Lincolnshire Local Aggregate Assessment
(reporting 2020 data)

September 2021

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Figure 1: The county of Lincolnshire

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 ninth LAA for Lincolnshire and includes the most recent published aggregate sales and reserves data for the county relating to 2020. It is also the sixth 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 fifth 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 2020 Lincolnshire had 12 active sand and gravel quarries and extraction sites, one site that was inactive and a further five sites that were dormant. The active sites were split between three production areas with three in the Lincoln/Trent Valley, five in Central Lincolnshire (including a site straddling the county boundary and currently extracting reserves in North Lincolnshire) and four in South Lincolnshire. In 2020 aggregate sales for the county amounted to 2.49 million tonnes (mt), maintaining a recent rise seen in the 10 year average with sales for the period 2011 to 2020 of 2.18mt per annum. At a sub-county level, sales in 2020 were: 1.16mt in the Lincoln/Trent Valley, higher than the 10 year average (1.04mt); 0.33mt in Central Lincolnshire, lower than the 10 year average (0.35mt); and 1.0mt in South Lincolnshire, again higher than the 10 year average (0.79mt).

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 20.70mt at the end of 2020 provided a landbank of 9.50 years. At a sub-county level, the reserves/landbanks were: 10.37mt/9.97 years in the Lincoln/Trent Valley; 5.42mt/15.49 years in Central Lincolnshire; and 4.91mt/6.22 years in South Lincolnshire.

At the end of 2020, an application for the determination of new planning conditions under the Environment Act 1995 (Review of Old Mineral Permissions) was pending determination. This was for a dormant sand pit at Sudbrook that will provide additional reserves of 1mt in the Lincolnshire Trent Valley Production Area. On final determination this will increase the landbank by just under one year.

A further planning application was received in 2020 for a new quarry on land allocated for mineral extraction (site MS25-SL) at Greatford in the South Lincolnshire Production Area. This application has subsequently 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 landbank in this area by 3.80 years.

Together with the remainder of sites allocated in the Site Locations document, 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.

There were 15 limestone quarries in the county (excluding dormant sites), but four were either inactive or only produced non-aggregate. In 2020 sales of limestone aggregate amounted to 1.17mt, significantly higher than the 10 year average (0.77mt). There has been some sustained growth in sales, indicated in particular by the three year average figure which at 1.13mt is a 47% 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 around 48% (0.69mt) of aggregates were exported outside 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 (22.16mt) at the end of 2020 provides a landbank of 17.05 years. Although no sites have been allocated in the Site Locations Document, these reserves should last beyond the period of the Lincolnshire Minerals and Waste Local Plan.

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 10 years and will probably last for the duration of the current plan period. As with limestone, no sites have been allocated for the extraction of chalk in the SLD.

Summary of Findings

Type of aggregate and area of production	2020 sales (mt)	10-year average sales (mt)	3-year average sales (mt)	Comparison of 3-year average to 10-year average	Provision rate set by this LAA (mt)	Permitted reserves (mt)	Land-bank (years)
Sand and gravel - Lincoln/Trent Valley Production Area	1.16	1.04	1.14	↑ Moderate increase in sales (10-20%)	1.04	10.37	9.97
Sand and gravel - Central Lincolnshire Production Area	0.33	0.35	0.37	←→ Sales relatively level (<10% change)	0.35	5.42	15.49
Sand and gravel - South Lincolnshire Production Area	1.00	0.79	0.91	↑ Moderate increase in sales (10-20%)	0.79	4.91	6.22
Sand and gravel - total for county	**2.49**	**2.18**	**2.42**	**↑ Moderate increase in sales (10-20%)**	**2.18**	**20.70**	**9.50**
Limestone (crushed rock aggregate) – total for county	**1.17**	**0.77**	**1.30**	**↑ Significant increase in sales (>20%)**	**1.30**	**22.16**	**17.05**

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 ninth 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.

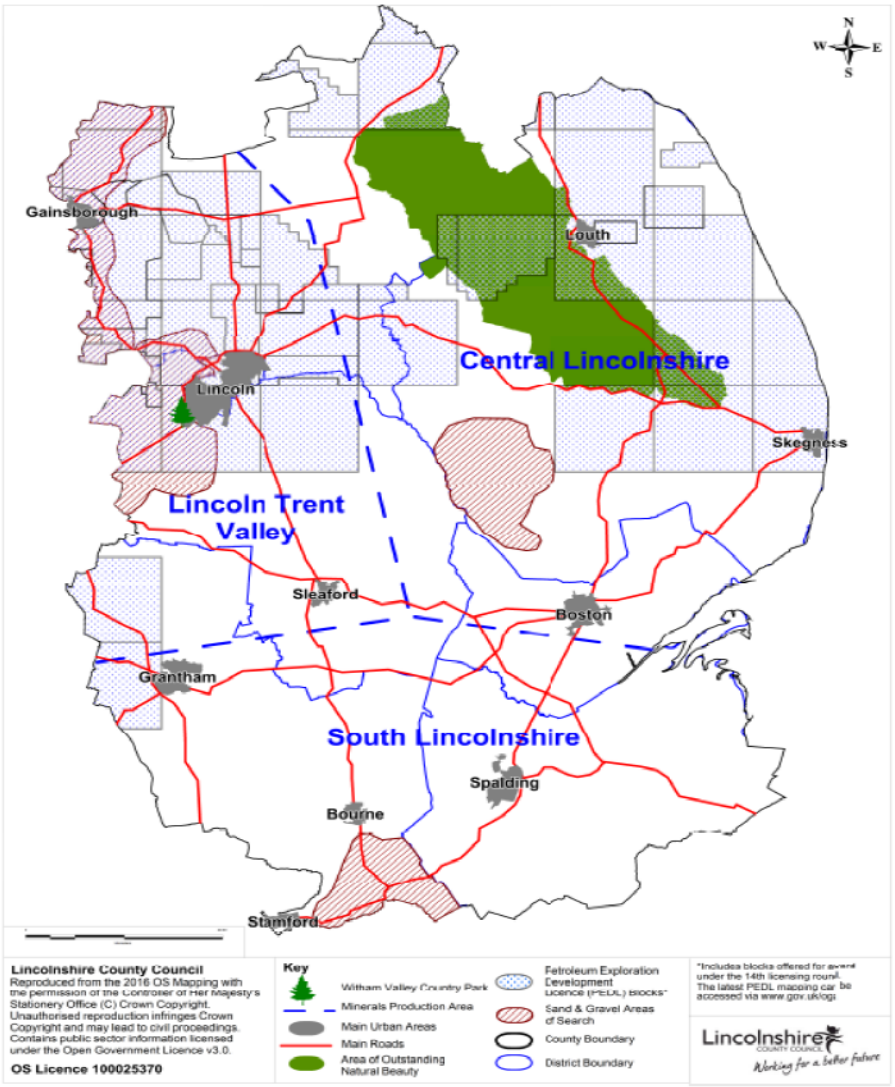
1.12 The second part of the Lincolnshire Minerals and Waste Local Plan, the Site Locations document (SLD) (adopted on 15 December 2017) includes proposals and policies for the provision of land for the winning and working of minerals (sand and gravel) and waste development. In particular, it identifies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

1.13 In relation to sand and gravel, the CSDMP continues the long established approach of subdividing the county into three production areas. This reflects 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 are broadly assumed to serve the following district/city/borough council areas:

- 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 shows the proposed spatial strategy for sand and gravel, including the three production areas, and is taken from the CSDMP.

Figure 2: Sand and gravel production areas in Lincolnshire



1.14 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 In accordance with the statutory requirements for periodic review, the LMWLP was reviewed in February 2021. This review 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.

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 Draft EMAWP Report for 2018 is the latest available which is relied upon in this LAA for data regarding information relating to the East Midlands region. However, the primary data which is referred to in this LAA are the results for the 2020 Annual Minerals Survey collated by the County Council.

3.2 Every fourth year Aggregate Working Parties are committed to conducting 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. In addition, the EMAWP normally extends the Annual Monitoring Report for those years to include more details of the aggregate flows between counties.

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

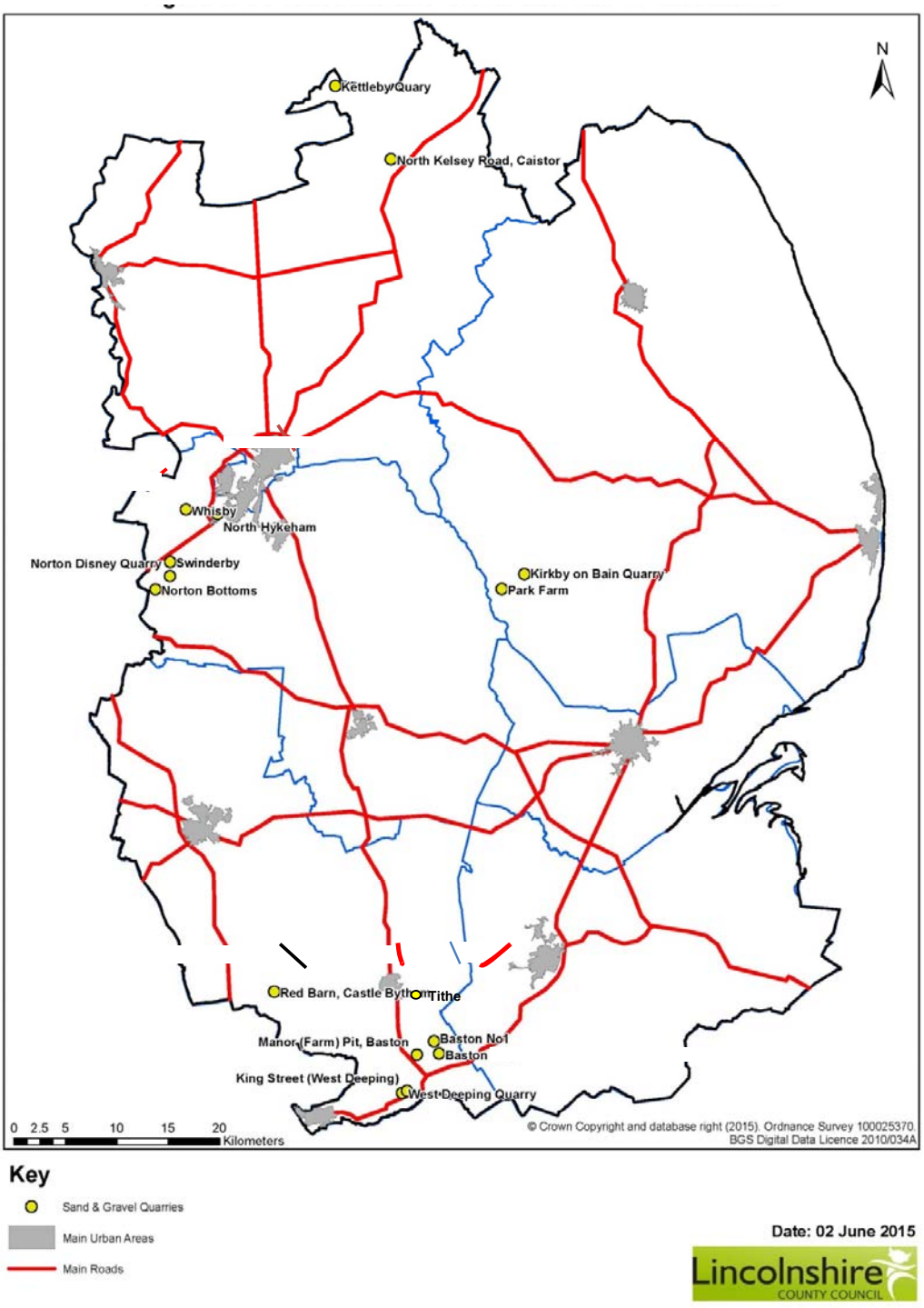
Production sites

3.4 Table 1 lists the sand and gravel sites in the county that were included in the 2019 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 2019 survey

Site	Status in 2019	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
Park Farm, Tattershall Thorpe	Active	East Lindsey	Central Lincolnshire
Kirkby on Bain Quarry	Active	East Lindsey	Central Lincolnshire
Westmoor Farm (Fishing Lakes)	Active	West 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)



Regional production

3.5 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 2009-2018 (the latest 10 year period for which 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 32% (see Table 2, which is based on data from the EMAWP Annual Monitoring Report 2018).

Table 2: Sand and gravel (aggregate) sales from Lincolnshire compared with those from the East Midlands 2009-2018

Year	East Midlands region (mt)	Lincolnshire (mt)	Lincolnshire as percentage of regional sales
2009	5.51	1.99	36.1
2010	5.84	1.79	30.6
2011	6.24	1.92	30.8
2012	5.88	1.85	31.5
2013	6.04	1.88	31.1
2014	6.85	2.15	31.4
2015	6.91	2.19	31.7
2016	6.95	2.17	31.2
2017	6.79	2.38	35.0
2018	7.15	2.32	32.5
Average	**6.42**	**2.06**	**32.2**

3.6 During this period, sales initially remained depressed as a consequence of the recession to under 2mt in 2009 and remained below that level to the end of 2013. From 2013 to 2016 there was a slight recovery with sales reaching just under 2.2mt per annum. In 2017 and 2018 there was a further increase in sales to over 2.3mt, but this level is still below pre-recession levels or the level set by the SRA.

Local production

3.7 Table 3 shows sales from the three production areas over the last 10 years, and the average proportion of sales from each. Over this period, the Lincoln/Trent Valley Production Area has consistently provided the highest annual contribution to total county sales, averaging 1.0mt (47.7%). This is followed by the South Lincolnshire Production Area at 0.79mt (36.2%), with the Central Lincolnshire Production Area providing the lowest contribution at 0.35mt (16.1%).

Table 3: Sales of sand and gravel by production area 2011-2020 (figures in million tonnes, except where specified)

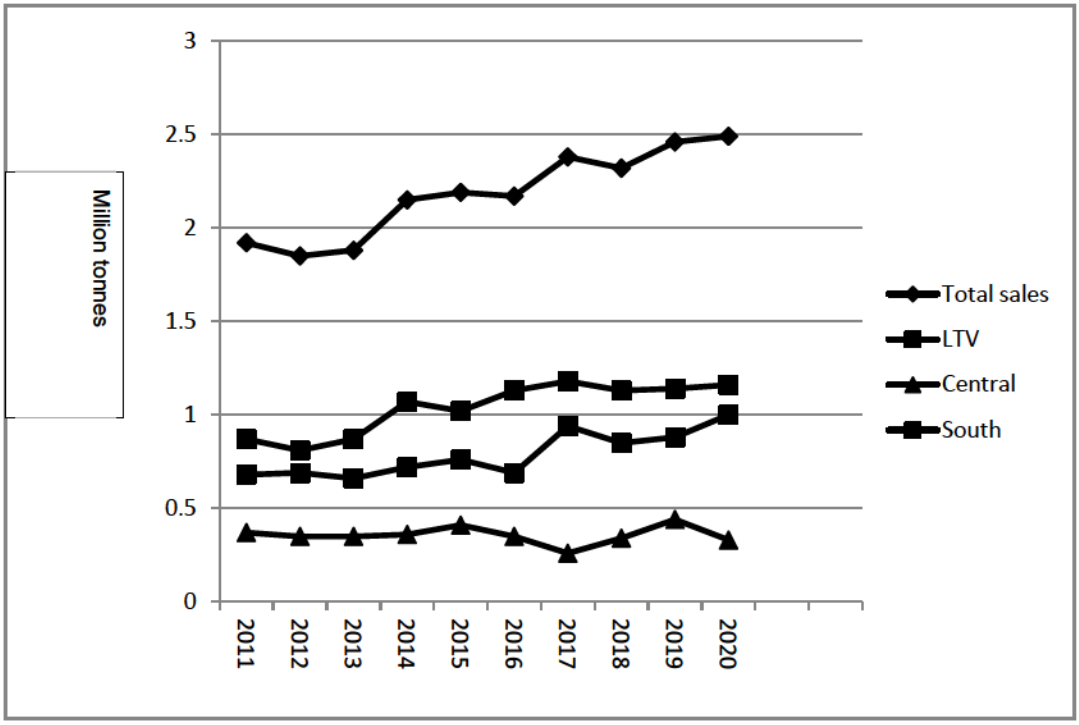
Year	Total Sales	Lincoln/Trent Valley	Central Lincolnshire	South Lincolnshire
2011	1.92	0.87 (45.3%)	0.37 (19.3%)	0.68 (35.4%)
2012	1.85	0.81 (43.8%)	0.35 (18.9%)	0.69 (37.3%)
2013	1.88	0.87 (46.3%)	0.35 (18.6%)	0.66 (35.1%)
2014	2.15	1.07 (49.8%)	0.36 (16.7%)	0.72 (33.5%)
2015	2.19	1.02 (46.6%)	0.41 (18.7%)	0.76 (34.7%)
2016	2.17	1.13 (52.1%)	0.35 (16.1%)	0.69 (31.8%)
2017	2.38	1.18 (49.6%)	0.26 (10.9%)	0.94 (39.5%)
2018	2.32	1.13 (48.7%)	0.34 (14.7%)	0.85 (36.6%)
2019	2.46	1.14 (46.3%)	0.44 (17.9%)	0.88 (35.8%)
2020	2.49	1.16 (46.6%)	0.33 (13.2%)	1.00 (40.2%)
Average (2011-2020)	**2.18**	**1.04 (47.7%)**	**0.35 (16.1%)**	**0.79 (36.2%)**
Average (2018-2020)	**2.42**	**1.14 (47.1%)**	**0.37 (15.3%)**	**0.91 (37.6%)**

3.8 National minerals guidance on the managed aggregate supply system also 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. This information is also provided in Table 3. During the three year period 2018-2020, annual sales of sand and gravel in the county averaged 2.42mt. This figure represents a 11.0% increase over the 10 year average of 2.18mt, but is still only marginally (0.05mt) over the provision rate set in the CSDMP of 2.37mt.

3.9 At a sub-county level, a comparison of the 10 year and 3 year average sales has shown a short term increase in all of the production areas. For the Lincoln/Trent Valley there was a 9.6% increase, in Central Lincolnshire 5.7% and in the Southern production area an increase of 15.2%.

3.10 The changes in relative importance of these Production Areas since 2014 is illustrated in Figure 4. For the Trent Valley, this appears to be due to operators with quarries on both sides of the Lincolnshire/Nottinghamshire county boundary focussing production in Lincolnshire, thus lowering production in Nottinghamshire and increasing production in the Lincoln/Trent Valley Production Area. For the Southern Production Area this may, in part, be linked to the construction works associated with the A14 improvement scheme and growth in the Peterborough area stimulating sales since 2017. However, strategic "mothballing" of sites in Cambridgeshire to concentrate production in Lincolnshire may also be taking place. For the Central Lincolnshire Production Area it is likely the rise and fall of sales is more closely aligned to supplying developments in Lincolnshire and perhaps reflects more closely the level of growth in demand for the County.

Figure 4: Sand and gravel sales by production area 2011-2020



3.11 The Aggregates Minerals Survey Data for Lincolnshire 2020 demonstrates that the permitted reserves of sand and gravel at the end of that year totalled some 20.70 million tonnes for the county, being comprised of: 10.37 million tonnes within the Lincoln/Trent Valley Production Area; 5.42 million tonnes in the Central Lincolnshire Production Area; and 4.91 million tonnes in the South Lincolnshire Production Area.

3.12 Table 4 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. The table also sets out the landbank for each production area based on the latter two provision rates. The SRA is not used for the production areas because it has never been formally sub-divided between them. The reserves are taken from Aggregates Minerals Survey data for Lincolnshire for 2020.

3.13 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 4: Landbank of sand and gravel based on alternative provision rates (as at 31 December 2020)

Production Area	Permitted Reserves as at 31.12.20 (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)
Lincoln/Trent Valley	10.37	N/A	N/A	1.00	10.37	1.04	9.97
Central Lincolnshire	5.42	N/A	N/A	0.5	10.84	0.35	15.49
South Lincolnshire	4.91	N/A	N/A	0.87	5.64	0.79	6.22
Lincolnshire (total)	**20.70**	**3.28**	**6.31**	**2.37**	**8.73**	**2.18**	**9.50**

3.14 Table 4 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. The landbank also exceeded seven years' supply for each provision rate in the Lincoln Trent valley and Central Lincolnshire Production Areas. There is shortfall in the South Lincolnshire Production Area of 1.18mt (1.36 years) against the MWLP rate and 0.62mt (0.78 years) when set against the 10 year average sales.

3.15 At the end of 2020, two applications involving the winning and working of sand and gravel were pending determination by the county council's Planning and Regulation Committee. The first of these was an application under the Environment Act 1995 (Schedule 13 Review of Old Mineral Permissions) for the determination of new planning conditions at the dormant Sudbrook Sand Pit. This was subsequently finally determined on 10 December 2021 and provides additional reserves of 1mt in the Lincolnshire Trent Valley Production Area, increasing the landbank by just under one year.

3.16 The second application was for a new quarry at Greatford in the South Lincolnshire Production Area on land allocated for mineral extraction (site MS25-SL) in the SLD. This site has subsequently 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 landbank in this area by 3.80 years.

Productive capacity

3.17 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. Previously, productive capacity and potential lifespan of quarries has been estimated from the information contained in the planning application and other public files. In practice, however, this approach has 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.

3.18 To remedy this situation the former quantitative approach of estimating the reserves at each quarry was replaced by a more qualitative approach which 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. This was considered an approach which was more in line with Policy M3 of the CSDMP. However, this method has since been re-appraised and is also considered ineffective in demonstrating any issues in relation to production capacity without reporting what could be commercially sensitive information.

3.19 Tables 5a to 5c 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 county. Without industry agreeing to allow publication of sales and reserves information, the use of figures collated at county level masks the impact of

peaks and troughs in sales against site specific reserves. This information cannot be reported or used constructively to highlight the potential for localised shortfalls in production capacity and inform forward planning for minerals provision or in the assessment of planning applications. Consequently, until a solution to this problem can be found, only the combined production capacity and reserves figures will be used by the authority to identify any additional need for capacity within the county.

3.20 As Tables 5a to 5c show, there are four sites with end dates that fall within the Minerals and Waste Local Plan period, including one site at North Kelsey Road Quarry where mineral extraction was completed in 2020. Land has been allocated in the SLD for an extension to the North Kelsey Road Quarry, but this is unlikely to be delivered due to the closing of the quarry.

3.21 The second site, Park Farm Quarry, has a projected end date falling in 2027, which is relatively close to the end of the plan period. While this is not considered to be of any particular significance to production capability at this time, progress in meeting the proposed closing date will need to be monitored closely.

3.22 Two further sites have provided limited quantities of sand and gravel incidental to the primary purpose of the development. The first of these, Westmoor Farm (for the creation of fishing lakes) is now complete whilst the other at Tithe Farm (for an irrigation lagoon) is likely to be exhausted by 2023. These sites represent additional unplanned reserves which have negligible impact in respect of on-going production capacity.

3.23 It is however clear when comparing Tables 5a to 5c with Table 3 that planned production levels and any purported shortfalls in production capability based on these levels should be viewed with caution as they vary significantly from actual sales.

Table 5a: 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	19/04/2067	Information based on 2014 application. Productive capacity not limited by planning permission.
Swinderby Quarry	Cemex	Active	550,000 to 600,000	24/06/2073	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	24/02/2064	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.
Total (all sites)			**1,400,000**		**Planned production level exceeds the annual provision rate set by the CSDMP (1.0Mt) and based on the 10 year average for 2011-2020 (1.04Mt). Provision has therefore been made to maintain Productive Capacity**

Table 5b: 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	31/12/2027	Based on 2007 application. Productive capacity not limited by planning permission
Kirkby on Bain Quarry	Aggregate Industries	Active	250,000	20/03/2069	Information based on 2015 application. Productive capacity not limited by planning permission
North Kelsey Road Quarry,	Breedon	Active	22,400	21/06/2019	Information based on 2014 application. Productive capacity not limited by planning permission
Kettleby Quarry, Bigby	Breedon	Active	70,000 to 100,000	15/04/2074	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
Westmoor Farm, Fishing		Active	36,000	30/09/2020	Information based upon 2019 application. (restoration completed)
Total (all sites)			**638,400**		**Planned production level exceeds the annual provision rate set by the CSDMP (0.5Mt) and based on the 10 year average for 2011-2020 (0.35Mt. Provision has therefore been made to maintain Productive Capacity**

Table 5c: 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	25/09/2067	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	22/02/2042	Information taken from 2011 application. Productive capacity not limited by planning permission
Rectory Farm, West Deeping	Breedon/ Tarmac	Active	250,000 to 350,000	05/06/2052	Information based on 2018 ROMP application. Productive capacity not limited by planning permission
King Street, West Deeping	Cemex	Active	250,000 to 350,000	24/10/2057	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	31/12/2022	Information taken from 2019 application. Productive capacity not limited by planning permission
Total (all sites)			**1,141,500**		**Planned production level exceeds the annual provision rate set by the CSDMP (0.87Mt) and based on the 10 year average for 2011-2020 (0.79Mt). Provision has therefore been made to maintain Productive Capacity**

Exports and imports

3.24 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 and compared in Figure 5. These show 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 has recovered to some extent in the 2019 survey with 45.0% of sand and gravel identified as being consumed within the county.

3.25 Production levels have risen during this period reflecting the growth in exports. Sand and gravel exported to Nottinghamshire has increased in parallel with the reduced consumption of indigenous supplies within the county. This has resulted in the continued rise in production levels in the Lincoln/Trent Valley, where the principal extraction area lies adjacent to Nottinghamshire. Overall sales across the East Midlands region have, however, remained fairly constant at around 1.7mtpa.

3.26 Outside the East Midlands the most notable exports identified in the recent surveys are to the East of England, with the adjoining areas of Cambridgeshire and Peterborough in particular receiving 19.5%. This region overall represents a very recent draw on the South Lincolnshire reserves of around 0.5mt in 2018 and 2019 when compared with the previous survey years. This may be due to the fact that the main extraction area in the South Lincolnshire Production Area lies close to the county boundary with those areas. It is therefore possible that mineral operators have rationalised their operations, "mothballing" sites in Cambridgeshire and Peterborough in favour of concentrating production in Lincolnshire.

3.27 The volume of sales to Yorkshire and Humberside appear 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.

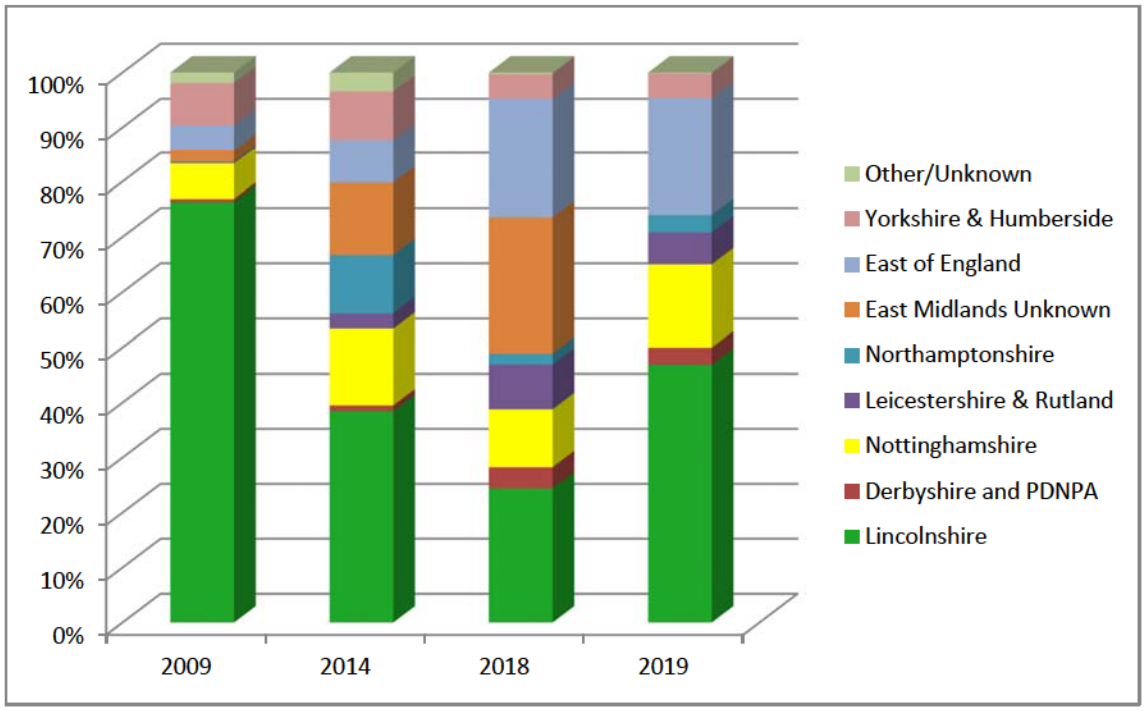
3.28 In 2009 the total exports of sand and gravel from the county of 470,000 tonnes, were more than offset by the total imports of 503,000 tonnes (Collation of the Results of the 2009 Aggregate Monitoring Survey for England and Wales, DCLG, October 2011) making the county a slight net importer of sand 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	Leicestershire/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



3.29 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%

3.30 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).

3.31 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. 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.

3.32 The county council recognises the need to work across local authority boundaries and beyond Lincolnshire to determine if there is likely to be any major changes in movement of sand and gravel into and out of the county over the plan period so that this can be taken into account.

Crushed rock (limestone and chalk)

Production Sites

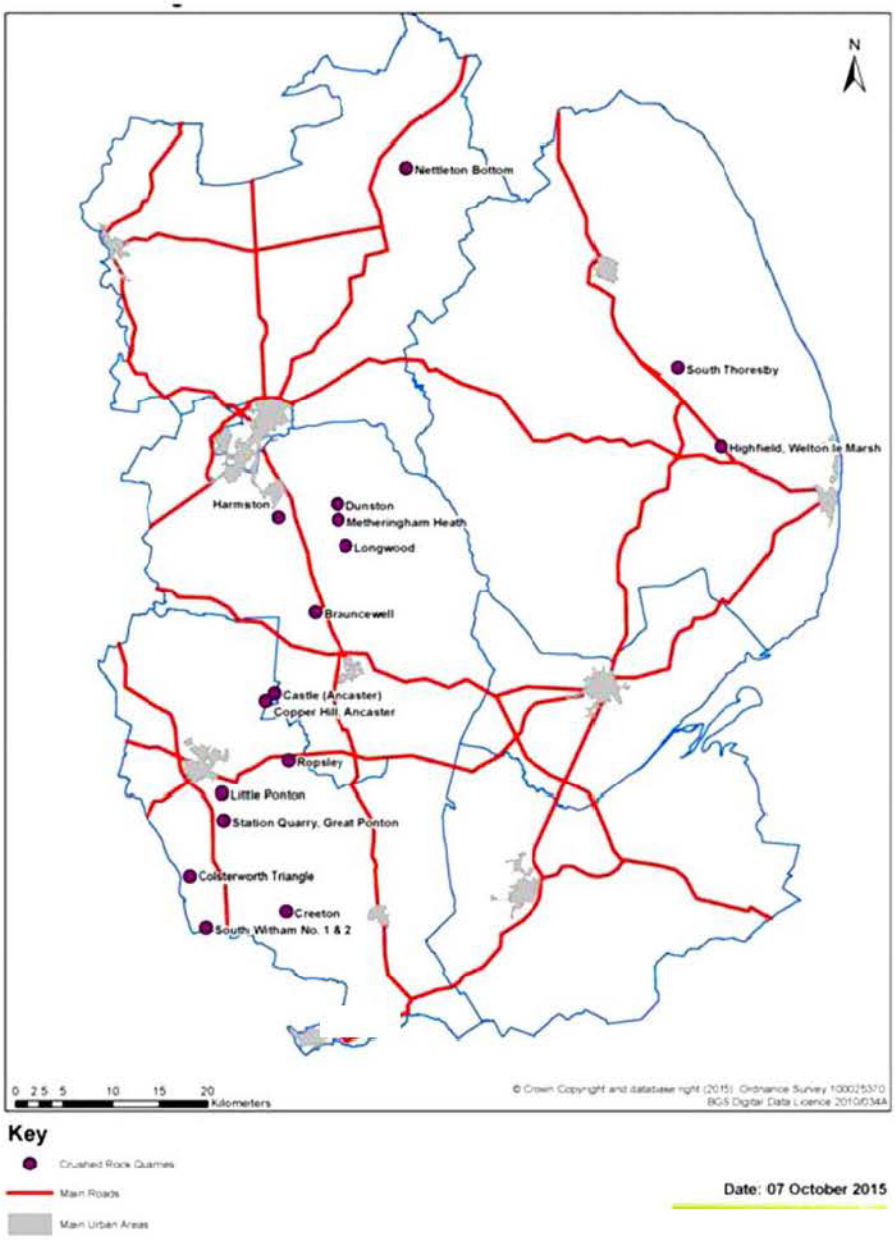
3.33 There were 18 sites in Lincolnshire at the end of 2020 excluding: sites classified as dormant under the Environment Act 1995 or the Planning and Compensation Act 1991; and sites currently subject to the suspension provisions of the Town and Country Planning (Environmental Impact Assessment) Regulations 2011 (see Table 8 below).

Table 8: Crushed rock sites included in the 2020 survey

Quarry name	Status during 2019	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	Inactive	South Kesteven	Limestone
Copper Hill, Ancaster (also produces building stone)	Active	South Kesteven	Limestone
Skillington Quarry	Inactive	South Kesteven	Limestone

3.34 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.

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



Sales of limestone

3.35 The county's production of limestone (aggregate and non-aggregate) amounted to 1.31mt in 2020 of which 1.17mt was for aggregate purposes. Over the 10-year period 2011-20, average sales of aggregate were 0.77mt per annum (see Table 9 below, which incorporates data, including previously unpublished data, from the mineral surveys)

Table 9: Sales of limestone extracted in Lincolnshire 2011-2020

Year	Aggregate sales (mt)	Non-aggregate sales (mt)	Total (mt)
2011	0.39	0.26	0.65
2012	0.51	0.19	0.70
2013	0.45	0.22	0.67
2014	0.38	0.21	0.59
2015	0.43	0.19	0.62
2016	0.76	0.27	1.03
2017	0.85	0.13	0.98
2018	1.28	0.14	1.42
2019	1.45	0.09	1.54
2020	1.17	0.14	1.31
Average (2010-2020)	**0.77**	**0.18**	**0.95**
Average (2018-2020)	**1.30**	**0.12**	**1.42**

3.36 Most of the limestone sales are for aggregate purposes, about 89% in 2020 with an average of 81% over the 10-year period 2011-2020. The 10 year average for limestone sales at 0.77mt per annum, masks a significant variation in sales over this period from a low of 0.38mt in 2014 to a peak of 1.45mt in 2019.

3.37 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 2.5% over the period 2009-18, which is the latest available dataset for the East Midlands as a whole covering a 10 year period (Table 10).

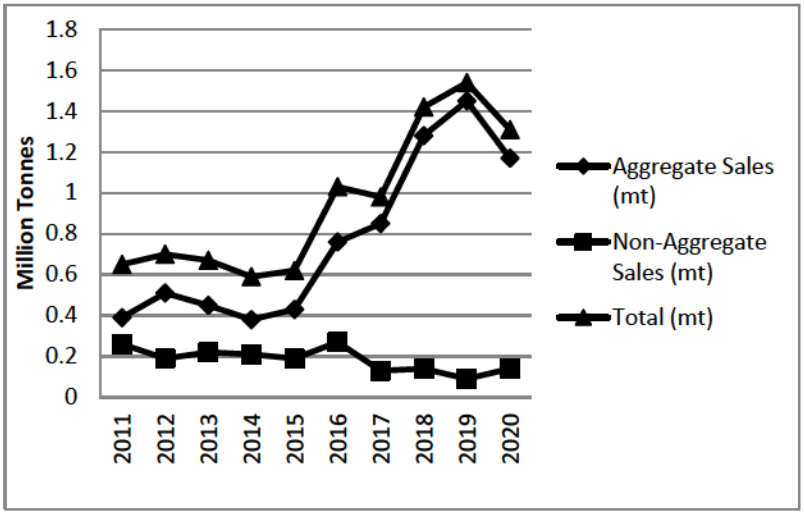
Table 10: Limestone aggregate sales from Lincolnshire compared to crushed rock aggregate sales in the East Midlands 2009-2018

Year	Sales in East Midlands (mt)	Sales in Lincolnshire (mt)	Percentage of regional sales
2009	21.54	0.46	2.1
2010	21.17	0.45	2.1
2011	20.09	0.39	1.9
2012	19.74	0.51	2.6
2013	22.17	0.45	2.0
2014	21.90	0.38	1.7
2015	23.00	0.43	1.9
2016	28.12	0.76	2.7
2017	28.41	0.85	2.9
2018	27.83	1.28	4.6
Average	**23.40**	**0.60**	**2.5**

3.38 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.

3.39 During the three year period 2018-2020, average annual sales of limestone for aggregate have amounted to 1.30mt which is over twice the provision rate set in the CSDMP (0.62mtpa). This is 0.53mt higher than the 10 year average (0.77mt), an increase of 69%. As shown on Figure 7, sales for the first six years of the 10 year period were relatively level, averaging 0.49mt per annum. Since then sales have climbed sharply and in 2019 reached 1.45mt, which is almost three times higher than the six year average for 2011-2016 before falling back to 1.17mt in 2020.

Figure 7: Trends in sales for limestone extracted in Lincolnshire 2011-2020



Sales of chalk

3.40 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.

3.41 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 is 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

3.42 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.

3.43 It is estimated that permitted reserves of limestone for aggregate purposes as at 31 December 2020 totalled some 21.16mt (Annual Mineral Survey data 2020), 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 latter has been included due to the sharp increase in sales during the past three years. The table shows that at the end of 2020 the landbank of limestone for the county significantly exceeded 10 years under all four provision rates.

3.44 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/non-aggregate split in the material recovered.

Table 11: Landbank of limestone (aggregate) based on alternative provision rates (as at 31 December 2020)

Permitted reserves (as at 31.12.19) (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)
22.16	1.1	20.15	0.62	35.74	0.77	28.78	1.30	17.05

Landbank of chalk

3.45 The last LAA (reporting 2019 data) estimated that the permitted reserves of chalk as at 31 December 2020 were around 5.0mt. That figure included a site (Tetford Hill Quarry) where operations have been suspended under the provisions of the Town and County Planning (Environmental Impact Assessment) Regulations 2011. As a result, it is considered that the reserves at this quarry should not have been included in the overall permitted reserves for the county.

3.46 Without the Tetford Hill Quarry, overall permitted reserves are estimated to be around 1.5mt. 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

3.47 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.

3.48 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.

3.49 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	21/2/2042	Information based on 2013 ROMP application. Productive capacity not limited by planning permission
Brauncewell	Brauncewell Quarries Ltd	Active	200,000	17/4/2042	Information based on 2007 application. Productive capacity not limited by planning permission
Dunston	Len Kirk Plant Hire Ltd	Active	50,000 to 80,000	27/5/2025	Information based on 2017 application. Productive capacity not limited by planning permission
Metheringham Heath	Longwood Quarries Ltd	Active	Not specified	21/2/2042	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	21/2/2023	Information based on 2016 application. Site is not expected to recommence extracting limestone
Castle Quarry (Ancaster)	Goldholme Stone	Active	156,000	10/12/2049	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	17/3/2044	Information based on 2013 application.
South Witham (East)	G Webb Haulage Ltd	Active	150,000 to 200,000	29/8/2078	Information based on 2017 application. Productive capacity not limited by planning permission
South Witham (West)	N/A	Inactive	Inactive	02/2/2042	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	21/2/2042	Information based on 2011 application. Productive capacity not limited by planning permission
Station Quarry, Great Ponton	Harmston Waste Management	Active	100,000	10/10/2055	Information based on 2011 ROMP application. Productive capacity not limited by planning permission
Little Ponton	Geo Quarries Ltd	Active	30,000 to 100,000	02/2/2042	Information based on 2013 ROMP application. Productive capacity not limited by planning permission
Colsterworth Triangle	CESL	Active	150,000	08/6/2066	Information based on 2015 application. Productive capacity not limited by planning permission
Ropsley	Roplsey Quarry Ltd	Inactive	Not specified	21/12/2042	Information based on 2012 ROMP application. Productive capacity not limited by planning permission
Total (all sites)	**N/A**	**N/A**	**1,316,000**	**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 2018-20 (1,30Mt). The 3 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	27/11/2052	Based on recent sales brochure for the site. Productive capacity not limited by planning permission
Highfield Quarry (Welton le Marsh)	Welton Aggregates Ltd	Active	Not specified	21/022042	Information based on 2002 IDO application. Productive capacity not limited by planning permission
Nettleton Bottom	Able UK Ltd	Inactive	60,000	26/10/2058	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 if the need arises.**

Exports and imports of crushed rock

3.50 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 (below). 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.

3.51 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 although 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.

3.52 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 and are set out in Table 15.

3.53 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.

3.54 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).

3.55 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/PDNPA	-	-	-	-	9,000	0.6	-	-
East Midlands	Nottinghamshire	-	-	-	-	60,073	4.2	1,195	0.1
East Midlands	Leicestershire/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/ 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/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 quarrying/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 Table 16 lists 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 2019
- the EA Site/Permit Register
- the county council's waste site monitoring and enforcement records

4.7 As Table 16 shows the existing maximum figure for CD&E recycling capacity in Lincolnshire is estimated at around 1,680,473 tonnes per annum. However, for some sites only a proportion of the capacity will be used to process aggregates as part of a wider materials recovery operation. Where this is the case, the table indicates the quantity of construction and demolition waste imported into the sites which is potentially suitable (and therefore more likely to be used) for aggregate production.

4.8 The current waste throughput is recorded from the EA's Waste Data Interrogator (2018) as 227,151 tonnes; however this figure 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 on-site recycling is being carried out at exempt construction sites.

4.9 With overcapacity potentially in the region of 1.4mt overall, 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.

4.10 The general trend in respect of CD&E waste management is for decreasing disposals of CD&E waste to landfills, quarries and exempt facilities and an increasing diversion of waste, especially through recycling. This will lead to a greater provision of CD&E waste as recycled aggregate assisting the council in working towards future recycled aggregate production requirements, and achieving a reduction in the demand for primary aggregate.

Secondary aggregate

4.11 The most recent annual returns (LCC EFW data March 2020 to April 2021) report that 40,557 tonnes of incinerator bottom ash produced by the Energy from Waste Plant at North Hykeham was exported for recycling into aggregates.

Table 16: Construction, demolition and excavation waste recycling sites in Lincolnshire (2020)

Site	LMWLP site number	Waste type(s)	2019 WDI Return (tonnes)	Maximum capacity (tonnes)
Kirkby on Bain Quarry	171	CD&E	14,248	20,000
Copper Hill Quarry	88	CD&E (Haz)	5,766	15,000
Brauncewell Quarry Transfer Station	14	CD&E	0	11,074
Brauncewell Quarry Recycling (NB Throughput exceeds maximum cited capacity)	14	CD&E	35,639	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	5,497	30,000
Creeton Quarry	184	CD&E	3,703	25,000
South Thoresby Quarry	173	CD&E	0	30,000
Castle Quarry	189	CD&E	0	0
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	33,902	75,000
Harmston Quarry Inert Treatment Facility	13	CD&E	108,130	180,000
Longwood Quarry	205	CD&E	2,528	10,000
Whisby Quarry	3a	CD&E	0	75,000
Highfield Quarry	109	CD&E (Haz)	22,996	75,000
Sub total for active Quarry sites	**N/A**	**N/A**	**232,409**	**735,074**
Lindum Group Ltd	71	Haz, CD&E	0	75,000
Harlaxton Engineering Services	192	CD&E	136	50,000
Sharpes Haulage	214	CD&E	299	749
Stainby Reclamation	219	CD&E	1,440	20,000

Site	LMWLP site number	Waste type(s)	2019 WDI Return (tonnes)	Maximum capacity (tonnes)
Midland Quarry Products Baston Asphalt Plant	225	C&D	500	11,498
Hobleys Yard	183	CD&E	2,625	75,000
East Coast Aggregates	231	C&D	0	12,000
Caenby Hall Waste Transfer Station	47	CD&E	7,327	14,840
Mansgate Quarry	172	CD&E	0	50,000
Sub total for stand-alone recycling facilities			**12,327**	**309,087**
GBM Waste Management (Manby Airfield)	53	CD&E	0	21,236
Andrew Riddel Skip Hire Ltd	19	H/C&I	0	11,222
Westville Waste Recycling Centre	118	H/C&I/C&D	19,261 (228 C&D)	5,600
Bourne Waste Transfer Station	31a	H/C&I/C&D	12,611 (1,548 C&D)	19,051
MG Skip Hire, Four Acre Farm	75	H/C&I/C&D	972 (561 C&D)	25,000
Orange Skip Co	148	H/C&I/C&D	2,160 (20 C&D)	75,000
The Recycling Centre, West Deeping	81	H/C&I/C&D	41,737 (5,293 C&D)	51,893
Materials Recycling Facility, Caythorpe	80	H/C&I/C&D	140,825 (23,571 C&D)	200,000
Bourne Skip Hire & Recycling (BSH)	85	H/C&I/C&D	35,943 (11,768 C&D)	34,076
The Recycling Centre, Hemmingby Lane, Horncastle	90	H/C&I/C&D	15,642 (5782 C&D)	63,234
Sub total for other sites known to recycle some aggregates	**N/A**	**N/A**	**(48,771 C&D)**	**506,312**
Clarkeson Recycling	N/A	HCI/CD&E	N/A	55,000
FCC Slippery Gowt Recycling	N/A	CD&E	N/A	75,000
Sub total for new permissions in 2020	**N/A**	**N/A**	**0**	**130,000**
Total	**N/A**	**N/A**	**293,507**	**1,680,473**

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 around 20% (15-20mt per annum) of national product, which is predominantly supplied to the South East of England and London with a further 4.1mt exported to Europe. The industry currently has statutory planning permission to extract a total of 38.5 million tonnes per year and permitted national reserves total 356Mt, providing a 22 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 sub region. However, the coast off Lincolnshire is within the Humber Dredging Area which currently has primary reserves totalling 50.35mt. There are 10 dredging licences in place in this area (and one application) permitted for the removal 6.88mt of material per annum. Current estimates suggest there are around 24.93 years of primary marine aggregate permitted based upon the 10 year average offtake of 2.02mt. In 2020, 3.49mt of material was dredged from the permitted licensed tonnage which is the peak figure for extraction over the previous 10 year period. Another 0.7mt was dredged for beach nourishment (Marine Aggregates Capability & Portfolio 2020, The Crown Estate).

5.3 The latest distribution figures (2020) for material dredged from the Humber/North East region indicated that 76.2% was exported to mainland Europe, 15.3% to the Humber/North East region, and 8.5% to the Thames Estuary (Marine Aggregates Capability & Portfolio 2020, 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. This might suggest the lack of direct access to ready markets and limited demand in the Lincolnshire area, which can already be met by existing resources, are the limiting factors 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 and, 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. In 2017, 504,401 tonnes of material was used.

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).

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 that is transported to other areas both in the UK and abroad to make a contribution to their supply options.

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 17. 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 17 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 17: 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/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 18 sets out the net additional dwellings for the county and for each district for the 10 year period 2010-11 to 2019-20. The data is taken from Table 122 of the DCLG's live tables on housing supply relating to net additional dwellings (26 November 2020).

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

- 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.

- 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 under review.

- 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.

- 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 18: Housing supply - net additional dwellings for each district for the 10 year period 2010-11 to 2019-20

Administrative Area	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	Average
Boston	173	91	64	174	109	180	351	394	429	324	229
East Lindsey	312	262	226	338	491	323	348	471	481	532	378
Lincoln	468	435	212	246	166	133	130	265	366	220	264
North Kesteven	618	571	319	237	443	472	489	578	693	760	518
South Holland	243	167	199	254	255	293	266	296	828	517	332
South Kesteven	500	474	493	532	645	495	478	428	676	729	545
West Lindsey	300	222	237	324	387	328	305	259	408	572	334
Total for Lincolnshire	**2,613**	**2,222**	**1,750**	**2,105**	**2,496**	**2,224**	**2,367**	**2,691**	**3,881**	**3,654**	**2600**

6.6 The provision made in the above plans and emerging plans amounts to 3525 (net) dwellings per annum for Lincolnshire. Table 19 compares the average annual levels of housing supply over the past 10 years with the planned/proposed annual levels of housing provision up to 2031. The table also groups the districts into the sand and gravel production areas to give an indication of how these production areas might be affected. However, it should be borne in mind that this is only an approximation as:

a) the boundaries of the production areas do not strictly coincide with the district boundaries; and

b) in practice some material does flow between the production areas, particularly where there are good transport links (for example, whilst Grantham is located in the South Lincolnshire Production Area, its proximity to the A1 means that developers can readily source sand and gravel from the Lincoln/Trent Valley Production Area).

Table 19: Comparison of the average annual net additions to housing stock over the past 10 years with planned/proposed net housing provision to 2031

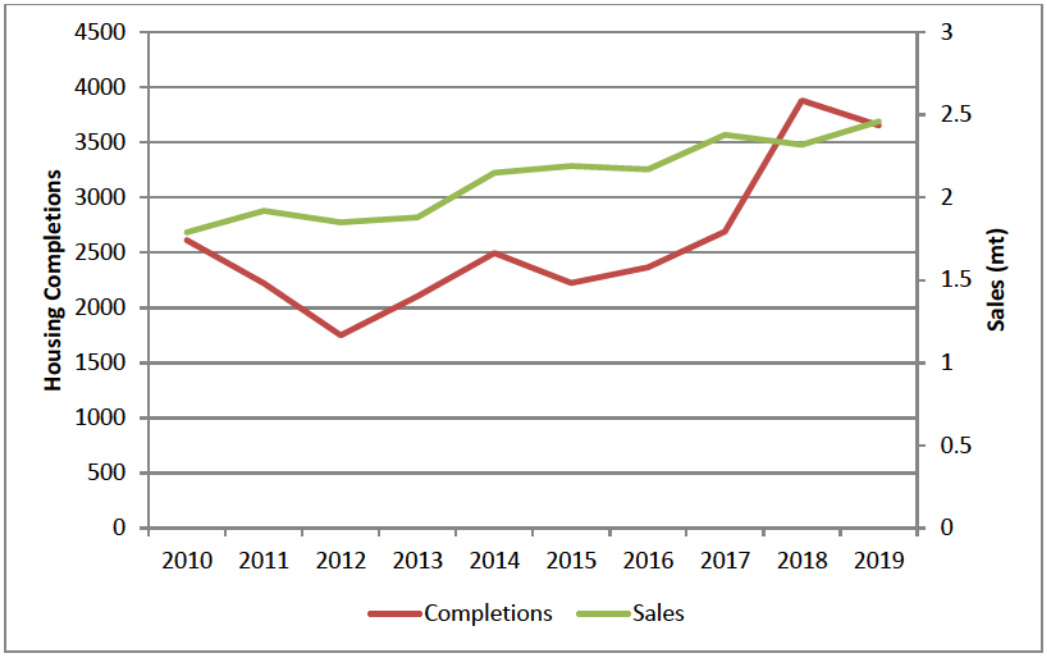
Administrative areas/Production Areas	Average annual net additions to housing stock 2008/9-2019/20 (A)	Planned/proposed net housing provision to 2031 in recently adopted and emerging local plans (average per annum) (B)	Percentage increase in net housing delivery (A) required to meet planned housing provision (B)
Lincoln, North Kesteven and West Lindsey	264 + 518 +334	1,540	38.0%
Total for Lincoln/Trent Valley	**1,116**	**1,540**	**38.0%**
East Lindsey and Boston	378 + 229	558 + 310	47.6% + 35.4%
Total for Central Lincolnshire	**607**	**868**	**43.0%**
South Holland and South Kesteven	332 +545	467 + 650	40.7% + 19.3%
Total for South Lincolnshire	**857**	**1,117**	**30.3%**
Total for Lincolnshire	**2,580**	**3,525**	**36.6%**

6.7 Table 19 illustrates that the annual level of planned/proposed housing provision set out in the adopted/emerging 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 36.6% in housing delivery that will be required to achieve plan provision levels.

6.8 The greatest increase in net housing delivery (43.0%) is required in the Central Lincolnshire Production Area, with the remaining production areas not far behind. Table 18 shows that despite the significant shortfalls there has been some recent growth in housing completions for most of the districts that make up the Production Areas from 2018 and this growth will be continue to be monitored closely going forward.

6.9 The Minerals Products Association estimates that a typical house uses up to 50 tonnes of aggregates in its construction (https://www.mineralproducts.org) 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. 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. It is therefore clear that as a guide to sand and gravel demand this relationship should be considered with extreme caution.

Figure 8: Comparison of sand and gravel sales with housing completions in Lincolnshire 2010 – 2019



6.10 Despite the aspirations of local plan provisions, at the beginning of the 2010 -2019 period house building in Lincolnshire was in decline with completions falling to a low of just 1750 in 2012/13. The figures show some recovery over the next 5 years reaching 2,691 in 2017/2018 followed by a more recent surge in activity averaging over 3,700 completions over the two periods 2018/2019 and 2019/2020. Figure 8 shows that 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. 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.

Economic conditions

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

- 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; and
- projected reduction in greenhouse gases.

6.12 Despite these issues the assessment proposed that the county's economy was set to grow up to 2030 at an average rate of around 2.3% per year . In this respect the recent figures for housing completions might be taken to indicate some positive growth. However, the Lincolnshire Quarterly Economic Survey (2020) 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.

6.13 The Office for National Statistics reported significant falls in construction output (-34%) in the second quarter of 2020 as a consequence of the national lockdown. There followed a bounce back of 41% in Q3 with the final quarter levelling out at around 2.7% growth.

6.14 The Mineral Products Association, Quarterly Sales Volumes Survey, summarises the year on year sales volumes for industry members. These combined figures for asphalt, readymix concrete, crushed rock, sand and gravel and mortar sales, outline a significant overall decline in sales volumes for all products over the 24-month period 2019 - 2020.

6.15 There has been some recovery in sales in 2021 as a result of major infrastructure projects, roadbuilding, housebuilding and possibly a surge in domestic activity (landscaping, extensions etc). This may have initially been a process of "catchup" following the impacts of the pandemic therefore forecasting for a sustained acceleration in sales growth should be tempered with some caution.

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 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/restaurant site and a variety of sites for drive through/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 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 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. The delivery of projects as they emerge will be monitored for their potential impacts for aggregates consumption as they progress.

Calculating aggregate provision/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 & 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 2019/2020 housing completions and sand and gravel sales data demonstrates that there is little correlation between these two variables despite the recent growth in housing completions.

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 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 and infrastructure projects supplied by sites close by the county boundaries come to a close.

iii. The 10-year average sales for the county as a whole and for each production area are still below or closely aligned to the annual provision rate set by the CSDMP. Furthermore, most of the infrastructure projects identified have been commenced and are already progressing toward completion. The three-year sales averages are again still either below or closely aligned to the annual provision for each Production Area as set out in the CSDMP. Even in the Lincoln/Trent Valley the three year sales average is not considered to be so significantly higher than the planned provision rate as to be of immediate concern taking into account the factors set out above.

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.

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 (2011-2020) (see Table 4).

6.21 For crushed rock (limestone) the situation is very different. In the last three years sales have increased significantly, averaging 1.30mt. Sales at this level have not been seen since before the commencement of the recession in 2007, with sales in 2019 (1.45mt) significantly exceeding that set by the SRA (1.1mt).

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

6.23 Notwithstanding these limitations, Lincolnshire Limestone aggregate demand rose 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 also be some general and more sustained growth in demand for limestone products overall.

6.24 Lincolnshire imports significant quantities of high grade crushed rock aggregate and 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 which may help to conserve reserves of higher grade crushed rock currently imported into the county.

6.25 Given that recent sales indicate increase in demand at least in the short term, it is considered appropriate to continue using a provision figure derived from more recent sales data in place of 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 (2018-2020) (see Table 11).

7. Future provision

Sand and gravel

7.1 At the end of 2020, Lincolnshire had sufficient permitted reserves of sand and gravel to meet the 7 year minimum landbank, for two out of three production areas based on average sales over the period 2011-2020. There is currently a slight shortfall (0.78 years) in the South Lincolnshire Production Area and further reserves will need to be released to maintain production in this area and the remainder of the county over the period of the CSDMP. The SLD proposes to do this by granting planning permission for the sites allocated in the plan, subject to the proposals being in accordance with the development plan.

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 20a to 20c (derived from the SLD) demonstrate how the requirement for a steady and adequate supply of sand and gravel would be met from the allocated sites. Allocation MS25-SL (Manor Farm, Greatford) has been approved subject to the completion of a s106 planning obligation. Subject to the granting of the permission, this site will provide 3.0mt of sand and gravel that will rectify the shortfall in the South Lincolnshire Production Area landbank.

7.3 As illustrated, the county council has made provision for sand and gravel that is over and above the estimated shortfall for the plan period which amounts to an additional 16.88mt of allocated reserves for the county.

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 figures for the period 2011-2020 for the county as a whole and for the three Production Areas, are either below or closely aligned with the annual provision rates set by the CSDMP.

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. The application at Sudbrook Sand Pit (see section 3) is an example of this and will provide additional reserves of 1mt in the Lincolnshire Trent Valley Production Area, increasing the landbank by nearly a year.

Table 20a: 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 20b: 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 20c: 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 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/sources and accord with all development management policies and restoration policies set out in the CSDMP.

Conclusion

7.8 Based on the average of the last 10 years of sales data (2011-2020), the county council considers that it is making more than sufficient provision for the supply of sand and gravel for the 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.

7.9 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 be sufficient to cover the plan period.

7.10 Notwithstanding the above, the county council resolved in February 2021 to update the LMWLP in accordance with a programme set out in the council's new Minerals and Waste Development Scheme (2021). The plan period has not yet been determined but will need to go several years beyond the current plan period ending in 2031. As a result, additional allocations of aggregate sites will be required to cover the extended period.