end of 2021, a planning application for a new quarry on land allocated in the SLD at Greatford (site MS25-SL) in the South Lincolnshire Production Area had been approved in principle subject to the completion of a s106 planning obligation. When planning permission is granted, this will provide for an additional 3.0mt of sand and gravel.

Together with the remainder of sites allocated in the SLD, there should be sufficient sand and gravel resources to last beyond the LMWLP period which extends to the end of 2031.

Crushed rock

Lincolnshire produces both limestone and chalk crushed rock aggregate. Both have limitations as aggregate, but the use of chalk is particularly restricted. The two minerals are therefore considered separately.

In 2021 there were 18 limestone quarries in the county (excluding dormant sites and sites that exclusively produce building stone), but four were either inactive or only produced non-aggregate that year. Sales of limestone aggregate amounted to 1.394mt, significantly higher than the 10-year average (0.867mt). There has been some sustained growth in sales, indicated by the three-year average sales figure which at 1.338mt represents a 54% increase over the 10-year average. This more recent increase in sales appears to have been in part driven by an increase in exports, evidenced by the sales distribution data recorded in 2019 that shows that up to 48% (0.69mt) of aggregates may have been exported from the county.

To reflect the higher level of demand, the method for calculating the landbank will continue to be calculated using the last 3-years average sales as opposed to the 10-year sales average. Using this approach, the permitted reserves of limestone (19.245mt) at the end of 2021 provides a landbank of 14.383 years. These reserves should last beyond the period of the Lincolnshire Minerals and Waste Local Plan. No sites have been allocated in the SLD.

There were two active chalk quarries in the county (excluding dormant and suspended sites) and one inactive site. To respect the confidentiality of information provided for chalk sales, annual sales information cannot be published. Furthermore, due to the limited data available it is not possible to calculate the landbank. However, with estimated reserves of 1.5mt, the landbank for this low quality aggregate with limited uses is likely to be over 10years and will probably last for the duration of the current plan period. No sites have been allocated for the extraction of chalk in the LMWLP.

Updating the LMWLP

Following a review of the LMWLP in 2021, work has commenced on updating the plan in full, with a proposal to extend its period to 2040. Consultation on an Issues and Options document commenced on 28 June 2022 and will end at 5pm on 12 August 2022. A call for sites exercise is being carried out in conjunction with this consultation. This is seeking nominations for new sites to provide sand and gravel aggregate and limestones aggregate during the extended plan period.

Summary of Findings

Aggregate	Sales in 2021 (thousand tonnes)	Change in sales from previous year	10-year sales average (thousand tonnes)	3 year sales average (thousand tonnes)	Sales Trend (10-years)	2021 LAA annual provision rate (thousand tonnes)	Permitted reserves at 31 December 2021 (thousand tonnes)	Change in permitted reserves from previous year	Landbank (years)	Change in Landbank from previous years
Land won Sand and Gravel	2,763	↑ up	2,265	2,571	↑ up	2,265	21,927	↑ up	9.681	↑ up
Crushed Rock (Limestone)	1,394	↑ up	868	1,338	↑ up	1,338	19,245	↓ down	14.383	↓ down
Total Primary Aggregates	4,101	↑ up	3,175	3,909	↑ up	N.A.	41,172	↓ down	N.A.	N.A.

1. Introduction

1.1 The National Planning Policy Framework (NPPF) requires an annual Local Aggregate Assessment (LAA) to be produced by minerals planning authorities in order to plan for a steady and adequate supply of aggregates.

1.2 This document is the LAA for the county of Lincolnshire. It is the tenth time that a LAA has been prepared for Lincolnshire. The LAA sets out the current supply and demand for aggregates in the county and indicates the provision that will be needed in order to ensure that Lincolnshire continues to make an appropriate contribution to the steady and adequate supply of aggregates. Revised LAAs have been produced for each year of aggregate production as part of the Lincolnshire Minerals and Waste Local Plan monitoring procedures.

National Planning Policy Framework

1.3 The National Planning Policy Framework (NPPF) states that mineral planning authorities should plan for a steady and adequate supply of aggregates by:

a. preparing an annual LAA, either individually or jointly by agreement with another or other mineral planning authorities, based on a rolling average of 10-years sales data and other relevant local information, and an assessment of all supply options (including marine dredged, secondary and recycled sources);

b. participating in the operation of an aggregate working party and taking the advice of that party into account when preparing their LAA;

c. making provision for the land-won and other elements of their LAA in their mineral local plans taking account of the advice of the aggregate working parties and the National Aggregate Co-ordinating Group as appropriate. Such provision should take the form of specific sites, preferred areas and, or areas of search and locational criteria as appropriate;

d. taking account of published national and sub national guidelines on future provision which should be used as a guideline when planning for the future demand for and supply of aggregates;

e. using landbanks of aggregate minerals reserves principally as an indicator of the security of aggregate minerals supply, and to indicate the additional provision that needs to be made for new aggregate extraction and alternative supplies in mineral plans;

f. making provision for the maintenance of landbanks of at least seven years for sand and gravel and at least 10-years for crushed rock, whilst ensuring that the capacity of operations to supply a wide range of materials is not compromised. Longer periods may be appropriate to take account of the need to supply a

range of types of aggregates, locations of permitted reserves relative to markets, and productive capacity of permitted sites;

g. ensuring that large landbanks bound up in very few sites do not stifle competition; and

h. calculating and maintaining separate landbanks for any aggregate materials of a specific type or quality which have a distinct and separate market.

National and regional guidelines

1.4 For over 40 years, geographical imbalances in the occurrence of suitable natural aggregate resources and the areas where they are needed have been met through the Managed Aggregate Supply System (MASS). The underpinning concept behind MASS is that mineral planning authorities which have adequate resources of aggregates make an appropriate contribution to national as well as local supply. Government guidance on the MASS is set out in the Government's online Planning Practice Guidance (PPG). This states that mineral planning authorities are expected to prepare LAAs to assess demand for and supply of aggregates. These should contain three elements:

- a forecast of the demand for aggregates based on both the rolling average of 10-years sales data and other relevant local information;

- an analysis of all aggregate supply options, as indicated by landbanks, mineral plan allocations and capacity data e.g., marine licenses for marine aggregate extraction, recycled aggregates and the potential throughputs from wharves. This analysis should be informed by planning information, the aggregate industry and other bodies such as local enterprise partnerships; and

- an assessment of the balance between demand and supply, and the economic and environmental opportunities and constraints that might influence the situation. It should conclude if there is a shortage or a surplus of supply and, if the former, how this is being addressed.

1.5 The PPG lists sources of information that may assist in the preparation of a LAA, which includes published national and sub national guidelines on aggregate provision.

1.6 Prior to the publication of the NPPF, national aggregate policy was set out by the Government in Mineral Policy Statement 1, which required mineral planning authorities to make provision for the sub-regional apportionment of the National and Regional Guidelines for Aggregate Provision 2005-2020, which was most recently updated in June 2009. The 2009 guidelines required the East Midlands region to provide 500mt of crushed rock, 174mt of sand and gravel, and 110mt of alternative materials between 2005 and 2020.

1.7 On 8 January 2010, the East Midlands Aggregates Working Party (EMAWP) agreed to recommend a basis for apportioning the regional guidelines between the counties

within the East Midlands together with the Peak District National Park for inclusion in the East Midlands Regional Plan. This Sub-Regional Apportionment (SRA) was based on the average of the past seven years sales (2001-2007), expressed as a percentage share of regional sales. For Lincolnshire, this would require the county to provide 52.5mt of sand and gravel and 18mt of crushed rock (limestone) from 2005 to 2020 – amounting to an average of 3.28mt of sand and gravel and 1.1mt of crushed rock (limestone) each year over this 16-year period.

1.8 At its meeting on 5 March 2010, the East Midlands Regional Assembly's Housing, Planning & Transport Joint Board subsequently agreed that the revised SRA figures be included in the draft replacement regional plan policies for submission to the Secretary of State. The Partial Review was submitted to the Secretary of State on 26 March 2010 as a Revised Draft East Midlands Regional Plan. However this was not progressed following the Secretary of State's decision to revoke Regional Spatial Strategies (RSS) on 6th July 2010. As a result, the SRA figures were not subject to any formal examination.

1.9 At the meeting of the EMAWP in February 2013, doubts were expressed about the validity of the 2009 Guidelines. It was considered that the figures were out of date as they were only based on aggregate output from a period of economic growth, and that they should not be taken into account in identifying future levels of provision. It was further agreed that future levels of provision be based on a rolling average of 10-years sales data and other relevant local information, in accordance with the NPPF.

1.10 Although the SRA is considered to be out of date, it is still referred to in this LAA as it is a requirement of the NPPF to have regard to the latest national and sub-national guidelines in future provision.

Lincolnshire Minerals and Waste Local Plan

1.11 The Lincolnshire Minerals and Waste Local Plan (LMWLP) covers the period up to the end of 2031 and has been prepared in two parts. The first part, the Core Strategy and Development Management Policies (CSDMP) document (adopted on 1 June 2016) sets out:

a) the key principles to guide the future winning and working of minerals and the form of waste management development in the county; and

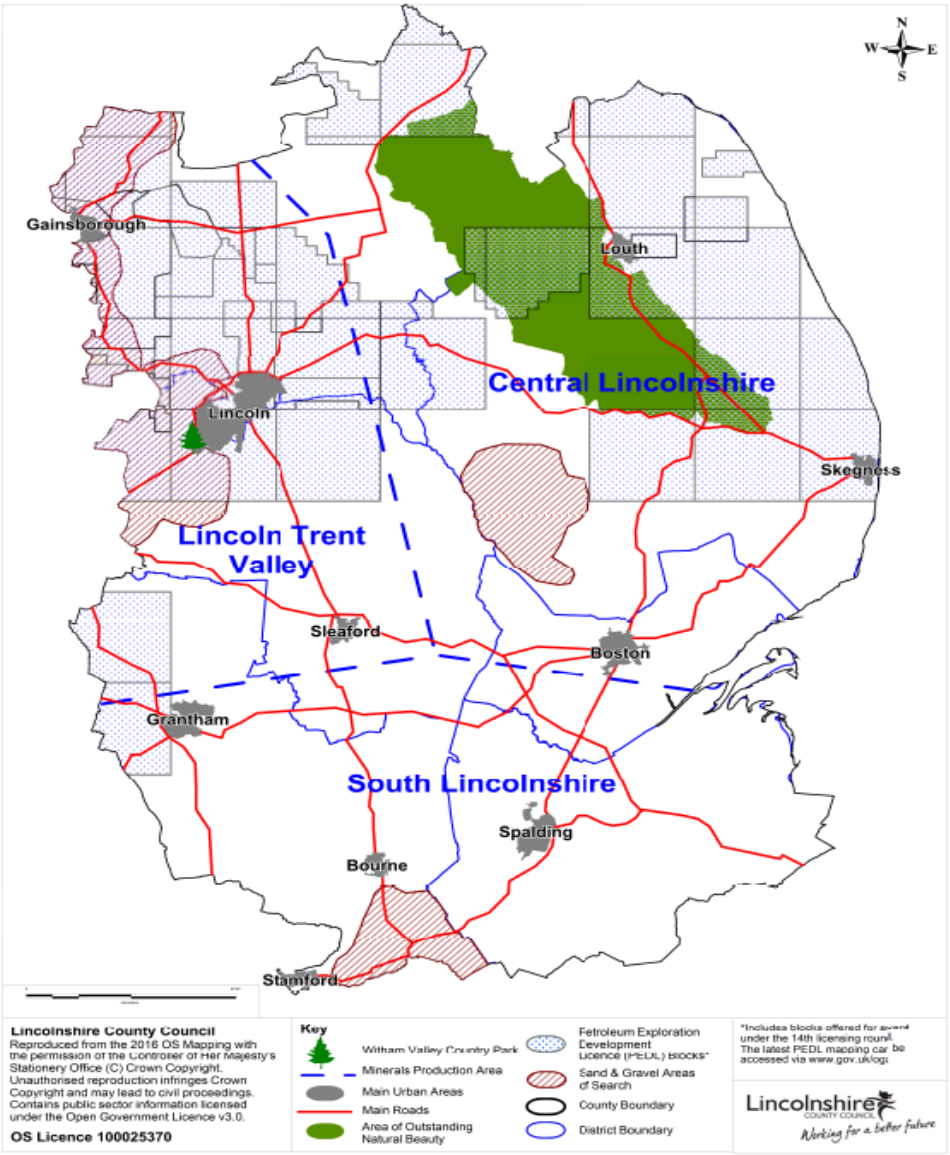
b) the criteria against which planning applications for minerals and waste development will be considered.

1.12 The second part of the Lincolnshire Minerals and Waste Local Plan, the Site Locations document (SLD) (adopted on 15 December 2017) includes proposals and policies for the provision of land for the winning and working of minerals (sand and gravel) and waste development. In particular, it identifies sites where future sand and gravel working is expected to take place.

1.13 In relation to sand and gravel, the CSDMP continued the long-established approach of subdividing the county into three production areas. At the time this was considered to reflect the fact that Lincolnshire covers a very large area of land with most of the active workings clustered into three groups, each generally serving the surrounding production area. These production areas were broadly assumed to serve the following district, city, borough council areas as shown in Figure 2:

- Lincoln Trent Valley Production Area - Lincoln, North Kesteven and West Lindsey;
- Central Lincolnshire Production Area - Boston and East Lindsey; and
- South Lincolnshire Production Area - South Holland and South Kesteven.

Figure 2: Sand and gravel production areas in Lincolnshire



1.14 To meet the county's aggregate needs, Policy M2 of the CSDMP makes provision for 42.66mt of sand and gravel to be extracted at a rate of 2.37mt per annum over the period 2014-2031. This level of provision is based on the average annual sales during the preceding 10-year period (2004-2013), as set out in the LAA 2015 (reporting 2013

data) for the county. This provision is split between the three production areas as follows:

- Lincoln Trent Valley, 18.00mt (1.0mt per annum)
- Central Lincolnshire, 9.00mt (0.5mt per annum)
- South Lincolnshire, 15.66mt (0.87mt per annum).

1.15 The policy states that provision for the release of this sand and gravel will be made through the SLD, which will give priority to extensions to existing "Active Mining Sites" (i.e. sites classified as active under the Planning and Compensation Act 1991 or the Environment Act 1995). The policy goes on to state, however, that new quarries will be allocated where they are required to replace existing workings that will become exhausted during the plan period, provided they are located in the defined Areas of Search.

1.16 At the base date for Policy M2 (1 January 2014), the county already had permitted reserves of sand and gravel of 22.90mt. During the preparation of the SLD, further reserves of 8.64mt of sand and gravel were either granted permission or were subject to a committee resolution to grant planning permission pending the completion of S106 Agreements. This reduced the shortfall to 11.12mt. divided between the three production areas as follows:

- Lincoln Trent Valley, 4.56mt
- Central Lincolnshire, 1.21mt
- South Lincolnshire, 5.35mt

The SLD makes provision for this shortfall by the allocation of eight sites.

1.17 In addition, for sites not allocated in the SLD, the CSDMP allows planning permission to be granted where the criteria in Policy M4 are met. This includes situations where there is a proven need that cannot be met from the existing permitted reserves, or where there is a specific shortfall in the landbank of the relevant production area.

1.18 For limestone and chalk, the policy position set out in the CSDMP is that there are sufficient reserves available to meet the requirements during the plan period. No new sites have therefore been allocated.

1.19 The LMWLP was reviewed in February 2021. This found that the plan was delivering sufficient levels of aggregate to meet demand. However, the county council resolved to update the plan in full in order to address other issues which had been identified, and to improve the plan in general. The programme for this work is set out in the Lincolnshire Minerals and Waste Development Scheme 2021 and is currently at its first stage. As part of this process, public consultation on an Issues and Options document together with a call for sites exercise was commenced on the 28 June 2022. This consultation will close at 5pm on 12 August 2022.

2. Types of aggregate produced in Lincolnshire

Sand and gravel

2.1 Lincolnshire has sand and gravel resources in fluvial (river), glacial, coastal and wind-blown deposits. During the 70s the British Geological Survey (BGS) (previously the IGS – Institute of Geological Sciences) carried out extensive sand and gravel resource assessments for much of Lincolnshire and the results were published in a series of Mineral Assessment Reports (MARs).

2.2 In 2010, the county council commissioned the BGS to reassess the sand and gravel resources identified in the MARs and identify potential resources in areas of the county not covered by the MARs. The subsequent Lincolnshire Sand and Gravel Assessment (External Report CR/10/049) indicates that the principal areas containing the highest quality resources are:

a) fluvial deposits in the Trent Valley north of Gainsborough;
b) fluvial deposits lying between the Rivers Trent and Witham, to the west of Lincoln;
c) an area of fluvial deposits underlying the floodplain of the River Witham south-east of Lincoln;
d) spreads of river terrace deposits and glaciofluvial deposits around Woodhall Spa; and
e) fluvial deposits around Market Deeping.

2.3 Of these, the resources around Market Deeping, west of Lincoln and around Woodhall Spa have been, or are currently, worked. The thick and extensive sand and gravel resources that underlie the Witham floodplain southeast of Lincoln have not been exploited. The report indicates that resources in the Trent Valley north of Gainsborough are also thick, extensive and likely to be of good quality but are not currently worked.

2.4 Outside the area of the county that had been the subject of MAR surveys, the BGS report states that available data proved too sparse and unfavourably distributed to systematically identify and classify sand and gravel resources. However, such data as was available indicated that suitable resources may exist in fluvial deposits around Sleaford, between Billingborough and Dowsby and near Long Bennington.

Limestone

2.5 Lincolnshire has limited resources of rock suitable for use as crushed rock aggregate. The Lincolnshire Limestone Formation of Middle Jurassic age (Inferior Oolite) is the major limestone unit in Lincolnshire. Its outcrop runs north to south through Grantham and Lincoln, forming the prominent escarpment of the Lincoln Edge

2.6 A variety of hard rocks are, when crushed, suitable for use as aggregates. Their technical suitability for different applications depends on their physical characteristics,

such as crushing strength and resistance to impact and abrasion. Higher quality aggregates are required for coating with bitumen for road surfacing, or for mixing with cement to produce concrete. For applications, such as constructional fill and drainage media, with less demanding specifications, lower quality materials are acceptable.

2.7 Crushed Lincolnshire Limestone provides aggregates, which are of relatively low strength and with poor resistance to frost damage as they have moderate to high values of water absorption. They are, therefore, generally only suitable for use as constructional fill or sub base material.

2.8 Limestone is currently worked for aggregates at a number of small to medium-sized quarries, mostly between Stamford and Lincoln. Several also produce agricultural lime and small amounts of building stone.

Chalk

2.9 Chalk is a relatively soft, fine-grained, white limestone, consisting mostly of the debris from planktonic algae. The chalk in Lincolnshire is divided into five distinct formations: the Ferriby Chalk, with a red-coloured chalk at the base; the Hunstanton Formation, or Red Chalk; the Welton Chalk; the Burnham Chalk; and the Flamborough Chalk. The Burnham and Welton Chalks are of higher purity (generally greater than 97 per cent calcium carbonate), while the overlying Flamborough Chalk and the underlying Ferriby Chalk are mainly of medium purity (greater than 93% calcium carbonate). The Burnham and Flamborough Chalks are concealed beneath drift which thickens towards the coast.

2.10 Chalk has been extracted within Lincolnshire for both aggregate and industrial purposes, including iron making, lime production for steel manufacture and industrial fillers, for constructional purposes and agricultural use. The chalk in Lincolnshire is harder and contains less moisture than the chalk in southern England and can therefore be used for aggregate purposes, but only for less demanding applications such as fill and sub-base material.

3. Land-won aggregates in Lincolnshire

Introduction

3.1 Production and sales data for aggregate minerals is collected on an annual basis through an aggregate survey undertaken on behalf of the East Midlands Aggregates Working Party (EMAWP). Annually published EMAWP reports present data on production and reserves for the county and the East Midlands back to the early 70s. The EMAWP Report for 2021 (2020 data) is the latest dataset available for the East Midlands region. However, the primary data for Lincolnshire which is referred to in this LAA are the results for the 2021 Annual Minerals Survey collated by the county council.

3.2 Generally, every fourth year Aggregate Working Parties conduct a major in-depth Aggregate Minerals Survey. These surveys are collated nationally for England and Wales by the BGS to provide an in-depth understanding of national and sub-national sales, inter-regional flows, transportation, consumption and permitted reserves of primary aggregate.

3.3 A full Aggregate Minerals Survey was due to be carried out for 2018, but this was postponed. Instead, the survey was undertaken for 2019. The results of this survey were published by the BGS in August 2021. The most up-to-date full Aggregate Mineral Surveys are therefore those carried out for the years 2009, 2014 and 2019. Due to the postponement of the Aggregate Minerals Survey for 2018, it was agreed by the EMAWP that the Annual Minerals Survey would seek information on sales destinations from operators to help bridge the gap in aggregate flow data. This has provided helpful information on the distribution of sales in 2018 but does not provide the same level of detail as a full AM Survey, particularly with respect to imports. All of these surveys are presented in this LAA to provide data on the flow of aggregates into and out of the county and how these flows have changed over time between the surveys.

Sand and gravel

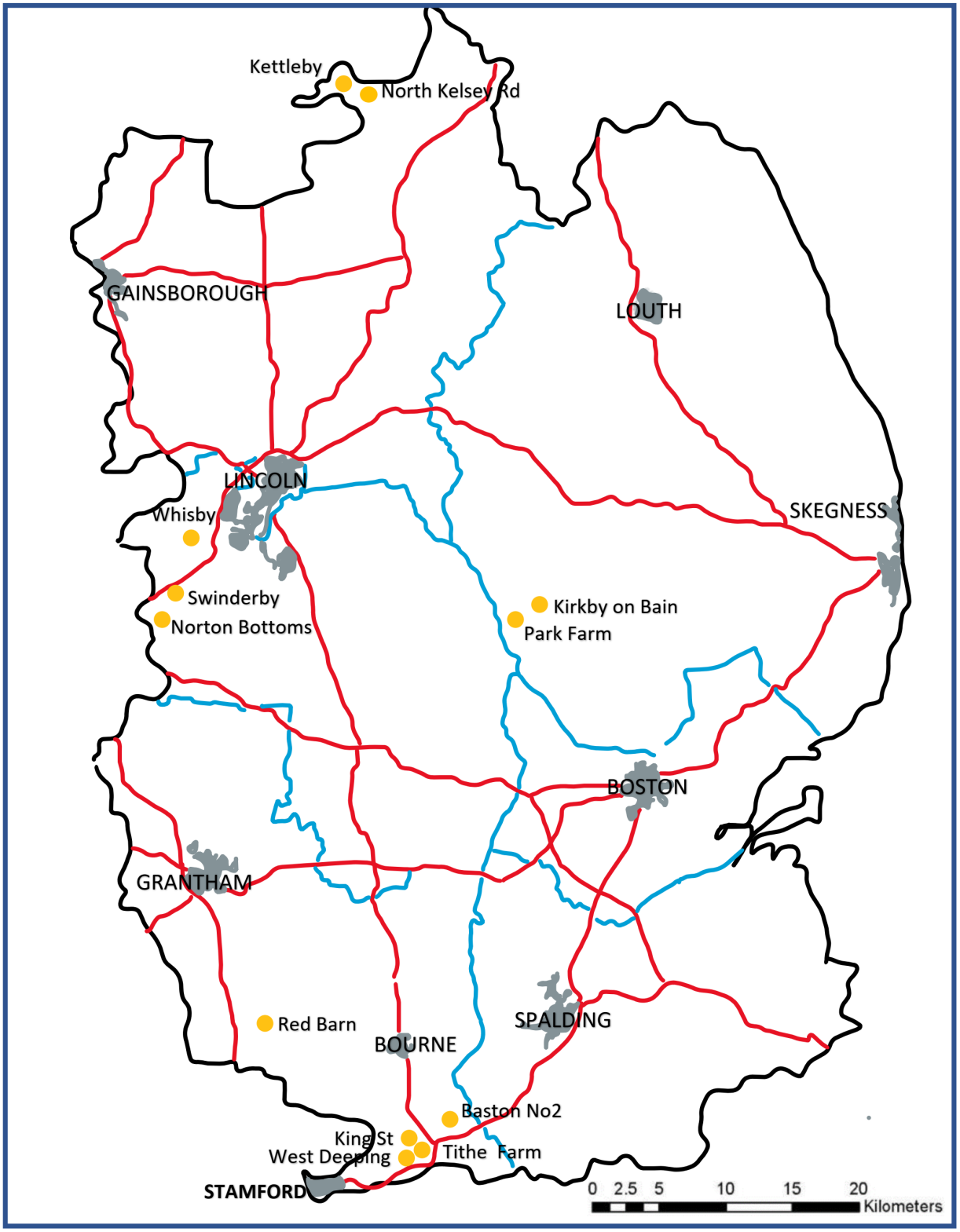
Production sites

3.4 Table 1 lists the sand and gravel sites in the county that were included in the 2021 Survey. The table excludes sites classified as "Dormant" either under the Planning and Compensation Act 1991 or the Environment Act 1995.

Table 1: Sand and gravel sites included in the 2021 survey

Site	Status in 2021	District	Production Area
Whisby Quarry	Active	North Kesteven	Lincoln Trent Valley
Norton Bottoms Quarry	Active	North Kesteven	Lincoln Trent Valley
Swinderby Quarry	Active	North Kesteven	Lincoln Trent Valley
Sudbrook Quarry	Inactive	North Kesteven	Lincoln Trent Valley
Park Farm, Tattershall Thorpe	Active	East Lindsey	Central Lincolnshire
Kirkby on Bain Quarry	Active	East Lindsey	Central Lincolnshire
North Kelsey Road Quarry, Caistor	Active	West Lindsey	Central Lincolnshire
Kettleby Quarry, Bigby	Working reserves outside county boundary but extensions have been allocated in the SLD	West Lindsey	Central Lincolnshire
Red Barn, Castle Bytham	Inactive	South Kesteven	South Lincolnshire
Baston No 2 Quarry	Active	South Kesteven	South Lincolnshire
King Street, West Deeping	Active	South Kesteven	South Lincolnshire
West Deeping Quarry (Rectory Farm)	Active	South Kesteven	South Lincolnshire
Tithe Farm Pastures, Langtoft (irrigation lagoon)	Active	South Kesteven	South Lincolnshire

Figure 3: Sand and gravel quarries in Lincolnshire (excluding dormant sites)



Production areas

3.5 Previously, data obtained through the mineral surveys on sand and gravel sales have been reported for each production area and for the county as a whole. In 2021, however, the number of operators in the Central Lincolnshire Production Area fell to two. This means that under the confidentiality undertaking agreed with the industry, data from the 2021 survey cannot be published for this production area without the consent of the companies operating in this area. That consent has not been forthcoming. This means that data for the other production areas cannot be published either because, if these were subtracted from the county total, the confidential data for Central Lincolnshire would be revealed. As a result, this LAA only reports data for the whole county.

Sand and gravel sales

3.6 National minerals guidance on the managed aggregate supply system requires that a forecast of the demand for aggregates is based on both the rolling average of 10-years sales data and other relevant local information. In addition, the guidance requires MPAs to also look at the last three years of sales to identify the general trend of demand as part of the consideration of whether it might be appropriate to increase supply. Table 2 shows sand and gravel sales over the last 10 years and the average of these for the 10- and 3-year periods.

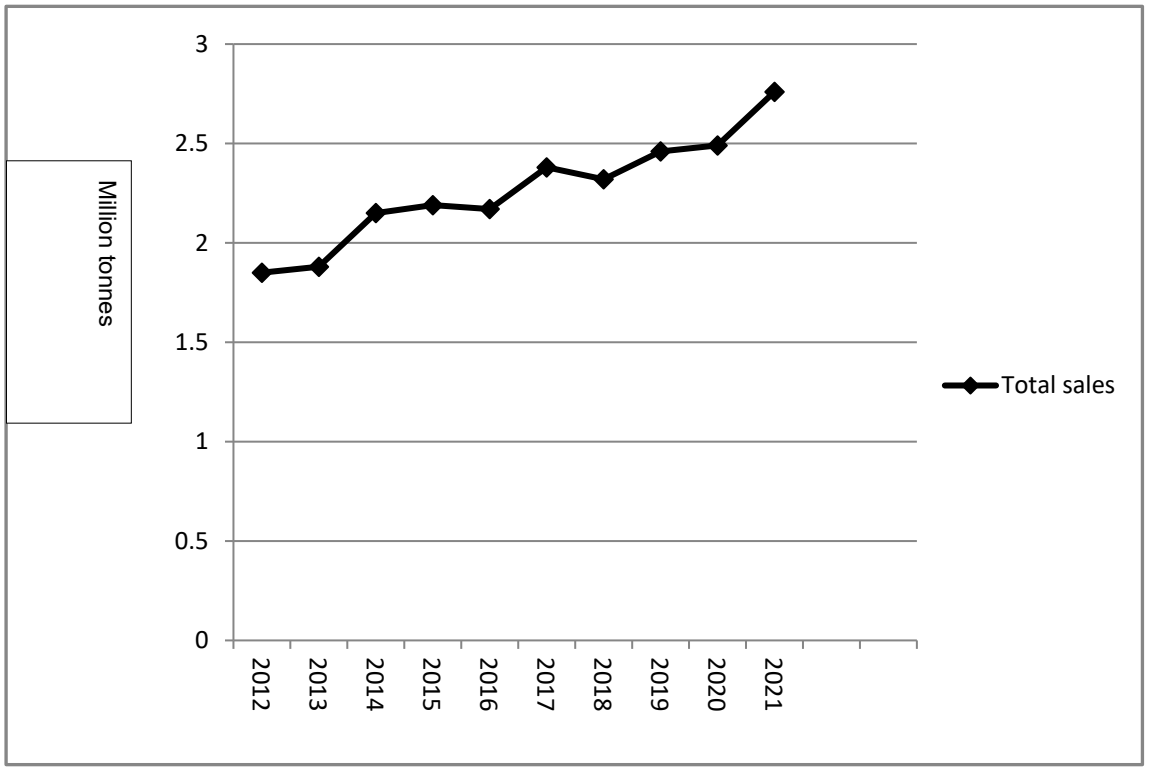
Table 2: Sales of sand and gravel 2012-2021 (figures in million tonnes, except where specified)

Year	Total Sales
2012	1.850
2013	1.880
2014	2.150
2015	2.190
2016	2.170
2017	2.380
2018	2.320
2019	2.460
2020	2.490
2021	2.763
Average (2012-2021)	**2.265**
Average (2019-2021)	**2.571**

3.7 During the three-year period 2019-2021, annual sales of sand and gravel in the county averaged 2.571mt. This figure represents a 13.5% increase over the 10-year average of

2.265mt but is still only marginally (8.5%) over the provision rate set in the CSDMP of 2.37mt. The steady rise in sales over the latest 10-year period is illustrated in Figure 4.

Figure 4: Sand and gravel sales 2012-2021



Permitted reserves and landbanks

3.8 The Aggregates Minerals Survey Data for Lincolnshire 2021 shows that the permitted reserves of sand and gravel at the end of that year totalled some 21.927 million tonnes for the county.

3.9 Table 3 calculates the landbank of permitted reserves (expressed as the number of years' supply remaining) for the county based on three alternative provision rates: the Sub Regional Apportionment (SRA); the CSDMP; and the 10-year average annual sales. Although it was previously agreed by the EMAWP that the SRA is out-of-date (see Introduction), it is included in this section because the NPPF requires it to be taken into account.

3.10 The National Planning Policy Framework states that mineral planning authorities should make provision for the maintenance of landbanks of at least seven years for sand and gravel. It also states that longer periods may be appropriate to take account of the locations of permitted reserves relative to markets, and the productive capacity of permitted sites.

Table 3: Landbank of sand and gravel based on alternative provision rates (as at 31 December 2021)

Permitted Reserves as at 31.12.21 (mt)	Annual rate based on SRA (mt)	Landbank based on SRA (years)	Annual rate based on LMWLP (mt)	Landbank based on LMWLP (years)	Annual rate based on 10-year average sales (mt)	Landbank based on 10-year average sales (years)
21.927	3.280	6.685	2.370	9.252	2.265	9.681

3.11 Table 3 shows that at the end of 2020, the landbank for the county exceeded seven years' supply when set against all but the SRA provision rates.

3.12 At the end of 2021, planning permission for a new quarry at Greatford in the South Lincolnshire Production Area, on land allocated (site MS25-SL) in the SLD, had been approved in principle subject to the completion of a s106 Planning Obligation. Subject to the granting of planning permission, this will provide for 3.0mt of sand and gravel and increase the county landbank by 1.3 years based on 10-year average sales.

Productive capacity

3.13 Individual operator returns for the aggregate surveys are treated as confidential and as a consequence current production levels or mineral reserves from individual sites cannot be reported. The county's LAAs up to January 2019 (reporting 2017 data) therefore attempted to estimate these from information contained in planning application and other public files. In practice, however, this approach proved to be unreliable because it does not take into account any fluctuations in production levels from those set out in the original applications, or any reassessments of reserves by the operators.

3.14 In an attempt to remedy this situation the former quantitative approach of estimating the reserves at each quarry was replaced by a more qualitative approach. This assessed whether any issues were likely to develop during the next 7 years (the minimum period for which a landbank needs to be maintained) that might affect productive capacity, which was considered to be more in line with Policy M3 of the CSDMP. However, this method has since been re-appraised and found to be ineffective in demonstrating any issues in relation to productive capacity.

3.15 Tables 4a to 4c therefore set out the basic information in respect of planned production levels and the proposed end dates for planning permissions within each production area. Other than providing an indication of permission end dates that fall within the plan period, this information cannot accurately portray the current status of production capacity within the production areas. Unfortunately, without the industry's agreement to the publication of sales and reserves information for individual quarries, there appears to be no way to reliably assess whether there are any issues with productive capacity at a sub-county level.

3.16 As Tables 4a to 4c show, there are two sites with end dates that fall within the LMWLP period. The first of these, Park Farm Quarry, has a projected end date falling in 2027, which is relatively close to the end of the plan period. This, however, will be taken into account during the current updating of the plan so is unlikely to affect the productive capacity of the Central Lincolnshire Production Area.

3.17 The second site, located at Tithe farm (Langtoft), relates to the construction of a new irrigation lagoon where the limited quantities of sand and gravel extracted are incidental to the primary purpose of the development. This site is likely to be exhausted by 2023, but represents additional unplanned reserves. It will therefore have a negligible impact in respect of on-going productive capacity for the South Lincolnshire Production Area.

Table 4a: Productive capacity: Lincoln Trent Valley Production Area

Site	Operator	Current status	Planned production level (tonnes per annum)	Planning permission end date (MPA estimated end date in brackets)	Comment and source of information
Whisby	Tarmac	Active	300,000	19 April 2067	Information based on 2014 application. Productive capacity not limited by planning permission.
Swinderby Quarry	Cemex	Active	550,000 to 600,000	24 June 2073	Information based on 2008 application and information provided by Cemex for the Site Locations document. Productive capacity not limited by planning permission
Norton Bottoms	Breedon	Active	500,000	24 February 2064	Information based on 2015 Scoping Request. Productive capacity not limited by planning permission. Includes an application with a committee resolution to grant planning permission subject to completion of a s106 agreements.
Sudbrook Quarry, Ancaster	TSGL Group Ltd	Inactive	100,000	21 February 2042 (2033)	Information based upon 2021 ROMP application. There should be sufficient reserves for operations to continue for at least 10-years from commencement (MPA estimated from commencement projected for 2023)
Total (all sites)	**Not applicable (N.A.)**	**N.A.**	**1,500,000**	**N.A.**	**Planned production level exceeds the annual provision rate set by the CSDMP (1.0Mt).**

Table 4b: Productive capacity: Central Lincolnshire Production Area

Site	Operator	Current status	Planned production level (tonnes per annum)	Planning permission end date (MPA estimated end date in brackets)	Comment and source of information
Park Farm, Tattershall	Cemex	Active	230,000	31 December 2027	Based on 2007 application. Productive capacity not limited by planning permission
Kirkby on Bain Quarry	Aggregate Industries	Active	250,000	20 March 2069	Information based on 2015 application. Productive capacity not limited by planning permission
Kettleby Quarry, Bigby	Breedon	Active	70,000 to 100,000	15 April 2074	Information based on 2013 application in North Lincolnshire. The remaining permitted reserves in North Lincolnshire are unknown, but further reserves in Lincolnshire have been allocated in the SLD. Productive capacity not limited by planning permission
Total (all sites)	**N.A.**	**N.A.**	**580,000**	**N.A.**	**Planned production level exceeds the annual provision rate set by the CSDMP (0.5Mt)**

Table 4c: Productive capacity: South Lincolnshire Production Area

Site	Operator	Current status	Planned production level (tonnes per annum)	Planning permission end date (MPA estimated end date in brackets)	Comment and source of information
Red Barn, Castle Bytham	Bullimores	Inactive	100,000	25 September 2067	Information based on 2005 application. When work recommences, the site should have sufficient reserves for at least 8 years. Productive capacity not limited by planning permission
Baston No 2 Quarry	Hanson	Active	250,000	22 February 2042	Information taken from 2011 application. Productive capacity not limited by planning permission
Rectory Farm, West Deeping	Breedon/ Tarmac	Active	250,000 to 350,000	05 June 2052	Information based on 2018 ROMP application. Productive capacity not limited by planning permission
King Street, West Deeping	Cemex	Active	250,000 to 350,000	24 October 2057	Based on 1989 application, with production based on Manor Pit. Productive capacity not limited by planning permission
Tithe Farm Pastures, Langtoft (lagoon)	PJ Thorey	Active	61,000 to 91,500	31 December 2022	Information taken from 2019 application. Productive capacity not limited by planning permission
Total (all sites)	**N.A.**	**N.A.**	**1,141,500**	**N.A.**	**Planned production level exceeds the annual provision rate set by the CSDMP (0.87Mt)**

Regional production

3.18 For many years Lincolnshire was the second highest producer of sand and gravel in the region after Nottinghamshire, but since 2013 has overtaken that county for year-on-year production. For the 10-year period 2011-2020 (the latest 10-year period for which full sales data is available for the East Midlands) the production of sand and gravel in Lincolnshire as a proportion of the total output in the East Midlands has averaged around 33% (see Table 5, which is based on data from the EMAWP Annual Monitoring Report 2021 [2020 data], and Leicestershire County Council LAA 2022 [2020 data]).

Table 5: Sand and gravel (aggregate) sales from Lincolnshire compared with those from the East Midlands 2011-2020

Year	East Midlands region (mt)	Lincolnshire (mt)	Lincolnshire as percentage of regional sales
2011	6.240	1.920	30.8
2012	5.880	1.850	31.5
2013	6.040	1.880	31.1
2014	6.850	2.150	31.4
2015	6.910	2.190	31.7
2016	6.950	2.170	31.2
2017	6.790	2.380	35.0
2018	7.150	2.320	32.5
2019	7.040	2.460	34.9
2020	5.314	2.490	46.9
Average	**6.516**	**2.181**	**33.5**

3.19 Initially during this period sales from Lincolnshire remained depressed at under 2mt per annum as the region came out of recession. From 2014 to 2016 there was a slight recovery with sales reaching just under 2.2mt per annum. By 2018 sales from Lincolnshire began to increase further reaching 2.49mt in 2020. In contrast regional sales fell sharply in 2020, resulting in Lincolnshire supplying a very high proportion (46.9%) of this material.

Exports and imports

3.20 Details of the flow of aggregates into and out of the county are provided through the three National Aggregate Mineral Surveys carried out in 2009, 2014 and 2019, with more limited information provided by the East Midlands annual survey carried out in 2018. The results of the four surveys with respect to sand and gravel extracted in the county are summarised in Table 6. This shows that the proportion of sand and gravel known to have been taken to destinations in Lincolnshire declined significantly from 76.3% in 2009 to 24.4% in 2018. However, this had recovered to some extent in the 2019 survey with

45.0% of sand and gravel identified as being consumed within the county. The main destinations during each survey year are compared in Figure 5 as percentages of total sales.

3.21 Despite the relatively low level of sales going to markets within the county in 2014 and 2018, overall production has consistently increased between the survey years due to the growth in exports. Within the East Midlands, sand and gravel exports to Nottinghamshire increased significantly from 2009 (0.13mt) to 2019 (0.36mt). These exports have mainly come from the Lincoln Trent Valley Production Area where the quarries are principally located close to the county boundary with Nottinghamshire.

3.22 Outside the East Midlands the most notable exports identified in the 2019 survey are to the East of England and, in particular, the adjoining areas of Cambridgeshire and Peterborough which received 19.5%. This region represents a recent draw on the South Lincolnshire reserves with exports of 0.43mt in 2018 and 0.48mt in 2019. These exports have raised production levels in the South Lincolnshire Production Area where the quarries lie close to the county boundary with that region.

3.23 The volume of sales to Yorkshire and Humberside appears in contrast to have levelled out at a reduced level averaging 4.4% over the last two surveys (2018 to 2019), down from 7.7% in 2009 and 8.8% in 2014.

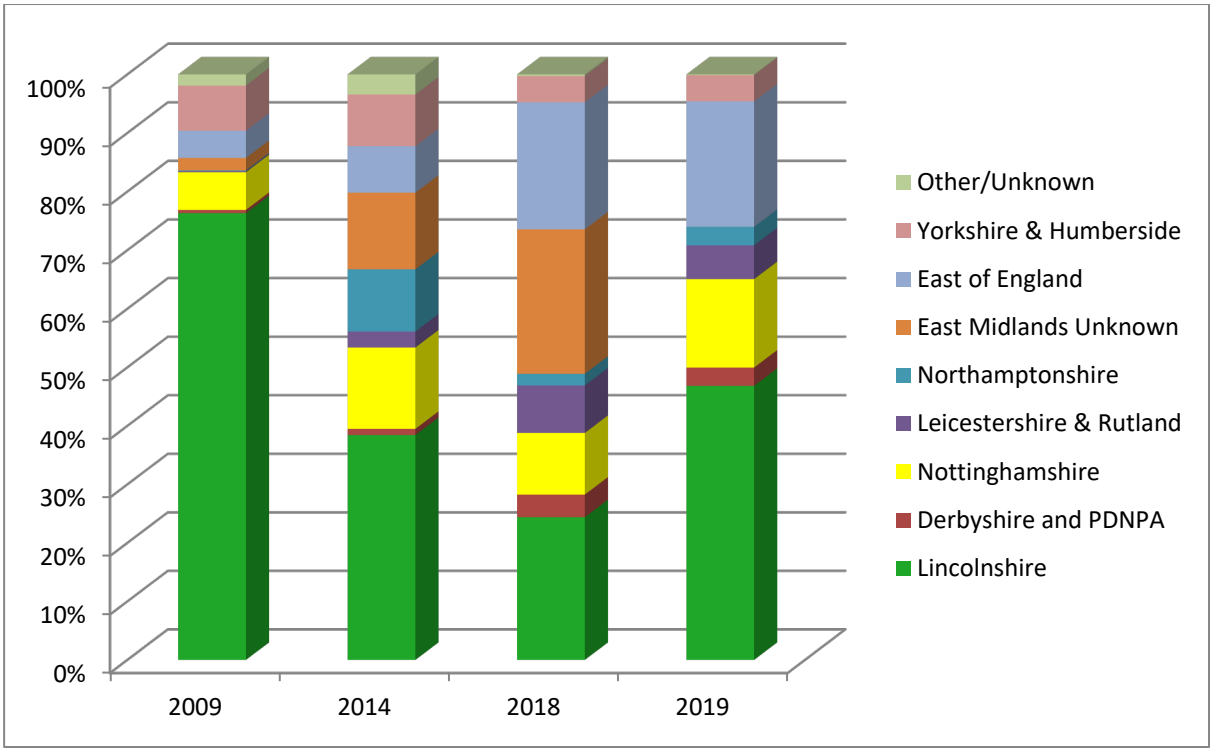
3.24 In 2009 the total exports of sand and gravel from the county of 470,000 tonnes, were more than offset by the total imports of 503,000 tonnes (Collation of the Results of the 2009 Aggregate Monitoring Survey for England and Wales, DCLG, October 2011) making the county a slight net importer of sand and gravel. In contrast, by 2014 only 163,000 tonnes of sand and gravel were imported into the county (Collation of the Results of the 2014 Aggregate Monitoring Survey for England and Wales, DCLG, March 2016) a reduction of 68% on 2009, making the county a significant net exporter of sand and gravel (some 1,160,000 tonnes).

Table 6: Destination of sand and gravel sales from Lincolnshire in 2009, 2014, 2018 (which includes 13,094 tonnes of non-aggregate) and 2019

Destination by region	Destination by sub-region	2009 sales (tonnes)	2009 sales (%)	2014 sales (tonnes)	2014 sales (%)	2018 sales (tonnes)	2018 sales (%)	2019 sales (tonnes)	2019 sales (%)
East Midlands	Lincolnshire	1,515,900	76.3	826,144	38.4	569,939	24.4	1,110,070	45.0
East Midlands	Derbyshire and PDNPA	10,872	0.5	22,585	1.0	90,208	3.9	74,144	3.0
East Midlands	Nottinghamshire	127,665	6.4	298,681	13.9	245,984	10.5	357,522	14.5
East Midlands	Leicestershireand Rutland	3,766	0.2	58,593	2.7	189,686	8.1	136,836	5.6
East Midlands	Northamptonshire	2,500	0.1	228,336	10.6	46,595	2.0	74,858	3.0
East Midlands	East Midlands (unknown)	42,204	2.1	280,967	13.1	575,949	24.7	279	0.0
East Midlands	**All sub-regions**	**1,702,907**	**85.7**	**1,715,306**	**79.8**	**1,718,361**	**73.6**	**1,753,709**	**71.2**
West Midlands	**All sub-regions**	**-**	**-**	**-**	**-**	**-**	**-**	**29,046**	**1.2**
East of England	Bedfordshire	-	-	-	-	34,732	1.5	-	-
East of England	Cambridgeshire and Peterborough	-	-	-	-	430,973	18.5	480,270	19.5
East of England	Essex, Southend and Thurrock	-	-	-	-	-	-	4	0.0
East of England	Norfolk	-	-	-	-	7,876	0.3	26,798	1.1
East of England	Suffolk	-	-	-	-	39	0.0	-	-
East of England	East of England (Unknown)	92,165	4.6	170,453	7.9	33,000	1.4	-	-
East of England	**All sub-regions**	**92,165**	**4.6**	**170,453**	**7.9**	**506,620**	**21.7**	**507,072**	**20.6**

Destination by region	Destination by sub-region	2009 sales (tonnes)	2009 sales (%)	2014 sales (tonnes)	2014 sales (%)	2018 sales (tonnes)	2018 sales (%)	2019 sales (tonnes)	2019 sales (%)
South East	**All sub-regions**	**-**	**-**	**-**	**-**	**-**	**-**	**65,289**	**2.6**
Yorkshire and Humberside	Humber sub-region	-	-	-	-	16,898	0.7	8,955	0.4
Yorkshire and Humberside	North Yorkshire	-	-	-	-	59	0.0	-	-
Yorkshire and Humberside	South Yorkshire	-	-	-	-	41,094	1.8	72,238	2.9
Yorkshire and Humberside	West Yorkshire	-	-	-	-	9,608	0.4	24,702	1.0
Yorkshire and Humberside	Yorkshire and Humberside (Unknown)	153,129	7.7	189,331	8.8	36,900	1.6	-	-
Yorkshire and Humberside	**All sub-regions**	**153,129**	**7.7**	**189,331**	**8.8**	**104,559**	**4.5**	**105,895**	**4.3**
Other	All sub-regions	1,407	0.1	73,991	3.4	6,348	0.3	3255	0.1
Unknown	Unknown	36,421	1.8	-	-	-	-	-	-
All regions	**All sub-regions**	**1,986,029**	**100.0**	**2,149,081**	**100.0**	**2,335,888**	**100.0**	**2,464,266**	**100.0**

Figure 5: Comparison between the main destinations of sand and gravel sales for the survey years of 2009, 2014, 2018 and 2019



3.25 Details of imports are unavailable for 2018 and are not reported in detail in the DCLG AMS for 2019, however broad percentage bands have been collated from the 2019 survey by BGS and provided to Aggregate Working Parties in each region. As Table 7 illustrates, consumption of sand and gravel in Lincolnshire continues to be provided by local suppliers with imported aggregates contributing only around 10%. These figures serve to demonstrate that Lincolnshire remains a significant net exporter of sand and gravel.

Table 7: Sources of sand and gravel consumed in Lincolnshire in 2019

Source of sand and gravel	Percentage band of consumption
Cambridgeshire	<1%
Norfolk	<1%
Peterborough	1-10%
Leicestershire	<1%
Lincolnshire	90-100%
Nottinghamshire	1-10%
Staffordshire	<1%
Doncaster	<1%
East Riding of York's	<1%

3.26 The surveys indicate that in recent times sand and gravel from Lincolnshire has been transported over greater distances than was generally the case in the past, particularly to adjacent counties with their own indigenous supplies. This appears to have primarily been caused by a rationalisation of the minerals industry, with operators focussing production in Lincolnshire whilst mothballing sites elsewhere. In addition, it may be the case that the policies of the other mineral planning authorities are considered by the industry to be too restrictive - deterring applications for mineral working.

3.27 The LAAs of the adjoining Mineral Planning Authorities do not specifically state that Lincolnshire will need to make a higher level of provision of sand and gravel available for export in the future. However, as illustrated by Table 6, exports of sand and gravel increased significantly between 2009 and 2019, particularly to counties across the East Midlands and to the adjoining areas of Cambridgeshire and Peterborough in the East of England. These exports were not offset to any significant extent by imports of sand and gravel into Lincolnshire from those counties (Table 7). To date, Lincolnshire has been able to accommodate the increased demand for exports because the internal market has been significantly depressed, resulting in annual production levels which have generally been lower than those forecast in the CSDMP.

3.28 The 2019 figures have shown a slight increase in demand in Lincolnshire indicating there may be a gradual return of sales closer to pre-recession levels. Should this growth continue, supply issues may arise with production in the county unable to meet both increased internal demand together with the higher demand from the surrounding counties. This is a situation that could, in part, be avoided through neighbouring authorities making sufficient provision in their local plans, wherever possible, to meet demand currently being met by imports - in line with the NPPF. In particular, the NPPF states, amongst other things, that policies in mineral local plans should aim to source mineral supplies indigenously. Therefore, it is considered inappropriate for MPAs to disregard the contribution to demand increasingly being met from neighbouring authorities in plan making and the production of LAAs unless it can be clearly demonstrated that there are very good reasons why the sand and gravel cannot be sourced indigenously.

Crushed rock (limestone and chalk)

Production Sites

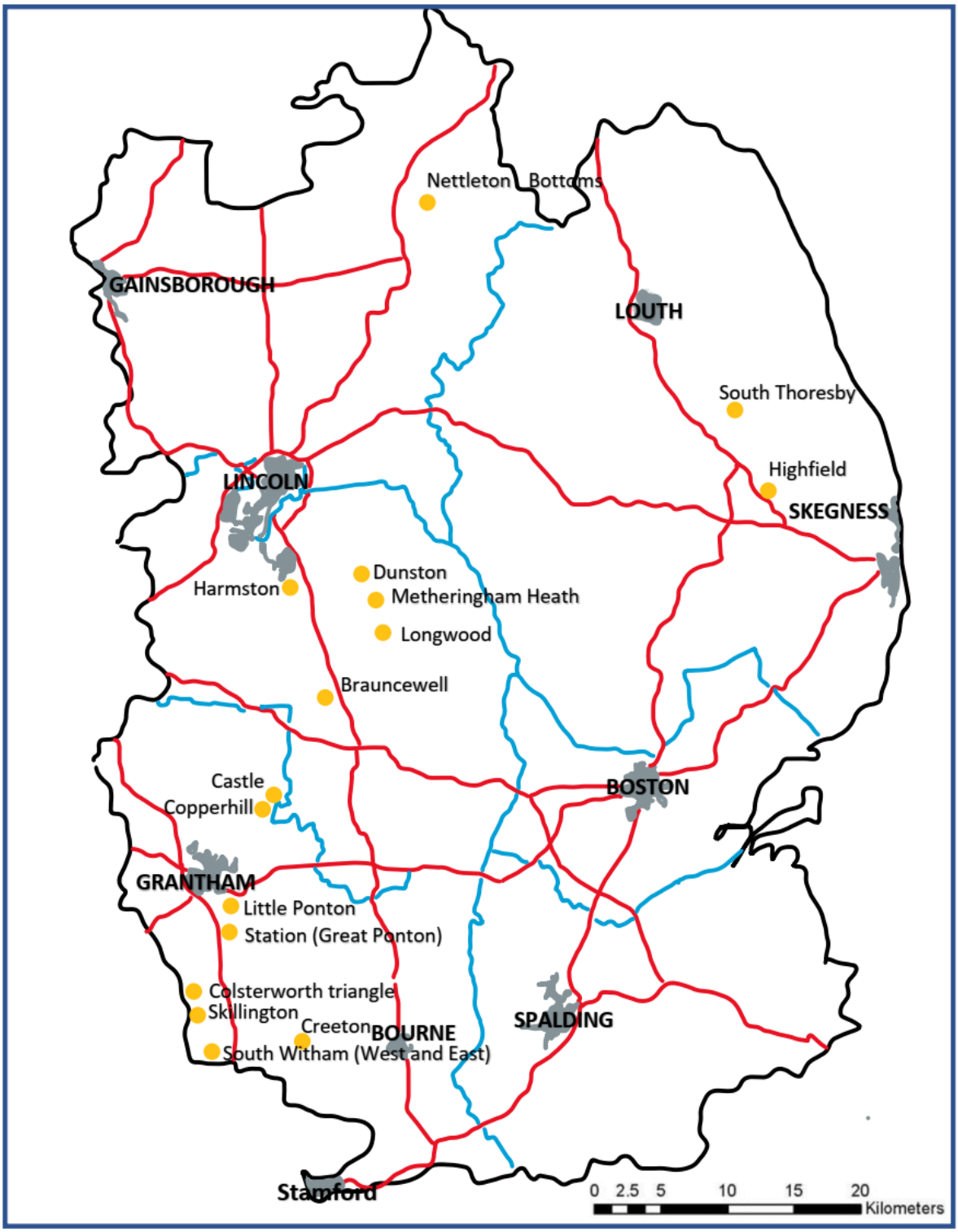
3.29 There were 18 sites in Lincolnshire at the end of 2021 (see Table 8) excluding:

- sites classified as dormant under the Environment Act 1995 or the Planning and Compensation Act 1991
- sites currently subject to the suspension provisions of the Town and Country Planning (Environmental Impact Assessment) Regulations 2011.

Table 8: Crushed rock sites included in the 2021 survey

Quarry name	Status during 2021	District	Material
South Thoresby	Active	East Lindsey	Chalk
Highfield Quarry, Welton le Marsh	Active	East Lindsey	Chalk
Nettleton Bottoms	Inactive	West Lindsey	Chalk
Longwood	Active	North Kesteven	Limestone
Brauncewell	Active	North Kesteven	Limestone
Dunston (also produces building stone)	Active	North Kesteven	Limestone
Metheringham Heath (also produces building stone)	Active	North Kesteven	Limestone
Harmston	Inactive	North Kesteven	Limestone
Castle Quarry, Ancaster (also produces building stone)	Active, but not producing aggregate	South Kesteven	Limestone
South Witham Quarry (East)	Active	South Kesteven	Limestone
South Witham Quarry (West)	Inactive	South Kesteven	Limestone
Creeton (also produces building stone)	Active	South Kesteven	Limestone
Station Quarry, Great Ponton (also produces building stone)	Active	South Kesteven	Limestone
Little Ponton	Active	South Kesteven	Limestone
Colsterworth Triangle	Active	South Kesteven	Limestone
Ropsley	Active	South Kesteven	Limestone
Copper Hill, Ancaster (also produces building stone)	Active	South Kesteven	Limestone
Skillington Quarry	Inactive	South Kesteven	Limestone

Figure 6: Crushed rock quarries in Lincolnshire (excluding dormant sites)



3.30 It is a long-established practice in Lincolnshire to keep the crushed rock data for limestone and chalk separate. This because there are significant constraints on using chalk as an aggregate, which for many years resulted in it being classed as a "secondary aggregate". Due to changes in the definition of that term during the 1990s, chalk was reclassified as a primary aggregate but nevertheless continues to have significant limitations. This was reflected in the agreement of the EMAWP in 2010 to exclude chalk from Lincolnshire's SRA for crushed rock.

Sales of limestone

3.31 The county's production of limestone (aggregate and non-aggregate) amounted to 1.560mt in 2021 of which 1.394mt was for aggregate purposes. Over the 10-year period 2012-21, average sales of aggregate were 0.867mt per annum (see Table 9, which incorporates data, including previously unpublished data, from the mineral surveys)

Table 9: Sales of limestone extracted in Lincolnshire 2012-2021

Year	Aggregate sales (mt)	Non-aggregate sales (mt)	Total (mt)
2012	0.510	0.190	0.70
2013	0.450	0.220	0.67
2014	0.380	0.210	0.59
2015	0.430	0.190	0.62
2016	0.760	0.270	1.03
2017	0.850	0.130	0.98
2018	1.280	0.140	1.42
2019	1.450	0.090	1.54
2020	1.170	0.140	1.31
2021	1.394	0.166	1.560
Average (2012-2022)	**0.867**	**0.175**	**1.042**
Average (2019-2021)	**1.338**	**0.132**	**1.470**

3.32 Most of the limestone sales are for aggregate purposes, about 89% in 2021 with an average of 83% over the 10-year period 2012-2021. The 10-year average for limestone sales at 0.867mt per annum, masks a significant variation in sales over this period from a low of 0.38mt in 2014 to a peak of 1.450mt in 2019.

3.33 The relatively low output of the Lincolnshire Limestone as an aggregate when compared to that from other areas reflects the limitations on its uses. Sales of limestone for aggregate purposes from Lincolnshire operations only represents a small proportion of the total output in the East Midlands. Even with the recent increase in sales, Lincolnshire's contribution is only 3.093% over the period 2011-20, which is the latest available dataset for the East Midlands as a whole covering a 10-year period (Table 10).

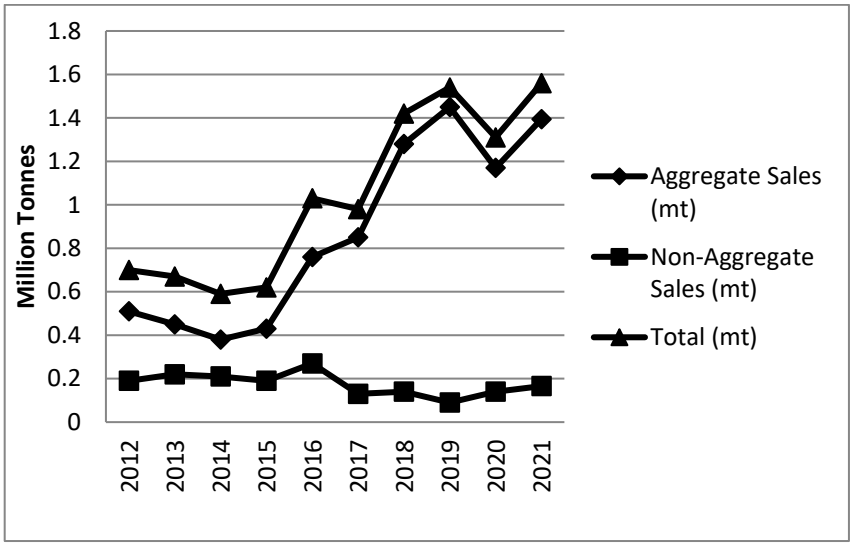
Table 10: Limestone aggregate sales from Lincolnshire compared to crushed rock aggregate sales in the East Midlands 2011-2020 (Source EMAWP Annual Monitoring Report 2021)

Year	Sales in East Midlands (mt)	Sales in Lincolnshire (mt)	Percentage of regional sales
2011	20.90	0.380	1.80
2012	19.74	0.510	2.60
2013	22.17	0.450	2.00
2014	21.90	0.380	1.70
2015	23.00	0.430	1.90
2016	28.12	0.760	2.70
2017	28.41	0.850	2.90
2018	27.83	1.280	4.60
2019	29.211	1.170	4.01
2020	24.288	1.394	5.740
Average	**24.557**	**0.760**	**3.095**

3.34 National planning practice guidance on the managed aggregate supply system requires MPAs to look at the last three years of sales to identify the general trend of demand as part of the consideration of whether it might be appropriate to increase supply.

3.35 During the three-year period 2019-2021, average annual sales of limestone for aggregate have amounted to 1.338mt which is over twice the provision rate set in the CSDMP (0.62mt pa). This is 0.471mt higher than the 10-year average (0.867mt), an increase of 54%. As shown on Figure 7, sales for the first four years of the 10-year period were relatively level, averaging 0.443mt per annum. Since then, sales have climbed sharply with a peak of 1.45mt reached in 2019.

Figure 7: Trends in sales for limestone extracted in Lincolnshire 2012-2021



Sales of chalk

3.36 Although chalk has very significant limitations as an aggregate, prior to 2008 it made a modest contribution to the county's needs for crushed rock aggregate. For example, in the five-year period from 2003 to 2007, chalk sales averaged 0.25mt per annum of which 0.22mt per annum was used for aggregate. However, after this time sales declined sharply and by 2009 amounted to only 50,465 tonnes (40,000 tonnes for aggregate and 10,465 tonnes for non-aggregate) (Source: Lincolnshire LAA (reporting 2012 data)). This reduction is likely to have initially been caused by the recession, but the subsequent decision of the main producer at the time, Singleton Birch, to focus all their production at their site in North Lincolnshire has had a significant and continuing impact on sales. It could also be the case that some of the markets previously supplied by the county's chalk quarries are now being served by its limestone quarries, which have recently seen a surge in production.

3.37 Since 2009 very little reliable data on chalk has been provided by the industry. When it has been provided, given that there are only two active quarries, the data has been classed as confidential. Despite this, it can be reported that from the limited activities observed within the county's chalk quarries, it would appear that production remains at a relatively low level when compared with pre-2008 sales.

Landbank of limestone

3.38 The National Planning Policy Framework states that mineral planning authorities should make provision for the maintenance of landbanks of at least 10-years for crushed rock. It also states that longer periods may be appropriate to take account of the locations of permitted reserves relative to markets, and the productive capacity of permitted sites.

3.39 It is estimated that permitted reserves of limestone for aggregate purposes as at 31 December 2021 totalled some 19.245mt (Annual Mineral Survey data 2021), excluding dormant sites. Table 11 sets out the landbank of permitted reserves for the county (expressed as the number of years' supply remaining) based on four alternative provision rates: the Sub-Regional Apportionment (SRA); the CSDMP; the ten-year average annual sales; and the three-year average annual sales. The table shows that at the end of 2021 the landbank of limestone for the county significantly exceeded 10-years under all four provision rates.

3.40 The level of permitted reserves in Table 11 has taken into account figures supplied by mineral operators which incorporated revised estimates of overall mineral reserves and an estimation of the aggregate and non-aggregate split in the material recovered.

Table 11: Landbank of limestone (aggregate) based on alternative provision rates (as at 31 December 2021)

Permitted reserves (as at 31.12.21) (mt)	Annual rate based on SRA (mt)	Landbank based on SRA (years)	Annual rate based on LMWLP (mt)	Landbank based on LMWLP (years)	Annual rate based on 10-year average sales (mt)	Landbank based on 10-year average sales (years)	Annual rate based on 3-year average sales (mt)	Landbank based on 3-year average sales (years)
19.245	1.1	17.495	0.62	31.04	0.867	22.197	1.338	14.383

Landbank of chalk

3.41 Overall permitted reserves of chalk are estimated to be around 1.5mt but in the absence of reliable sales data it is not possible to calculate the level of the landbank. However, given the limited overall activities in the county's chalk quarries in recent years, it is considered that these reserves are likely to last in excess of 10-years and probably for the duration of the plan period.

Productive capacity

3.42 As stated previously, individual operator returns for the aggregate surveys are treated as confidential. Therefore Tables 12 and 13 provide basic information which demonstrates that, based upon the evidence available in the public domain, adequate productive capacity can be maintained for both limestone and chalk for the plan period and beyond.

3.43 For limestone, there are two quarries with an end date that falls within the plan period: Dunston Quarry (end date 2025) and Harmston Quarry (end date 2023) although the latter site is effectively worked out and has not produced limestone aggregate for some time. Nevertheless, as Table 12 indicates, there are no restrictions on production levels for all but two of the 14 quarries in the county. Therefore, should any site close, there are a number of other sites that can step up production to compensate.

3.44 For chalk (Table 13), it is considered that demand for this low-grade aggregate which has very significant constraints upon its use, will be limited. Therefore, given the substantial reserves (estimated at around 1.5 million tonnes) located at quarries not subject to output restrictions, there is nothing to suggest there are likely to be any issues regarding productive capacity. However, even if an issue did develop, material could be sourced from one of the county's limestone quarries.

Table 12: Productive capacity: limestone

Site	Operator	Current status	Planned production level (tonnes per annum)	Planning permission end date	Comment and source of information
Longwood	Longwood Quarries	Active	200,000	21 February 2042	Information based on 2013 ROMP application. Productive capacity not limited by planning permission
Brauncewell	Brauncewell Quarries Ltd	Active	200,000	17 April 2042	Information based on 2007 application. Productive capacity not limited by planning permission
Dunston	Len Kirk Plant Hire Ltd	Active	50,000 to 80,000	27 May 2025	Information based on 2017 application. Productive capacity not limited by planning permission
Metheringham Heath	Longwood Quarries Ltd	Active	Not specified	21 February 2042	Information based on 2006 application. The Quarry operates primarily for building stone, but periodically may produce significant quantities of aggregate. Productive capacity not limited by planning permission
Harmston	Harmston Waste Management	Inactive	Not specified	21 February 2023	Information based on 2016 application. Site is not expected to recommence extracting limestone
Castle Quarry (Ancaster)	Goldholme Stone	Active	156,000	10 December 2049	Information based on 2007 application. The site is subject to limitations on vehicle movements. The Quarry operates primarily for building stone, but periodically may produce significant quantities of aggregate
Copper Hill Quarry (Ancaster)	Ancaster Copper Hill Stone	Active	30,000	17 March 2044	Information based on 2013 application.
South Witham (East)	G Webb Haulage Ltd	Active	150,000 to 200,000	29 August 2078	Information based on 2017 application. Productive capacity not limited by planning permission
South Witham (West)	N.A.	Inactive	Inactive	02 February 2042	Information from 2014 application.

Site	Operator	Current status	Planned production level (tonnes per annum)	Planning permission end date	Comment and source of information
Creeton	Creeton Quarry Ltd	Active	100,000	21 February 2042	Information based on 2011 application. Productive capacity not limited by planning permission
Station Quarry, Great Ponton	Harmston Waste Management	Active	100,000	10 October 2055	Information based on 2011 ROMP application. Productive capacity not limited by planning permission
Little Ponton	Geo Quarries Ltd	Active	30,000 to 100,000	02 February 2042	Information based on 2013 ROMP application. Productive capacity not limited by planning permission
Colsterworth Triangle	CESL	Active	150,000	08 June 2066	Information based on 2015 application. Productive capacity not limited by planning permission
Ropsley	Roplsey Quarry Ltd	Inactive	200,000	21 December 2042	Information based on 2022 S73 application. Productive capacity dictated by market conditions and not limited by planning permission
Total (all sites)	**N.A.**	**N.A.**	**1,516,000**	**N.A.**	**Planned production level exceeds the annual provision rate set by the CSDMP (0.62Mt) and based on the three year average sales for 2019-21 (1,338Mt). The three year average, which is higher than the 10-year average, has been used to demonstrate that even at this higher rate, productive capacity is adequate. Two quarries are due to cease extraction within the next 10-years, but continued demand could be met by the remaining active quarries.**

Table 13: Productive capacity: chalk

Site	Operator	Current status	Planned production level (tonnes per annum)	Planning permission end date	Comment and Source of Information
South Thoresby	GBM	Active	Unknown	27 November 2052	Based on the latest sales brochure for the site. Productive capacity not limited by planning permission
Highfield Quarry (Welton le Marsh)	Welton Aggregates Ltd	Active	Not specified	21 February 2042	Information based on 2002 IDO application. Productive capacity not limited by planning permission
Nettleton Bottom	Able UK Ltd	Inactive	60,000	26 October 2058	Information based on 2014 ROMP application Site currently inactive. Productive capacity not limited by planning permission
Total (all sites)	**N.A.**	**N.A.**	**Unknown**	**N.A.**	**There is no planned provision rate for chalk due to the low level of demand and lack of reliable information on sales. However, given the substantial permitted reserves, no significant issues have been identified with respect to stepping up productive capacity or sourcing aggregates from limestone quarries if the need arises.**

Exports and imports of crushed rock

3.45 Details of the flow of aggregates into and out of the county are provided through the three National Aggregate Mineral Surveys carried out in 2009, 2014 and 2019 with more limited information provided by the annual survey carried out in 2018. The results of the three surveys with respect to crushed rock produced in the county are set out in Table 14. Unlike the national surveys, the 2018 data includes sales of limestone for non-aggregate purposes. However, as this represented less than 10% of total sales, it is only likely to have had a limited impact on the distribution data.

3.46 The data for 2009 is less complete than for the other years with 119,017 tonnes of limestone going to unspecified destinations. Whilst this places some constraints on the interpretation of the data, Table 14 appears to indicate that there were no substantial changes between this survey and the 2014 Survey. In contrast, the 2018 Survey shows a big increase in sales of Lincolnshire Limestone with greater amounts being exported to other areas of the East Midlands, the East of England and to the Yorkshire and Humber Region. The 2019 Survey continues to evidence a significant increase in sales since 2014 and, while some destinations are masked by over 0.5mt of limestone being reported as sent to "East Midlands Unknown", it may be assumed a similar destination for sales profile to 2018 has continued.

3.47 Imports of crushed rock into Lincolnshire totalled 317,000 tonnes in 2009 which rose to 446,000 tonnes in 2014. Lincolnshire was therefore a net importer of crushed rock in both years, but with a higher amount (398,000 tonnes) in 2014. The EMAWP report on the AM2009 survey indicates that imports were primarily from elsewhere in the East Midlands: Derbyshire (94,700 tonnes); Peak District National Park (39,863 tonnes); Leicestershire and Rutland (114,425 tonnes); and Northants (5,000 tonnes). Details of imports are unavailable for 2018 and are not reported in detail in the DCLG AMS for 2019. However, broad percentage bands have been collated from the 2019 survey by BGS and provided to Aggregate Working Parties in each region which are set out in Table 15.

3.48 The crushed rock produced in Lincolnshire is of a relatively low strength and with poor resistance to frost damage. It is therefore generally only suitable for use as construction fill or sub-base material. The recent upturn in sales of crushed Lincolnshire Limestone indicates an increased demand for this material for less demanding applications.

3.49 Higher quality crushed rock suitable for road surfacing or for concrete production needs to be imported into the county. The 2019 data in Table 15 indicates that this was being sourced principally from higher specification geological deposits, particularly in Leicestershire. It is likely that Lincolnshire will continue to rely on imported, higher quality crushed rock where it is needed to supply projects in the county. These MPAs have not identified any supply issues for crushed rock in their most recent LAAs (2019 data).

3.50 Despite its limitations, sales of crushed limestone extracted in Lincolnshire have risen over the past three years indicating an increased demand for this material from both within the county and from adjoining areas for use in less demanding applications.

Table 14: Destination of crushed rock sales from Lincolnshire in 2009, 2014, 2018 (including 141,132 tonnes of non-aggregate) and 2019

Destination by region	Destination by sub-region	2009 sales^ (tonnes)	2009 sales (%)	2014 sales (tonnes)	2014 sales (%)	2018 sales (tonnes)	2018 sales (%)	2019 sales (tonnes)	2019 sales (%)
East Midlands	Lincolnshire	323,149	64.5	328,862	87.2	925,525	65.1	756,748	52.4
East Midlands	Derbyshire and PDNPA	-	-	-	-	9,000	0.6	-	-
East Midlands	Nottinghamshire	-	-	-	-	60,073	4.2	1,195	0.1
East Midlands	Leicestershireand Rutland	5,000	1.0	44,896	11.9	89,000	6.3	3,521	0.2
East Midlands	Northamptonshire	-	-	-	-	39,022	2.7	1,128	0.1
East Midlands	East Midlands (Unknown)	40,000	8.0	-	-	164,000	11.5	535,771	37.1
East Midlands	**All sub-regions**	**368,149**	**73.5**	**373,758**	**99.1**	**1,286,620**	**90.5**	**1298,363**	**89.9**
East of England	Bedfordshire	-	-	-	-	25,000	1.8	994	0.1
East of England	Cambridgeshire and Peterborough	-	-	-	-	64,599	4.5	17,968	1.2
East of England	East of England - Unknown	5,000	1.0	-	-	-	-	84,507	5.9
East of England	**All sub-regions**	**5,000**	**1.0**	**-**	**-**	**89,599**	**6.3**	**103,469**	**7.2**
Yorkshire and Humberside	**All sub-regions**	**-**	**-**	**-**	**-**	**45,000**	**3.2**	**-**	
Greater London and the South East	**All sub-regions**	**-**	**-**	**-**	**-**	**-**	**-**	**42,252**	**2.9**
Other (total sales)	All sub-regions	8,787	1.8	-	-	26	0.0	455	0.0
Unknown	Unknown	119,017	23.8	3,433	0.9	-	-	-	-
All destinations	**All sub-regions**	**500,953**	**100.0**	**377,191**	**100.0**	**1,421,245**	**100.0**	**1,444,539**	**100.0**

^ The sales data in the EMAWP report included a late return from an operator that was inadvertently not included in the distribution data of that report but has been included in this table under "Unknown". The distribution data for 2009 also includes a small quantity of chalk.

Table 15: Sources of crushed rock aggregate consumed in Lincolnshire in 2019

Source of crushed rock aggregate	Percentage band of consumption
Cambridgeshire	<1%
Derbyshire	1-10%
Leicestershire	10-20%
Lincolnshire	60-70%
Shropshire	<1%
Cumbria	1-10%
Doncaster	1-10%
North Lincolnshire	1-10%
Durham	<1%
Powys	<1%

4. Recycled and Secondary Aggregate

4.1 Despite difficulties in obtaining reliable data, the National and Regional Guidelines for Aggregates Provision have set figures for "alternative aggregates" (aggregate materials other than land or marine won) which regions should aim to achieve. Alternative aggregates fall into two categories: recycled aggregates, which come from the reprocessing of materials that have previously been used in construction; and secondary aggregates, which are by-products of either mining operations (such as colliery spoil) or industrial processes. The latest Guidelines propose that the East Midlands provide some 110mt of alternative aggregates for the period 2005 –2020.

4.2 A number of national surveys have been conducted to measure and gain an understanding of the extent to which recycled and secondary materials have been used. The most recent study, undertaken by Capita Symonds for 2005 arisings, was published in February 2007. The survey methodology was very similar to that used in earlier surveys undertaken for 2001 and 2003.

4.3 Lessons learned during the earlier surveys mean that the findings of the 2005 survey were considerably more robust at regional level. However, at sub-regional level, they remained unreliable. The estimate for the production of recycled aggregate in Lincolnshire and Nottinghamshire in 2005 was 1,732,133 tonnes. In addition, 172,151 tonnes of recycled soil (excluding topsoil) was produced and re-used.

Recycled aggregate

4.4 Recycled aggregates are produced through the processing of Construction, Demolition and Excavation (CD&E) waste. This waste arises from the construction and demolition industries, including excavation during construction activities, and is made up of mainly inert materials such as soil, stone, concrete, brick and tile. Construction and demolition waste is generally suitable for a high level of treatment and recycling, while excavation waste is mainly soil and sub-soils that are managed differently.

4.5 Waste arising from the construction and demolition industries is difficult to measure for two reasons:

a. due to the weight and transport costs associated with this waste stream, significant quantities of materials are recycled and re-used on site where they arise and, therefore, do not enter the recorded waste stream; and

b. a proportion of CD&E waste is removed to be managed or incorporated into development at sites where the waste activity is considered to be low risk and therefore exempt from the environmental permitting system.

This means that data is only available for the rest of the material which is managed through permitted waste facilities. As a result, the estimates made are at best the minimum quantity of waste arisings and reflect the quantity of waste managed off-site in facilities that require planning permission and environmental permits.

4.6 Tables 16, 17 and 18 list the main sites that were capable of producing recycled aggregates in 2020 (the latest available dataset). This list takes into account gains and losses of waste throughput, changes in management capacities, and sites which have closed or become inactive. These have been assessed utilising information from:

- planning applications
- the Environment Agency's (EA) Waste Data Interrogator (WDI) for 2020
- the EA Site and Permit Register
- the county council's waste site monitoring and enforcement records

4.7 As Tables 16 and 17 show, the existing maximum figure for dedicated CD&E recycling capacity in Lincolnshire is estimated at around 1,210,397 tonnes per annum. There is also additional capacity available at mixed waste and transfer sites. These have the potential to recover 589,007 tonnes of aggregate per annum as set out in Table 18. However, it is acknowledged that for these sites only a limited proportion of the capacity will be used to process aggregates as part of a wider materials recovery operation.

4.8 To generate an estimate for the amount of recycled aggregates produced in Lincolnshire in 2020, the tables indicate the quantity of construction and demolition waste imported into the sites which, from information in the Environment Agency 2020 Waste Data Interrogator returns, is material potentially suitable (and therefore more likely to be used) for aggregate production. The data is then filtered further to remove final fate's that would not result in recycled aggregate. These include landfill and sites which, through local knowledge, are known not to recover aggregates for resale. This approach accords with that taken to produce the Lincolnshire Waste Needs Assessment 2021 and is also based upon the guidance note: "Assessing Levels of Recycled Aggregates (2022)" prepared by representatives from the National Waste Technical Advisory Board Chairs and Aggregate Working Party Chairs.

4.9 Tables 16, 17 and 18 show a combined total of 171,523 tonnes of material suitable for the production of recycled aggregate was recovered form Lincolnshire waste sites in 2020. This total may include a small element of double counting as some of the material may be passed between sites for processing into aggregates. In addition, the methodology used has not taken account of waste soils, some of which are recycled through wash plants to recover gravels and sands at sites within the county. This is due to there being no reliable way to determine the volumes of aggregates produced from these processes without more detailed information from the site operators. Notwithstanding the limitations of this methodology, it is considered to be the best approach given that previous attempts to secure recycling data directly from the operators have received a poor response.

4.10 The recycled aggregate estimate only records arising's managed through permitted waste sites and, as previously stated, does not account for the potentially significant volume of aggregates produced through exempt sites. Indeed, the relatively high number of nil waste returns from the fixed recycling operations suggests a high level of unreported on-site recycling is being carried out at exempt construction sites.

Table 16: Quarries with aggregate recycling facilities in Lincolnshire (2021)

Quarries with aggregate recycling facilities	LMWLP site number	Waste type(s)	2021 WDI aggregate recyclables (tonnes)	Maximum capacity (tonnes)
Kirkby on Bain Quarry	171	CD&E	448	20,000
Copper Hill Quarry	88	CD&E (Haz)	0	15,000
Brauncewell Quarry Transfer Station	14	CD&E	0	11,074
Brauncewell Quarry Recycling	14	CD&E	6116	34,000
Kettleby Quarry	170	CD&E	0	15,000
South Witham Quarry (East)	181	CD&E	0	20,000
Park Farm Quarry, Tattershall	36	CD&E	0	30,000
Swinderby Quarry	174	CD&E	0	30,000
Creeton Quarry	184	CD&E	235	25,000
South Thoresby Quarry	173	CD&E	15,218	30,000
Castle Quarry	189	CD&E	0	5000
Baston No1 Quarry	191	CD&E (Haz)	0	40,000
Great Ponton (Station) Quarry	193	CD&E	0	50,000
Dunston Quarry	63	CD&E	9358	75,000
Harmston Quarry Inert Treatment Facility	13	CD&E	34,302	180,000
Longwood Quarry	205	CD&E	1,233	10,000
Whisby Quarry	3a	CD&E	0	75,000
Highfield Quarry	109	CD&E (Haz)	1,891	75,000
Stainby Quarry	N.A.	CD&E	(New permission)	50,000
Laffeys	N.A.	CD&E	(New Permission)	20,000
Total			**68,801**	**810,074**

Table 17: Dedicated construction, demolition and excavation waste recycling sites in Lincolnshire 2021

Aggregates recycling sites	LMWLP site number	Waste type(s)	2021 WDI Aggregate recyclables (tonnes)	Maximum capacity (tonnes)
Lindum Group Ltd	71	Haz, CD&E	0	75,000
Harlaxton Engineering Services	192	CD&E	736	50,000
Sharpes Haulage	214	CD&E	0	749
Stainby Reclamation	219	CD&E	0	20,000
Baston Asphalt Plant	225	C&D	3,817	11,498
Hobleys Yard	183	CD&E	0	75,000
East Coast Aggregates	231	C&D	0	12,000
Caenby Hall Waste Transfer Station	47	CD&E	5059	14,840
Mansgate Quarry	172	CD&E	3,517	50,000
FCC Slippery Gowt Recycling	N.A.	CD&E	0	75,000
GBM Waste Management (Manby Airfield)	53	CD&E	1,749	21,236
Total			**14,878**	**405,323**

Table 18: Mixed waste recycling and transfer sites that recover aggregates in Lincolnshire 2021

Waste sites known to recover Aggregates	LMWLP site number	Waste type(s)	2021 WDI aggregate recyclables (tonnes)	Maximum capacity (tonnes)
GBM Waste Management (Fairfield est)	50	H/C&I	15,899	21,872
Andrew Riddel Skip Hire Ltd	19	H/C&I	0	11,222
Westville Waste Recycling Centre	118	H/C&I/C&D	8957	5,600
MG Skip Hire, Four Acre Farm	75	H/C&I/C&D	1,705	25,000
Clarkeson Recycling	N.A.	HCI/CD&E	0	55,000
Orange Skip Co	148	H/C&I/C&D	0	75,000
The Recycling Centre, West Deeping	81	H/C&I/C&D	5503	51,893
Materials Recycling Facility, Caythorpe	80	H/C&I/C&D	39,334	200,000
Bourne Skip Hire & Recycling (BSH)	85	H/C&I/C&D	6771	34,076
The Recycling Centre, Hemmingby Lane, Horncastle	90	H/C&I/C&D	2,593	63,234
Bourne Waste Transfer Station	31a	H/C&I	651	19,051
Gainsborough Skip Hire	143	H/C&I	116	4,019
A Riddel, Part of O S Field No 0023	142	H/C&I	3864	11.663
Camp Farm	149	H/C&I	596	2,134
Tessmill Ltd, (Skip Hire) Woodland Drive	105	H/C&I	349	2,574
Nursery Road Transfer Station (CFS Demolition Ltd)	226	H/C&I	1506	18,320
Total			**87,844**	**589,007**

4.11 With overcapacity at dedicated C&D recycling sites alone potentially in excess of 1mt, there is more than sufficient consented capacity for CD&E recycling at this time. This accords with the projections set out in the latest Lincolnshire Waste Needs Assessment (2021) which indicate that there will be sufficient aggregates recycling capacity in the county until 2045.

4.12 The general trend in respect of CD&E waste management is for decreasing disposals of CD&E waste to landfills, quarry restoration and exempt facilities, with an increasing amount recycled to aggregate, especially through on-site recycling. This will lead to a greater provision of recycled aggregate, which in turn will assist the council in working towards future recycled aggregate production targets, and achieving a reduction in the demand for primary aggregate.

Secondary aggregate

4.13 The annual returns for the FCC Energy from Waste Plant at North Hykeham (March 2020 to April 2021), report that 40,557 tonnes of incinerator bottom ash was exported for recycling into aggregates.

5. Marine won aggregates

5.1 The marine aggregates industry makes a significant contribution to the demand for sand and gravel in England and Wales, contributing more than 20% (15-20mt per annum) of national product, 88% of which is used by the building industry. This aggregate is predominantly supplied to the South East of England and London with a further 4.3mt (24%) exported to Europe. The industry currently has statutory planning permission to extract a total of 38.71 million tonnes per year. The permitted national reserves total 306Mt, providing a 16.39 year life at 10-year average extraction rates. All of the offshore sand and gravel reserves are owned by The Crown Estate which awards commercial agreements to mineral operators for extraction.

5.2 The National and Regional Guidelines for Aggregates Provision 2005 to 2020 assume marine aggregates will not contribute to meeting demand in the East Midlands region. However, the coast off Lincolnshire is within the Humber Dredging Area which currently has primary reserves totalling 46.17mt. There are 10 dredging licences in place in this area (and one application) permitted for the removal 6.98mt of material per annum. Current estimates suggest there are around 22 years of primary marine aggregate permitted based upon the 10-year average offtake of 2.11mt. In 2020, 3.52mt of material was dredged from the permitted licensed tonnage and an additional 0.7mt was dredged for beach nourishment (Marine Aggregates Capability & Portfolio 2021, The Crown Estate).

5.3 The latest distribution figures (2020) for material dredged from the Humber region indicated that 75.9% was exported to mainland Europe, 14.3% to the Humber (including the north East) region, and 9% to the Thames Estuary (Marine Aggregates Capability & Portfolio 2021, The Crown Estate). Locally the 2020 figures for landings of material to the Humber wharves are around 0.19mt (Marine Aggregates the Crown Estate Licences Statistics 2020). No aggregates are recorded as being landed on the south bank (Lincolnshire side) of the River Humber.

5.4 The lack of materials landed at Lincolnshire wharves has previously been interpreted as a consequence of limited landing opportunities for marine aggregates in the county. Navigable wharfage in Lincolnshire is limited to Boston, and while there are wharfs at Gainsborough, Sutton Bridge and Fossdyke they are not equipped for landing aggregates nor do they have associated railhead. However, there are suitable large deep water ports in North East Lincolnshire at both Grimsby and Immingham that are not at present utilised to their full potential to provide wharfage for landing mineral from the Humber dredging area compared with the wharves on the Humber North Bank that are already well established to meet demand in the East Riding or South Yorkshire catchment. This might suggest the lack of direct access to larger urban markets and limited demand in the Lincolnshire area, which can already be met by existing resources, is the limiting factor for local growth in the marine aggregates sector.

5.5 Whilst marine aggregates have not been part of the aggregate supply to Lincolnshire they have been used for coastal defence works in the county. For example marine dredged material has been used as part of the Environment Agency's Lincshore Beach

Nourishment Scheme which is underway to protect the coast between Mablethorpe and Skegness. This was started in 1994 in order to provide a 1:200 year standard of protection. The nourishment involved sand placement on the beach at Whitehouse Corner, south of Ingoldmells Point to Mablethorpe. Based on changes in topographic surveys, the estimated volume between 1994 – 1995 was over 1.5 million cubic metres. The initial scheme of nourishment was completed in 1998 and continues along various stretches to top up beach levels at erosion hotspots. From 1994 to 1998 a total of 6.21 million cubic metres of sand and gravel, dredged offshore was added to the Lincshore coast.

5.6 The Lincolnshire Beach Management 2018-2021 Scheme (part of the Saltfleet to Gibraltar Point Strategy 20018-2021) is the latest phase of work pumping around 40,000 tonnes of sand to raise beach levels lost naturally to the sea. It has been estimated that 9 million cubic metres of sand would be required over the next 50 years to sustain the coast (Coastal Morphology Report Lincolnshire, Mablethorpe to Skegness RP023/L/2011 June 2011). In 2021 replenishment work commenced to pump 400,000 cubic meters of sand back onto these beaches.

5.7 It is expected that the situation described above will continue. Lincolnshire is therefore not expecting marine aggregate to make a contribution to supply options in the area or to be landed in the county. However, it is recognised that there will be continued activity off the coast of Lincolnshire with the sand and gravel transported to other areas both in the UK and abroad to make a contribution to their aggregate supply.

6. Local considerations and future demand

6.1 When looking ahead at possible future demand, the National Planning Practice Guidance states that LAAs must take into account other relevant local information in addition to the 10-year rolling supply. This section therefore considers the factors that may influence the demand for aggregate. It then sets out the approach the council will take to calculating the level of provision that needs to be made to meet the anticipated demand.

Population projections

6.2 At the time the LMWLP was being prepared, it was forecast that the population of the county would increase during the plan period. Projections of the county's population are provided by the Lincolnshire Research Observatory, which uses data from the Office for National Statistics as reproduced in Table 19. This table shows the "initial" population projections based on 2014 data (the base year for the plan), and the latest population projections, which were updated in August 2018.

6.3 Table 19 shows variation between the projections, with the latest projections showing all districts except West Lindsey with a slightly lower population than the initial projections. These range from a reduction of 3.5% in Boston to a reduction of 0.4% in South Kesteven. West Lindsey bucks the trend by recording a 1.7% increase. Overall, however, the table shows that the population for the county in 2031 is forecast to be slightly lower than previously forecast (-0.8%).

Table 19: Population Projection to 2031

Administrative Area	Population in 2014	Original population projections for 2031	Revised population projections for 2031	Difference between projections	Difference as a percentage
Boston	66,458	74,388	71,815	- 2,573	- 3.5%
East Lindsey	137,623	147,237	144,917	- 2,320	- 1.6%
Lincoln	96,202	104,065	102,376	- 1,689	- 1.6%
North Kesteven	111,046	123,825	123,165	- 660	- 0.5%
South Holland	90,419	101,887	101,245	- 642	- 0.6%
South Kesteven	137,981	156,167	155,534	- 633	- 0.4%
West Lindsey	91,787	101,223	102,993	+ 1770	+ 1.7%
Total for Lincolnshire	**731,516**	**808,792**	**802,045**	**- 6747**	**- 0.8%**

Housing provision and completions

6.4 The Practice Guidance on the Production and Use of Local Aggregate Assessments (December 2016) (Planning Officers' Society and Mineral Products Association) recommends comparing planned levels of housing provision with housing completions over the previous 10-years to provide an indication of relative scale and therefore of potential implications for aggregate demand and supply. In terms of the previous provision, Table 20 sets out the net additional dwellings for the county and for each district for the 10-year period 2011-12 to 2020-21. The data is taken from Table 122 of the DCLG's live tables on housing supply relating to net additional dwellings (25 November 2021).

6.5 The current situation with respect to planned housing provision in Lincolnshire is as follows:

a. A joint local plan for the City of Lincoln, North Kesteven and West Lindsey known as the "Central Lincolnshire Local Plan" was adopted on 24 April 2017. This sets a housing target of 1540 dwellings (net) per annum for the local plan period (2012-2036). The plan is currently under review with consultation on the Proposed Submission Draft planned for March – May 2022. The Housing Needs Assessment (Housing Review 2020) which supports the revised plan sets out the need for 1,325 dwellings (net) per annum over the plan period up to 2040. Indicating that if adopted there may be a projected reduction of 215 dwellings per annum.

b. The East Lindsey District Council local plan is in two parts: a Core Strategy and a Settlement Proposals Document. The Core Strategy (adopted July 2018) covers the period February 2016-2031. This makes provision for the phased delivery of 7819 homes between 2017 and 2031 at 558 per annum. The plan is currently subject to a partial update with consultation on the initial Issues and Options stage carried out in 2021.

c. South Kesteven District Council adopted a new Local Plan on 30 January 2020 which covers the period from 2011 to 2036. This sets an annual delivery of 650 homes from 2016.

d. A joint local plan has been produced for Boston Borough and South Holland. This is known as the "South East Lincolnshire Local Plan" and covers the period 2011-2036. The plan was adopted on 8 March 2019 and includes provision for a net increase in dwellings of 310 per annum in Boston Borough and 467 in South Holland.

Table 20: Housing supply - net additional dwellings for each district for the 10-year period 2011-12 to 2020-21

Administrative Area	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	Average
Boston	91	64	174	109	180	351	394	429	324	294	241
East Lindsey	262	226	338	491	323	348	471	481	532	454	393
Lincoln	435	212	246	166	133	130	265	366	220	171	234
North Kesteven	571	319	237	443	472	489	578	693	760	487	505
South Holland	167	199	254	255	293	266	296	828	517	571	365
South Kesteven	474	493	532	645	495	478	428	676	729	446	540
West Lindsey	222	237	324	387	328	305	259	408	572	482	352
Total for Lincolnshire	**2,222**	**1,750**	**2,105**	**2,496**	**2,224**	**2,367**	**2,691**	**3,881**	**3,654**	**2905**	**2,630**

6.6 The provision made in the above plans amounts to 3525 (net) dwellings per annum for Lincolnshire. Table 21 compares the average annual levels of housing supply over the past 10-years with the planned or proposed annual levels of housing provision up to 2031.

Table 21: Comparison of the average annual net additions to housing stock over the past 10-years with planned or proposed net housing provision to 2031

Administrative area	Average annual net additions to housing stock 2011/12-2020/21 (A)	Planned or proposed net housing provision to 2031 in recently adopted Local Plans (average per annum) (B)	Percentage increase in net housing delivery (A) required to meet planned housing provision (B)
Lincolnshire	2,630	3,525	34.0%

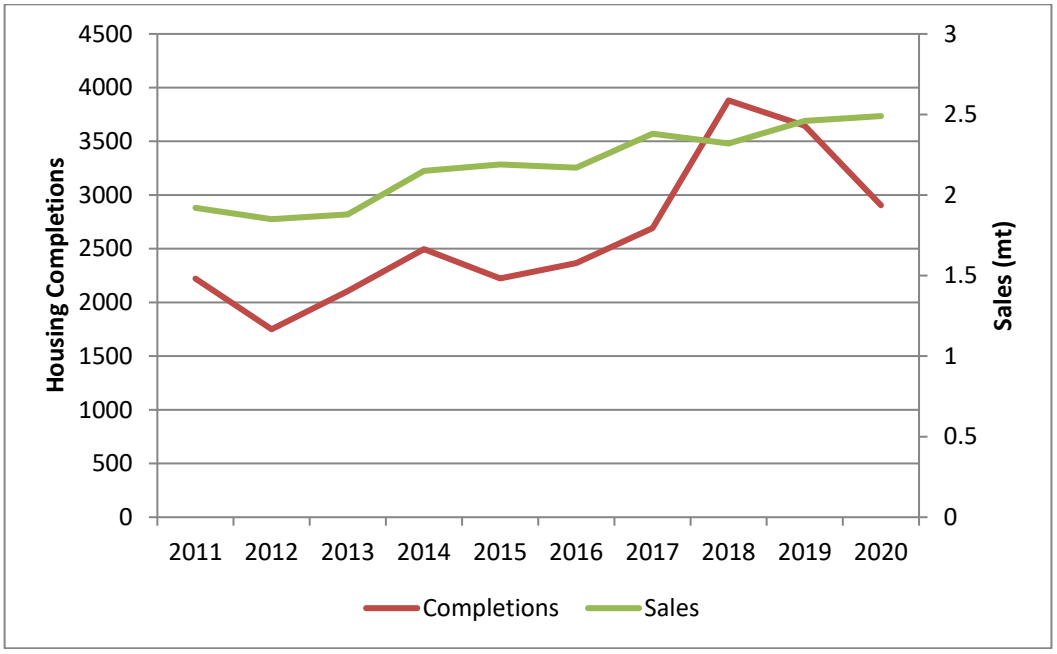
6.7 Table 21 illustrates that the annual level of planned or proposed housing provision set out in the adopted local plans is higher than the average levels of net additional dwellings achieved in the previous 10-year period. For the county as a whole, this amounts to an increase of 34.0% in housing delivery that will be required to achieve plan provision levels.

6.8 Table 20 shows that despite the significant shortfalls there has been some recent growth in housing completions. The peak occurred around 2019, just prior to the pandemic, although this appears to be falling back closer to the 10-year average in 2020.

6.9 The Minerals Products Association estimates that a typical house uses up to 50 tonnes of aggregates in its construction suggesting there should be a clear correlation between aggregate production and housebuilding. In practice, however, Figure 8 shows that a strong correlation between sales of sand and gravel and housing completions in Lincolnshire does not exist, i.e. the peaks and troughs of house building over the ten-year period does not correlate closely with the steady growth in sales of sand and gravel over the 10-year period.

6.10 Furthermore, given that a growing proportion of the sand and gravel sales have been exported out of the county in recent years, the correlation is likely to be even weaker than the graph suggests. As a result, it is considered that this is not a reliable method for forecasting future demand for sand and gravel. The situation will, however, continue to be monitored on an annual basis through the LAA and subsequent plan reviews.

Figure 8: Comparison of sand and gravel sales with housing completions in Lincolnshire 2011 – 2020



Economic conditions

6.11 The most recent Local Economic Assessment was produced for Lincolnshire by the Lincolnshire Research Observatory in 2011. The assessment highlights the following key issues and challenges for the county:

- a poor performing economy with low GVA (Gross Value Added)
- low unemployment, skills and wages
- difficult trading conditions for local businesses
- fast growing but ageing population
- rural inaccessibility issues
- urban deprivation issues
- rise in house price not in line with wages and house builds
- projected reduction in greenhouse gases

6.12 Despite these issues the assessment predicted that the county's economy was set to grow up to 2030 at an average rate of around 2.3% per year . However this assessment is somewhat outdated when the significant recent events of Brexit and the Pandemic are taken into account. The Lincolnshire Quarterly Economic Survey (2021) carried out by the Lincolnshire Chamber of Commerce, reports that in the final quarter of 2020 there were significant falls in sales (-28%) and orders (-20%) in the domestic market as the continuing effects of Covid lockdowns took its toll on the economy. There was, however, bounce-back through 2021 with increased business confidence reported in Q3 despite continued HGV driver shortages and supply chain issues.

6.13 For industries reliant on aggregates in particular, the Office for National Statistics reported significant difficulties in the construction industry supply chain and stock levels through 2020 and into 2021. This was again cited as a result of not only global shortages but the combined impact of Brexit and the Coronovirous Pandemic.

6.14 The Mineral Products Association, Quarterly Sales Volumes Survey, summarises the year on year sales volumes for industry members. The combined figures for asphalt, ready-mix concrete, crushed rock, sand and gravel and mortar sales, demonstrate the significant peaks and troughs in sales throughout the 2020/2021 period presumably because of the pandemic and associated supply chain volatility. This resulted in an overall slowdown in sales by the third quarter of 2021 with a decline in sales volumes for all products. There was, however, some recovery in sales by the end of 2021 due to major infrastructure projects, roadbuilding, housebuilding and possibly a surge in domestic activity (landscaping, extensions etc). As a result, sales increased over the 12-month period.

6.15 The recovery at the end of 2021 may have initially been a process of 'catchup' following the impacts of the pandemic. However, this period of renewed growth should be viewed with caution given that the Bank of England has recently warned (July 2022) that the economic outlook for the UK and the rest of the world has deteriorated materially in 2022.

Infrastructure

6.16 The Greater Lincolnshire Strategic Economic Plan 2014-2030 sets out the actions that the Greater Lincolnshire Local Enterprise Partnership will champion, to achieve economic growth in Greater Lincolnshire (an area which includes the county of Lincolnshire and the area covered by the two unitary authorities of North Lincolnshire and North East Lincolnshire). The Plan includes the following schemes within the county which will affect demand for aggregate:

i. Grantham Southern Relief Road (a new relief road, bridge and connections that will facilitate a major sustainable urban extension with a mix of employment land and up to 4,000 new homes), which is currently under construction and is scheduled for completion in Winter 2022/2023. In 2020 work began on site for Phase 3 of this £80 million scheme.

ii. Boston Quadrant, which is a key investment in infrastructure, enabling housing, employment and leisure facilities across a 27 hectare site. The Quadrant comprises a mixed-use development on a site straddling either side of the A16. The completed scheme will include over 500 new homes with land set aside for commercial operators, including a pub or restaurant site and a variety of sites for drive through or restaurant uses.

6.17 In addition major road improvements have received funding and are now being implemented including:

I. The North Hykeham Relief Road project, which will link the Lincoln Eastern Bypass with the existing Western bypass to create a ring road. This will connect the A46 from the Midlands through to the Humber ports and will also form part of Lincolnshire's coastal highway. Work is proposed to start in 2025.

II. The Spalding Western Relief Road, which commenced in July 2020 to provide a new route around the west of the town by linking the A1175 and A16 (to the south and east of Spalding), to the B1356 (to the north), via the B1172 Spalding Common. This work will also incorporate two road bridges spanning the Lincoln to Peterborough Railway line.

6.18 The Central Lincolnshire Infrastructure Delivery Plan 2015-2036, is the first step in planning for and delivering the infrastructure that is required to support growth in Central Lincolnshire. The plan sets out the high-level aspirations for the county, and the delivery of projects will be monitored for their potential impacts for aggregates consumption as they progress.

Calculating aggregate provision and landbanks

6.19 Whilst the considerations set out above could affect the future demand for aggregate during the remainder of the plan period (ending in 2031), any such changes in demand could impact on sand and gravel very differently from crushed rock. For sand and gravel there are good reasons why demand may not rise significantly:

i. Firstly, attempts to link the future demand for sand and gravel with planned housing provision and economic considerations in the council's Local Aggregate Assessment 2014 significantly over-estimated demand levels and resulted in the council having to revise the basis for calculating the landbank in subsequent LAAs. Figure 8 incorporating the more recent 2020/2021 housing completions and sand and gravel sales data demonstrates that there is little correlation between these two variables.

ii. There is evidence set out in Section 3 that internal consumption of sand and gravel has seen some growth, but is still a long way from the sales seen in 2009. It should, however, be acknowledged that the recent increase in sales is largely driven by a greater quantity being exported to counties with their own indigenous supplies. This situation is therefore likely to be resolved as markets improve and sites which have been "mothballed" in those counties, particularly Nottinghamshire and Cambridgeshire, come back into production.

iii. The 10-year average sales for the county is still closely aligned to the annual provision rate set by the CSDMP, with the three-year sales average being only marginally higher. Furthermore, most of the infrastructure projects identified have been commenced and are already progressing toward completion.

iv. The recent sales data continues to reinforce the view of the EMAWP that the Sub-Regional Apportionments are out-of-date and should not be used as a basis for calculating landbanks.

v. The Bank of England has recently warned (July 2022) that the economic outlook for the UK and the rest of the world has deteriorated materially. This is likely to have a direct effect on the overall consumption of aggregates linked to a reduction in housing completions and weaker demand from the domestic market e.g. landscaping, extensions etc.

6.20 It is therefore considered that the future provision rate for calculating the landbanks for sand and gravel should continue to be based on the average of the last 10-years of sales (2012-2021) (see Table 3).

6.21 For crushed rock (limestone) the situation is very different. Sales have increased significantly from a low in 2014 of 0.38mt to 1.338mt for the three-year average 2019-2021. Sales at this level have not been seen since before the commencement of the recession in 2007, with current sales significantly exceeding that set by the SRA (1.1mt).

6.22 Sales of Lincolnshire Limestone have historically been quite volatile and have been more sensitive to the economic conditions than sales of sand and gravel. This was probably due to the fact that it has limitations as an aggregate which resulted in sales being disproportionately hit during times of recession – perhaps because demand for lower grade aggregates could more readily be met from alternatives such as recycled aggregates.

6.23 Notwithstanding these limitations, Lincolnshire Limestone aggregate demand began to rise sharply from 2016, which is likely to be associated with materials being sourced for lower specification applications in infrastructure projects and short-term highways projects, including the construction of the A15 Lincoln Eastern Bypass. Several of these projects were completed by 2020, after which demand for limestone was expected to recede. However, there has been a marked increase in the volume and destinations for exports of limestone in addition to the increased indigenous consumption, suggesting there may be a more sustained growth in demand for Lincolnshire Limestone products overall.

6.24 Lincolnshire imports significant quantities of high-grade crushed rock aggregate. It is therefore important that sufficient reserves of Lincolnshire Limestone are made available to ensure that this lower grade aggregate is used for meeting less demanding applications, thereby helping to conserve reserves of higher grade crushed rock currently imported into the county.

6.25 Given that recent sales may indicate a sustainable increase in demand, it is considered appropriate to continue using a provision figure derived from more recent sales data rather than an average of the past 10-years sales. It is therefore considered that the future provision rate for calculating the landbank for crushed rock aggregate (Lincolnshire

Limestone) should be based on the average of the last three-years sales (2019-2021) (see Table 11).

7. Future provision

Sand and gravel

7.1 At the end of 2021, Lincolnshire had sufficient permitted reserves of sand and gravel to meet the 7-year minimum landbank, based on average sales over the period 2012-2021.

7.2 The SLD allocates eight sites for the winning and working of sand and gravel. These sites cover the areas where applications are expected during the plan period. At current production levels some of these sites would only be partially worked as they would not be required until well into the plan period. Tables 22a to 22c demonstrates how the requirement for a steady and adequate supply of sand and gravel would be met from the allocated sites within each of the production areas. At the end of 2021, allocation MS25-SL (Manor Farm, Greatford) had been approved subject to the completion of a s106 planning obligation. When planning permission is granted, this will add 3.0mt of sand and gravel to the permitted reserves of the South Lincolnshire Production Area.

7.3 For each production area the county council has made provision for the release of additional sand and gravel resources that are over and above the estimated shortfall for the plan period as set out in Tables 22a to 22c.

7.4 The level of provision made in the SLD is based on the average 10-years' sales for the period 2004-2013 (in accordance with Policy M2 of the adopted CSDMP). Moving forward, the current 10-year average sales figure for the period 2012-2021 for the whole county remains closely aligned with the annual provision rate set by the CSDMP. Unfortunately, data for the three production areas are not available for 2021 (see paragraph 3.5).

7.5 In addition to the existing mineral provision, Policy M4 of the CSDMP allows planning permission to be granted for sites not allocated in the Site Locations document where required to either meet a proven need that cannot be met from existing sites, or to meet a specific shortfall in the landbank. In the case of a shortfall to the landbank, the site would need to form an extension to an existing working or be located in the relevant Area of Search set out in the CSDMP. In all cases, proposals would need to accord with all the Development Management Policies and Restoration Policies of the CSDMP.

7.6 Over and above the provision made in the CSDMP, applications may also come forward to reactivate dormant sites under the Planning and Compensation Act 1991 or the Environment Act 1995.

Table 22a: Sites within the Lincoln Trent Valley Production Area allocated in the SLD to contribute to the estimated shortfall in sand and gravel during the plan period 2014-2031

Site reference	Site name	Total reserves	Estimated contribution to the shortfall of 4.56mt
MS04-LT	Swinderby Airfield	7.0mt	2.25mt
MS05-LT	Norton Bottoms Quarry, Stapleford	6.8mt	2.31mt

Table 22b: Sites within the Central Lincolnshire Production Area allocated in the SLD to contribute to the estimated shortfall in sand and gravel during the plan period 2014-2031

Site reference	Site name	Total reserves	Estimated contribution to the shortfall of 1.21mt
MS07/08-CL	Kettleby Quarry, Bigby	3.25mt	0.86mt
MS09-CL	North Kelsey Road Quarry, Caistor	0.15mt	0.13mt
MS15-CL	Kirkby on Bain (Phase 2)	3.1mt	0.22mt

Table 22c: Sites within the South Lincolnshire Production Area allocated in the SLD to contribute to the estimated shortfall in sand and gravel during the plan period 2014-2031

Site reference	Site name	Total reserves	Estimated contribution to the shortfall of 5.35mt
MS25-SL	Manor Farm, Greatford	3.0mt	2.79mt
MS27-SL	Baston No 2 Quarry, Langtoft	2.5mt	1.40mt
MS29-SL	West Deeping	2.2mt	1.16mt

Crushed rock

7.7 Lincolnshire has sufficient permitted reserves of crushed rock to last beyond the period of the CSDMP which ends in 2031 (see Section 3). The county council has therefore not allocated further sites in the SLD. However, notwithstanding the potential reactivation of dormant minerals permissions, Policy M5 (Limestone) and Policy M6 (Chalk) of the CSDMP do allow further reserves to be released provided they meet a proven need that cannot be met by existing sites or sources and accord with all development management policies and restoration policies set out in the CSDMP.

Updating the LMWLP

7.8 Work has begun on updating the LMWLP and, as set out in Section 1, consultation has commenced on an Issues and Options document. It is proposed that the plan will be extended to the end of 2040 and that additional sites will be allocated to meet any shortfall in aggregate provision. The consultation is therefore accompanied by a "call for sites" exercise seeking the nomination of sites for potential allocation in the new plan.

7.9 Amongst other things, the Issue and Options document raises the question of whether the current approach of splitting the county into three production areas should continue. Since that document was prepared, it has come to light that the council is unable to publish the sales and landbank data for the Central Lincolnshire Production Area and, by implication, the other production areas. This undermines the council's ability to monitor and plan for these sub-county areas.

7.10 In addition, there are other reasons why the retention of production areas may no longer be appropriate, including:

1. It is becoming increasingly apparent that the original basis for dividing the county into production areas, as set out in paragraph 1.13, is breaking down. More recent mineral surveys indicate that sand and gravel extracted in Lincolnshire is being transported much further than in previous times, with substantial amounts being exported to counties with their own indigenous resources.
2. During the past thirty years there has been a major consolidation in the minerals industry, and there are currently no local companies operating in the county. Instead, all active sites are being operated by a small number of multinational companies. This means it is becoming increasingly difficult to meet the confidentiality undertaking with respect to the publication of data for individual production areas. Therefore, even if the current situation in the Central Lincolnshire Production Area could be resolved, there is no guarantee that further problems will not emerge in the future.
3. Lincolnshire is inconsistent with the other counties in the East Midlands in that it is the only one to be subdivided into production areas.

Conclusion

7.11 Based on the average of the last 10-years of sales data (2012-2021), the county council considers that it is making more than sufficient provision for the supply of sand and gravel for the current period of the Lincolnshire Mineral and Waste Local Plan, which ends in 2031. Even if sales were to rise significantly in the near future, the LMWLP is likely to provide sufficient flexibility to accommodate increases in production.

7.12 There has been a significant rise in sales of crushed rock (Lincolnshire Limestone) over recent years, which has prompted the method for calculating the landbank to be based

on the average of the last three years of sales. Notwithstanding this increase, the current level of permitted reserves should also be sufficient to cover the plan period.

7.13 During the updating of the LMWLP, consideration needs to be given on whether the council should discontinue the practice of subdividing the county into three sand and gravel production areas.