Lincolnshire COUNTY COUNCIL
Working for a better future

LINCOLNSHIRE
LOCAL AGGREGATE ASSESSMENT
(reporting 2016 data)

January 2018

Lincolnshire COUNTY COUNCIL
Working for a better future

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The National Planning Policy Framework (NPPF) requires Mineral Planning Authorities to plan for a steady and adequate supply of aggregates by preparing a Local Aggregate Assessment (LAA). The LAA is required to:

- forecast the demand for aggregates based on both the rolling average of 10 years sales data and other relevant local information;
- analyse all aggregate supply options, as indicated by landbanks, mineral plan allocations and capacity data; and
- 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 fifth LAA for Lincolnshire and includes the most recent published aggregate sales and reserves data for the County relating to 2016. It is the second LAA to be produced since the first part of the Lincolnshire Minerals and Waste Local Plan, the Core Strategy and Development Management Policies document, was adopted in June 2016. The key points from this LAA are set out below:

Sand and Gravel

Lincolnshire currently has 12 sand and gravel quarries (excluding dormant sites and recently exhausted sites). These are split between three Production Areas with 3 in the Lincoln/Trent Valley, 4 in Central Lincolnshire (including a site currently extracting reserves in North Lincolnshire) and 5 in South Lincolnshire. In 2016 sales for the County amounted to 2.17 million tonnes (mt), indicating a slight rise in sales over the 10 year average for the period 2007 to 2016 (2.07mt). At a sub-county level, sales in 2016 were 1.13mt in the Lincoln/Trent Valley, higher than the 10 year average (0.88mt); 0.35mt in Central Lincolnshire, lower than the 10 year average (0.43mt); and 0.69mt in South Lincolnshire, also lower than the 10 year average (0.76mt).

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 19.57mt at the end of 2016 provided a landbank of 9.45 years. At a sub-county level, the reserves/landbanks were 8.40mt/9.55 years in the Lincoln/Trent Valley; 3.14mt/7.30 years in Central Lincolnshire; and 8.03mt/10.57 years in South Lincolnshire.

Since 2016 the County Council has granted planning permission for 3.5mt of sand and gravel in Central Lincolnshire and has resolved to grant planning permission for a further 2.2mt in the Lincoln/Trent Valley, subject to the completion of a S106 Agreement. These, together with the sites allocated in the second part of the Lincolnshire Minerals and Waste Local Plan, the Site Locations document, should provide sufficient resources to last beyond the Plan period to 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. As a result the two minerals are considered separately.

There are currently 13 limestone quarries in the County (excluding dormant sites). In 2016 sales of limestone aggregate amounted to 0.76mt, higher than the 10 year average (0.53mt). As with sand and gravel, it is concluded that the landbank should be calculated using the average of the past 10 years of sales (2007-2016). Using this average, the permitted reserves of limestone (25.60mt) provide a landbank of 48.3 years, which will last well beyond the period of the Lincolnshire Minerals and Waste Local Plan. No sites have therefore been allocated for the extraction of limestone in the Site Locations document.

There are currently four chalk quarries in the County (excluding dormant sites). In recent years no sales information has been provided for chalk sales. However, it estimated by the Council that sales in 2016 were likely to be below 150,000 tonnes. With estimated reserves of 5.15mt, this would give a landbank of over 34 years. As with limestone, no sites have been allocated for the extraction of chalk in the Site Locations document.

1. Introduction

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

1.2 This document is the Local Aggregate Assessment for the County of Lincolnshire. It is the fifth 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 Local Aggregate Assessments will be produced annually as part of the 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:

- preparing an annual Local Aggregate Assessment, 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);
- participating in the operation of an Aggregate Working Party and taking the advice of that Party into account when preparing their Local Aggregate Assessment;
- making provision for the land-won and other elements of their Local Aggregate Assessment in their mineral 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;
- 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;
- 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;
- 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;
- ensuring that large landbanks bound up in very few sites do not stifle competition; and

- 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 local aggregate assessments 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 licences 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 Local Aggregate Assessment, 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 MPS1, which required Mineral Planning Authorities (MPAs) to make provision for the sub-regional apportionment of the National and Regional Guidelines for Aggregate Provision 2005-2020[1], 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

[1] National and Regional Guidelines for Aggregates Provision in England 2005-2020 (DCLG, Jun 2009)

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 Local Aggregate Assessment 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 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:

- the key principles to guide the future winning and working of minerals and the form of waste management development in the County; and
- 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 (adopted on 15 December 2016) includes proposals and policies for the provision of land for the winning and working of minerals (sand and gravel) and waste development and identifies sites where future minerals development 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 1 below shows the proposed Spatial Strategy for Sand and Gravel in the CSDMP including the three production areas.

1.14 Policy M2 of the CSDMP makes provision for 42.66 mt 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 Local Aggregate Assessment 2015 (reporting 2013 data) for the county. This provision is split between the three production areas as follows:

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

1.15 The policy states that provision for the release of this sand and gravel will be made through the Site Locations document, which will give priority to extensions to existing Active Mining Sites. 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 22.90 mt. During the preparation of the Site Locations document, further reserves of 8.64 mt 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 11.12 mt. divided between the three Production Areas as follows:

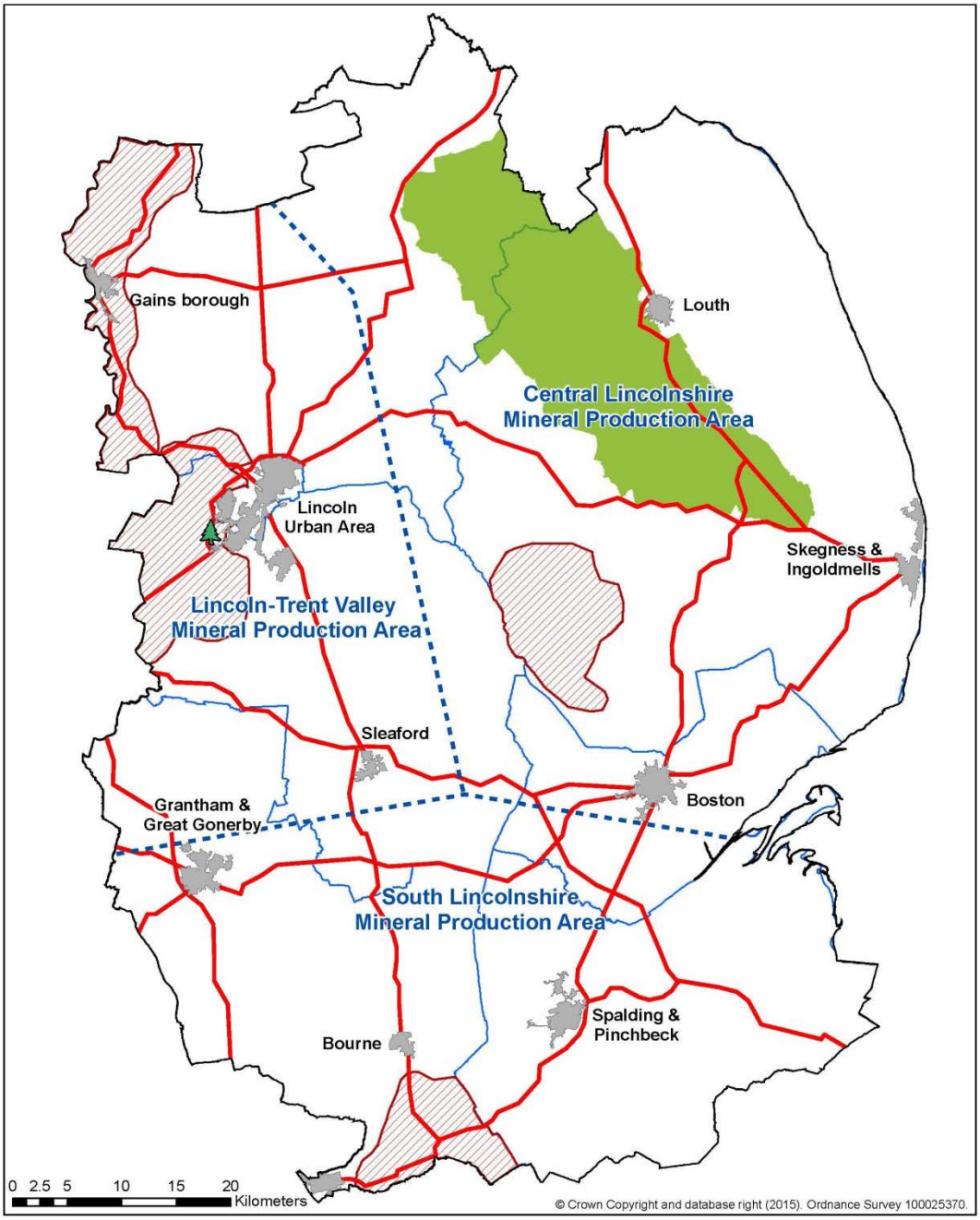
- Lincoln/Trent Valley, 4.56 mt
- Central Lincolnshire, 1.21 mt
- South Lincolnshire, 5.35 mt

The Site Locations document makes provision for this shortfall by the allocation of eight sites.

1.17 In addition, for sites not allocated in the Site Locations document, 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. It is not, therefore, proposed to allocate new sites.

Figure 1: Minerals Production Areas in Lincolnshire



Source: Core Strategy and Development Management Policies, April 2015

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 1970s the 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).

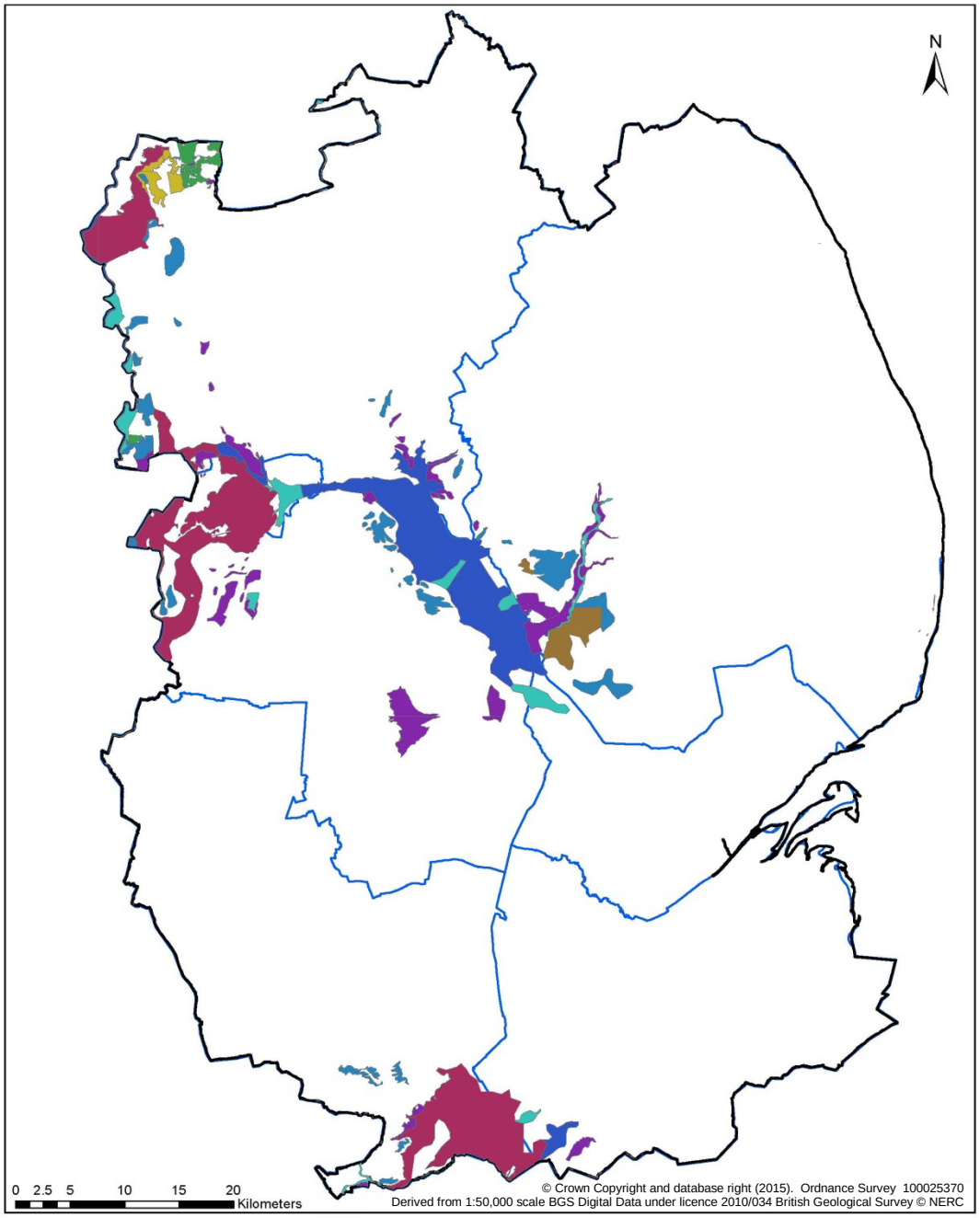
2.2 In 2010, the County Council commissioned the BGS to reassess the sand and gravel resources identified in the MARs and identify potential resources in areas of the county not covered by the MARs. The subsequent Lincolnshire Sand and Gravel Assessment (External Report CR/10/049) indicates that the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

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

Figure 2: Sand & Gravel Resource in Lincolnshire



Limestone

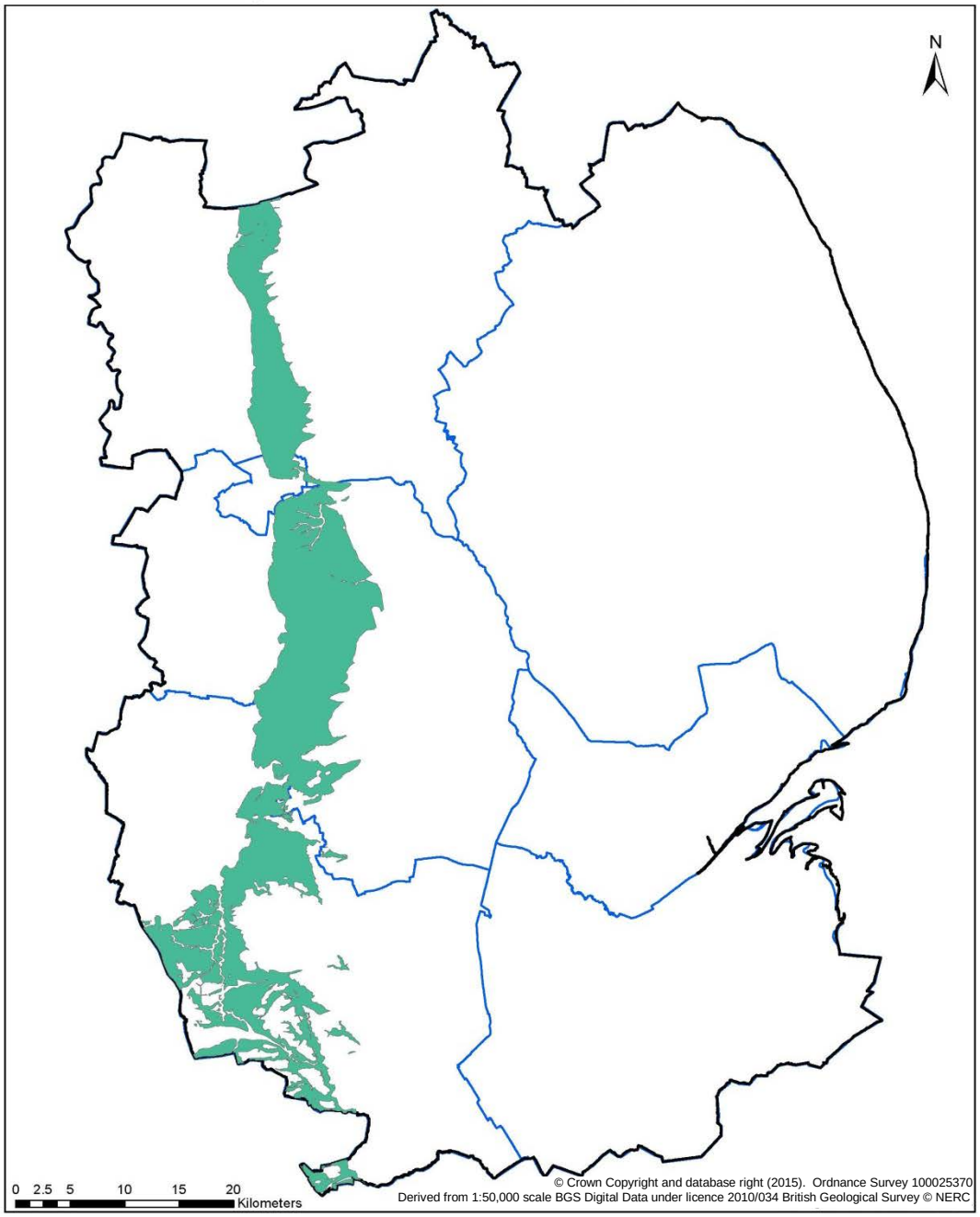
2.5 A variety of hard rocks are, when crushed, suitable for use as aggregates. Their technical suitability for different applications depends on their physical characteristics, such as crushing strength and resistance to impact and abrasion. Higher quality aggregates are required for coating with bitumen 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.

2.6 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.

2.7 Crushed Lincolnshire Limestone provides aggregates, which are of relatively low strength and with poor resistance to frost damage (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.

Figure 3: Limestone Resource in Lincolnshire

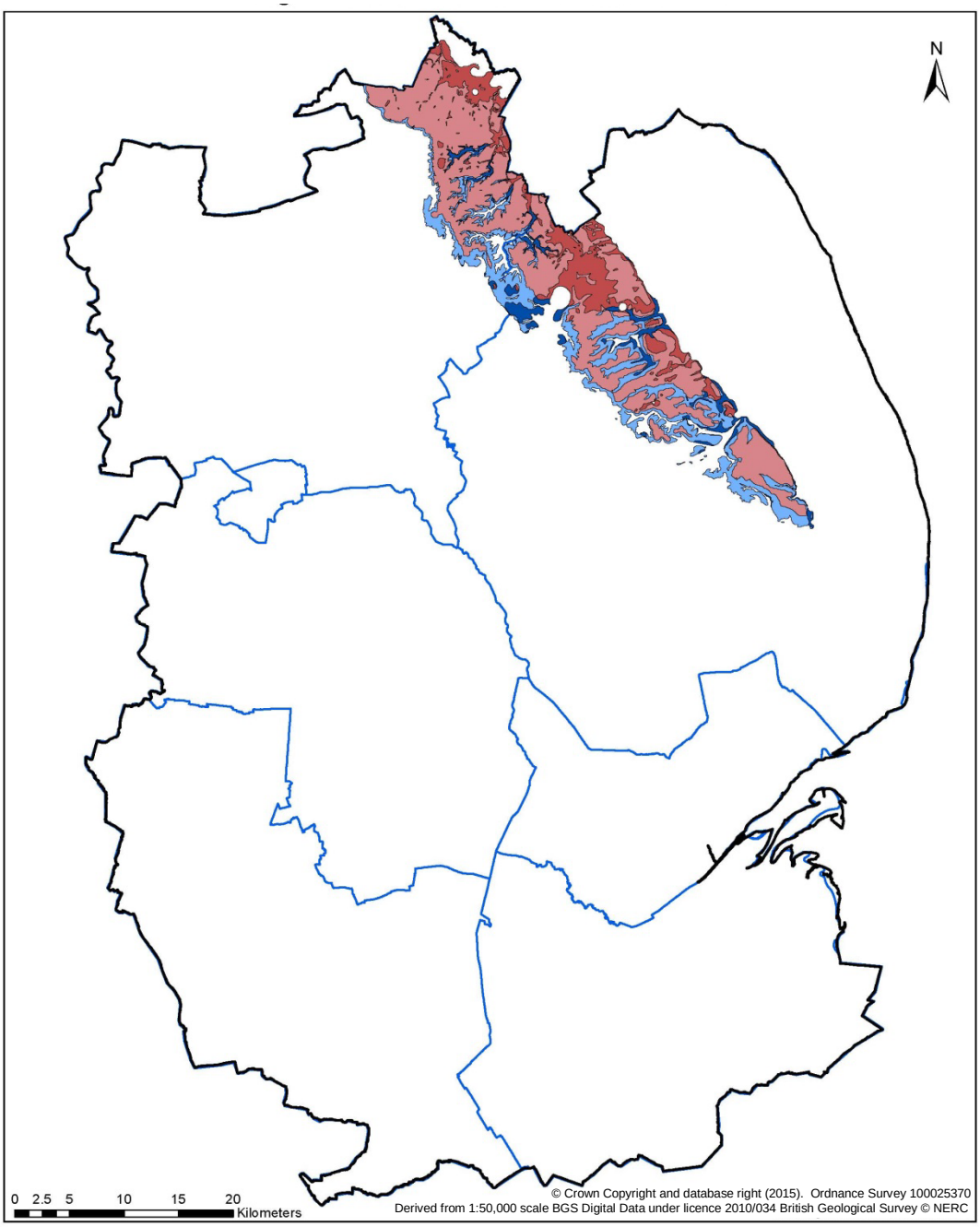


Chalk

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 >97 per cent CaCO3), while the overlying Flamborough Chalk and the underlying Ferriby Chalk are mainly of medium purity (>93% CaCO3). 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

Figure 4: Chalk Resource in Lincolnshire



3. Current Situation regarding 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 back to the early 1990s. The Annual Monitoring Report for 2016 is the latest published report and the one primarily used in this Local Aggregate Assessment.

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 British Geological Survey 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 Two Aggregate Mineral Surveys have been carried out during the past 10 years, the first in 2009 and the second (which was postponed for a year) in 2014. These surveys remain the most up to date source for the movement of aggregates and are used in this Local Aggregate Assessment to provide data on the flow of aggregates into and out of the County and how these flows have changed between the two surveys.

Land-Won Sand and Gravel

Production sites

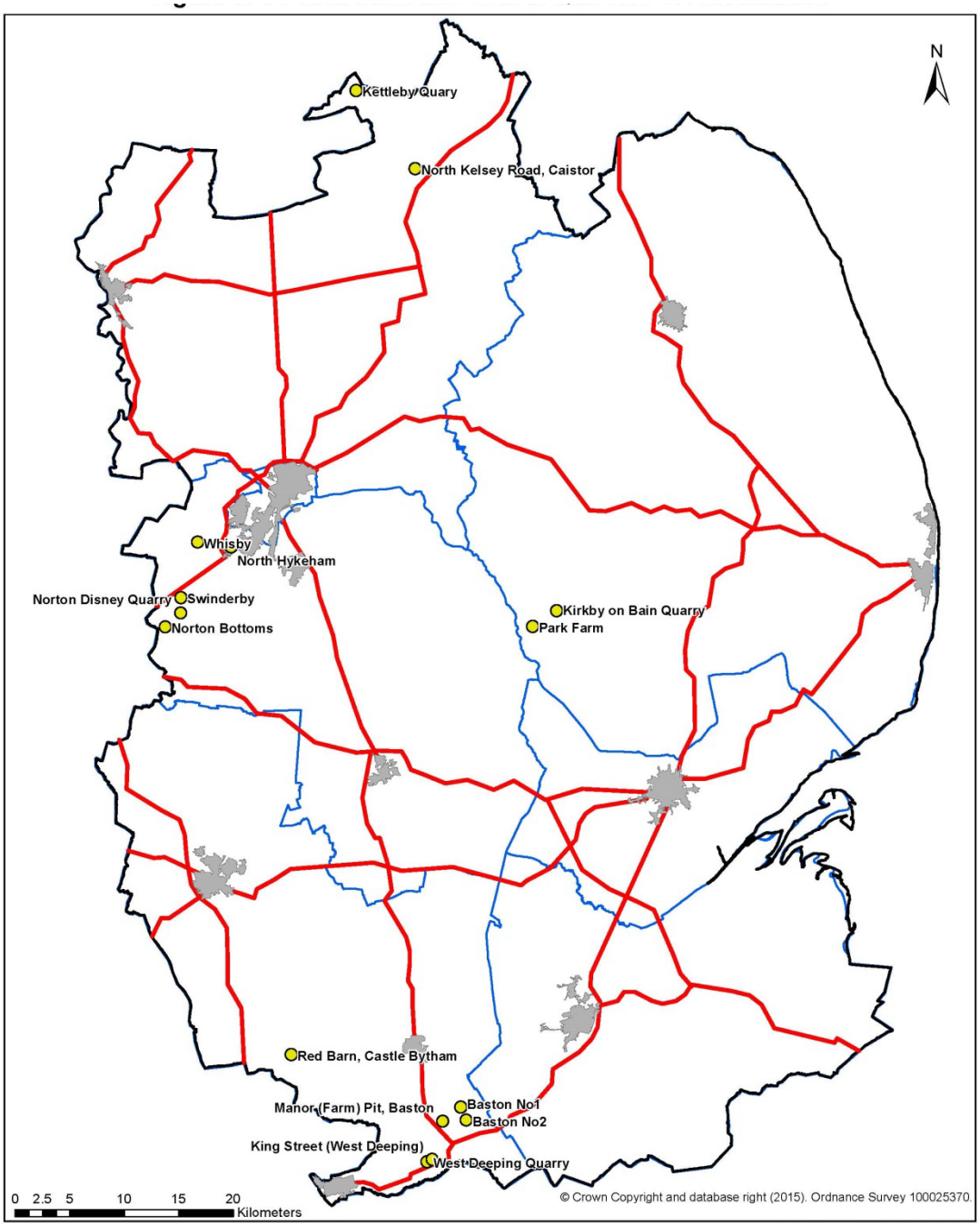
3.4 Table 1 below lists the sand and gravel sites in the County that were included in the 2016 Survey. The table excludes sites classified as Dormant either under the Planning and Compensation Act 1991 or the Environment Act 1995.

Table 1: Sand and Gravel Sites included in the 2016 Survey

Site	District	Production Area
Whisby Quarry	North Kesteven	Lincoln/Trent Valley
Norton Disney Quarry (1)		
Norton Bottoms Quarry		
Swinderby Quarry		
Park Farm, Tattershall Thorpe	East Lindsey	Central Lincolnshire
Kirkby on Bain Quarry		
North Kelsey Road Quarry, Caistor	West Lindsey	
Kettleby Quarry, Bigby (3)		
Manor (Farm) Pit, Baston	South Kesteven	South Lincolnshire
Red Barn, Castle Bytham*		
Baston No 1 Quarry (2)		
Baston No 2 Quarry		
King Street, West Deeping*		
Rectory Farm, West Deeping		

*Inactive during 2016
(1) Residual reserves exploited during final restoration were exported to Swinderby for processing and distribution.
(2) Residual reserves of final phase exported to Baston No2 for processing and distribution.
(3) Permitted reserves are situated in North Lincolnshire, but extensions have been allocated in the Site Locations document

Figure 5: Sand & Gravel Quarries in Lincolnshire (Excluding Dormant Sites)



Key

- Sand & Gravel Quarries
- Main Urban Areas
- Main Roads

Date: 02 June 2015

Sales

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. Notwithstanding this, over the 10 year period 2007-2016, the production of sand and gravel in Lincolnshire as a proportion of the total output in the East Midlands has remained relatively constant for most of the period, averaging around 31%.

Table 2: Sales of Sand and Gravel (Aggregate) 2007-2016

Year	East Midlands Region (mt)	Lincolnshire (mt)	Lincolnshire as percentage of Regional Sales
2007	8.91	2.47	27.7
2008	7.54	2.27	30.1
2009	5.50	1.99	36.2
2010	5.83	1.79	30.7
2011	6.23	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	6.90	2.19	31.7
2016	6.95	2.17	31.2
Average	6.66	2.07	31.1

Source: EMAWP Annual Monitoring Report 2015

3.6 The County's production of sand and gravel amounted to 2.17mt in 2016, which is slightly above the average annual sales for the 10 year period 2007-16 (see Table 2 above). This average, however, masks a general fall in sales that occurred during that 10 year period - with the highest level of 2.47mt reached at the beginning of the period in 2007. From 2007 sales fell progressively to just under 2mt in 2009 and remained below that level to the end of 2013. Since then there has been a slight recovery with sales fluctuating to just under 2.2mt per annum, but this level is still well below the pre-recession levels or the level set by the Sub-Regional Apportionment.

3.7 Table 3 below indicates sales from the three production areas over the last 10 years and the average proportion of sales from each area. Over this period, the Lincoln/Trent Valley Production Area has provided the highest annual contribution to total county sales, averaging 0.88mt (42.5%). This is followed by the South Lincolnshire Production Area at 0.76mt (36.7%), with the Central Lincolnshire Production Area providing the lowest contribution at 0.43mt (20.8%).

Table 3: Sales of Sand and Gravel by Production Area 2007-2016

Year	Total Sales (mt)	Production Area					
		Lincoln/Trent Valley		Central Lincolnshire		South Lincolnshire	
		(mt)	%	(mt)	%	(mt)	%
2007	2.47	0.97	**39.3**	0.60	**24.3**	0.90	**36.4**
2008	2.27	0.52	**22.9**	0.63	**27.8**	1.12	**49.3**
2009	1.99	0.73	**36.7**	0.54	**27.1**	0.72	**36.2**
2010	1.79	0.82	**45.8**	0.35	**19.6**	0.62	**34.6**
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**
Av. (2007-2016)	2.07	0.88	**42.5**	0.43	**20.8**	0.76	**36.7**
Av. (2014-2016)	2.17	1.08	**49.8**	0.37	**17.0**	0.72	**33.2**

Source: EMAWP Annual Monitoring Reports

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.

3.9 During the three year period 2014-2016, annual sales of sand and gravel have remained relatively level averaging 2.17mt. This is marginally above the 10 year average of 2.07mt, but does not indicate that sales are about to rapidly increase to pre-recession levels.

3.10 At a sub-county level, production within each of the Production Areas has remained relatively level during the past three years. However, as shown in Table 3, a comparison of the three year average sales and the 10 year average sales shows that the relative importance of the Lincoln/Trent Valley Production Area has increased over the other Production Areas. This appears to be due to operators in the Trent Valley 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.

3.11 The East Midlands Annual Report 2016 states that the permitted reserves of sand and gravel at the end of that year totalled some 19.57 million tonnes for the county, being comprised of: 8.40 million tonnes within the Lincoln/Trent Valley Production Area; 3.14 million tonnes in the Central Lincolnshire Production Area; and 8.03 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.

Table 4: Landbank of Sand and Gravel based on Alternative Provision Rates (as at 31 December 2016)

Production Area	Permitted Reserves as at 31.12.16 (mt)*	Sub-Regional Apportionment 2005-2020+		Lincolnshire Minerals and Waste Local Plan ^		10 Year Average Annual Sales (2007-2016)	
		Annual Rate (mt)	Land-bank (Years)	Annual Rate (mt)	Land-bank (Years)	Annual Rate (mt)	Land-bank (Years)
Lincoln/Trent Valley	8.40	N/A	N/A	1.00	8.40	0.88	9.55
Central Lincolnshire	3.14	N/A	N/A	0.5	6.28	0.43	7.30
South Lincolnshire	8.03	N/A	N/A	0.87	9.23	0.76	10.57
Lincolnshire (Total)	**19.57**	**3.28**	**5.97**	**2.37**	**8.25**	**2.07**	**9.45**

** Source: EMAWP Annual Monitoring Report 2016*
+ The SRA relates to the County as a whole and has not been subdivided between the three Production Areas.
^ As set out in the Core Strategy and Development Management Policies document (adopted June 2016)

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.

3.14 Table 4 shows that at the end of 2016, the landbank for the County exceeded seven years' supply except when based on the SRA annual rate, which as previously discussed is now out of date. The provision rates also exceeded seven years' supply for each Production Area, except in Central Lincolnshire. In this case, the landbank was marginally below seven years, but only when based on the provision rate set by the Minerals and Waste Local Plan (CSDMP).

3.15 At the end of 2016, two planning applications involving the winning and working of sand and gravel had resolutions from the County Council's Planning and Regulation Committee to grant planning permission subject to the completion of Section 106 Agreements. These comprise:

- an application to extend the Kirkby on Bain Quarry which has subsequently been granted and increases the reserves by 3.5mt; and
- an application to extend the Whisby Quarry which will increase the reserves by 2.2mt.

3.16 Under the three provision rates set out above, the applications will increase the landbank:

- for the Lincoln/Trent Valley Production Area, by 2.2 years (based on the CSDMP) or 2.68 years (based on the 10 year average);
- for the Central Lincolnshire Production Area, by 7 years (based on the CSDMP) or 8.44 years (based on the 10 year average); and
- for the County, by 1.73 years (based on the SRA), 2.41 years (based on the CSDMP) or 2.75 years (based on the 10 year average).

Productive Capacity

3.17 The individual operator returns for the aggregate surveys are treated as confidential. Therefore in order to assess whether there are likely to be any supply issues which would necessitate maintaining a minimum landbank of more than seven years, Table 5 provides an indication of the productive capacity at each site based on information in the public domain (e.g. planning application files). The table should be viewed with caution as the planned production levels stated may vary significantly from actual sales, which in turn impacts on the level of the permitted reserves. In addition, the total reserves in Table 5 will differ from the level in the EMAWP Annual Monitoring Report 2016 because they include planning permissions granted after 31 December 2016 (or with a committee resolution to grant planning permission).

Table 5: Productive Capacity of the Sand and Gravel Sites (October 2017)

Prod-uction Area	Site	Operator	Current Status	Planned Production Level (tonnes per annum)	Estimated Reserves (tonnes)	Estimated life of the reserves (year of depletion)	General Comment
Lincoln/Trent Valley	Whisby	Tarmac	Active	300,000	*2,850,000	2027	Information based on 2014 application
	Norton Disney Quarry	Cemex	Active	Plant site removed	Exhausted	2017	Replaced by the Swinderby Quarry
	Swinderby Quarry	Cemex	Active	550,000-600,000	3,875,000	2025	Information based on 2008 application and information provided by Cemex for the Site Locations document.
	Norton Bottoms	Breedon	Active	500,000	630,000	2019	Information based on 2015 Scoping Request
Central Lincolnshire	Park Farm, Tattershall Thorpe	Cemex	Active	230,000	3,170,000	2030	Reserves based on 2007 application and estimated life provided by Cemex for the Site Locations document
	Kirkby on Bain Quarry	Aggregate Industries	Active	250,000	3,375,000	2031	Information base on 2015 application
	North Kelsey Road Quarry, Caistor	Breedon	Active	22,400	39,880	2019	Information based on 2014 application
	Kettleby Quarry, Bigby	Breedon	Active	70,000-100,000	NIL (currently working reserves in North Lincolnshire)	2022	Information based on 2013 application in North Lincolnshire
South Lincolnshire	Manor (Farm) Pit, Baston	Cemex	Active	250,000-350,000	entering final extraction phase	2018	To be replaced by a new quarry on King Street, West Deeping. Information taken from 2013 application and details provided by Cemex for the Site Locations document
	Red Barn, Castle Bytham	Bullimores	Inactive	100,000	800,000	Unknown	Information based on 2005 application. When work recommences, the site should have sufficient reserves for about 8 years
	Baston No 1 Quarry	Hanson	Inactive	Plant site removed	Exhausted	2017	Production taken up by the Baston No 2 Quarry
	Baston No 2 Quarry	Hanson	Active	250,000	2,000,000	2025	Information taken from 2011 application
	Rectory Farm, West Deeping	Breedon/ Tarmac	Active	350,000-400,000	1,900,000	2023	Information based on 1990 application. Site currently operated by Tarmac, but being transferred to Breedon
	King Street, West Deeping	Cemex	Inactive	250,000-350,000	2,400,000	2025	Reserves based on 1989 application, production based on Manor Pit (the site it will replace) and estimated life provided by Cemex for the Site Locations document.

**Includes applications with a Committee resolution to grant planning permission subject to completion of S106 Agreements*

3.18 Table 5 indicates that whilst some of the sites may be depleted within seven years, there is sufficient production capacity within each Production Area for this period, particularly as most sites are capable of higher production levels.

Exports and imports

3.19 The information available for the distribution of sales for sand and gravel extracted in Lincolnshire is currently limited to the data compiled for the full Aggregate Monitoring Surveys, the latest surveys being carried out in 2009 and 2014. The data is set out in Table 6, and the analysis of these surveys remains broadly unchanged since the previous LAA.

3.20 In 2009, 76.3% of the sand and gravel sales from Lincolnshire operations were to destinations within the County. The largest markets outside the county were the adjoining county of Nottinghamshire (6.4%) and the adjoining region of Yorkshire and Humberside (7.7%). However, the total exports from the County that year, 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 (33,000 tonnes).

3.21 By 2014, the distribution of sand and gravel sales was significantly different from that of 2009, with only 38.4% of mineral extracted within Lincolnshire going to destinations within the County. The remainder was exported mainly to the rest of the East Midlands (41.3%), but with significant quantities going to Yorkshire and Humberside (8.8%) and to the East of England (7.9%). In contrast to 2009, only 163,000 tonnes of sand and gravel were imported into the County in 2014 (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: Distribution of Sand and Gravel Sales from Lincolnshire 2009 and 2014

Destination (All by Road)		2009		2014	
		Tonnes*	%	Tonnes #	%
East Midlands	Lincolnshire	1,515,900	76.3	826,144	38.4
	Derbyshire	10,872	0.5	22,585	1.0
	Nottinghamshire	127,665	6.4	298,681	13.9
	Leicestershire/Rutland	3,766	0.2	58,593	2.7
	Northamptonshire	2,500	0.1	228,336	10.6
	(unknown)	42,204	2.1	280,967	13.1
West Midlands		924	-	20,587	1.0
East of England		92,165	4.6	170,453	7.9
North West		443	-	1,747	0.8
Yorkshire & Humberside		153,129	7.7	189,331	8.8
South East		40	-	51,657	2.4
Unknown		36,421	1.8	-	-

*Source: *EMAWP AM2009 Survey #Lincolnshire LAA May 2017.*

3.20 Despite the changes to the distribution of sales between 2009 and 2014, the overall production of sand and gravel in the county was at a similar level in both years (2.0mt in 2009 and 2.1mt in 2014). The data therefore indicates that in 2014 there was a reduced demand for sand and gravel within Lincolnshire and that, as a result operators supplied wider markets outside the county. This situation may therefore be reversed as the market improves in Lincolnshire.

3.23 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 demand for or changes in movement of sand and gravel in to and out of the County over the plan period so that this can be taken into account. Therefore engagement has taken place with neighbouring authorities, other authorities within the East Midlands and authorities further afield where a strategic relationship has been identified.

3.24 The Local Aggregate Assessments 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. The Northamptonshire LAA 2016 does, however, indicate that applications for sites either allocated in their Minerals Local Plan or otherwise are not coming forward and that, as a result, there may be a reliance on imports from elsewhere. This may explain the higher export levels to Northamptonshire during 2014.

3.25 The Nottinghamshire LAA 2017 states that the county supplies sand and gravel to the South Yorkshire market from the Idle Valley, which has limited resources. The LAA states:

"If sand and gravel from Nottinghamshire continues to supply this market in the longer term, it would need to be sourced from the Trent Valley close to Newark, a significantly greater distance from the markets. In this scenario other resources outside of Nottinghamshire may start become increasingly viable for South Yorkshire markets, however at this stage it is difficult to predict the extent of this".

3.26 During the past 10 years (2007-2016), sand and gravel production in Nottinghamshire has declined more sharply than in Lincolnshire. The EMAWP Annual Monitoring Report 2016 indicates that in 2016 production in Nottinghamshire was only 54.8% of that in 2007. In contrast the reduction in Lincolnshire was only 12.1%. The Nottinghamshire LAA (2017) attributes the reduction in sales from 2007 to the combined effects of both the recession and the fact that production from Finningley Quarry, which straddles the Nottinghamshire/Doncaster boundary, temporary switched to Doncaster Whilst these are important factors, the Nottinghamshire LAA does not appear to have fully taken into account changes in cross boundary movements of sand and gravel between Nottinghamshire and Lincolnshire. Whilst historically these movements have largely cancelled each other out, the 2014 Survey indicates that Lincolnshire is becoming a significant net exporter to

Nottinghamshire. This may be the result of operators in the Trent Valley rationalising their operations in response to the lower demand for sand and gravel, resulting in them focussing production in Lincolnshire and scaling back operations in Nottinghamshire. Therefore, if the market improves, and sites in Nottinghamshire are brought into production, this could affect sales in Nottinghamshire disproportionately to Lincolnshire.

Crushed Rock (Limestone and Chalk)

Production sites

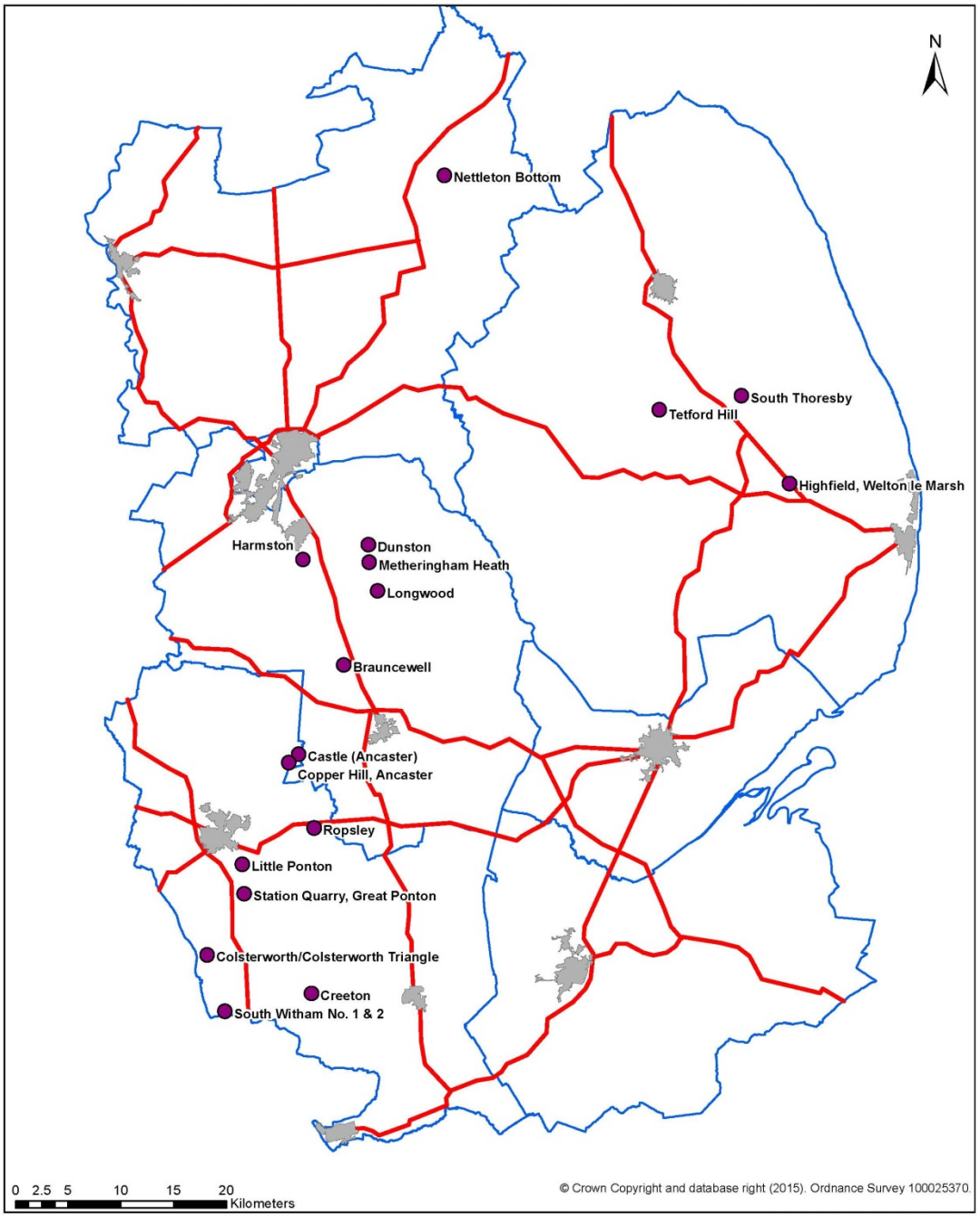
3.27 There were 17 sites in Lincolnshire at the end of 2016, excluding sites classified as dormant under the Environment Act 1995 or the Planning and Compensation Act 1991 (see Table 7 below). It has become established practice in Lincolnshire to calculate separate landbanks for limestone and chalk due to the significant constraints on using chalk as an aggregate. For this reason, Lincolnshire's Sub-Regional Apportionment of Crushed Rock excluded chalk.

Table 7: List of Crushed Rock Sites 2016

Quarry Name	District	Material
South Thoresby	East Lindsey	Chalk
Highfield, Welton le Marsh		
Tetford Hill*(1)		
Nettleton Bottoms*	West Lindsey	Chalk
Longwood	North Kesteven	Limestone
Brauncewell		
Dunston^		
Metheringham Heath^		
Harmston		
Castle (Ancaster)^	South Kesteven	Limestone
South Witham (Breedon Aggregates)		
Creeton^		
Station Quarry, Great Ponton^		
Little Ponton		
Colsterworth Triangle		
Ropsley*		
Copper Hill, Ancaster^		

* inactive during 2016
^ also produces building stone
(1) Currently subject to the suspension provisions of the Town and County Planning (Environmental Impact Assessment) Regulations 2011.

Figure 6: Current Crushed Rock Quarries in Lincolnshire



Sales of limestone

3.28 The County's production of limestone (aggregate and non-aggregate) amounted to 1.0mt in 2016 of which 0.76mt was for aggregate purposes. Over the 10-year period 2007-16, average sales of aggregate were 0.53mt per annum (see Table 8 below). This, however, masks a significant variation in sales from a high of 0.99mt in 2007 to a low of 0.38mt in 2014. Whilst sales in 2016 (0.76mt) were higher than those recorded between 2008 and 2015, they are still low compared with sales prior to the recession.

Table 8: Sales of Limestone extracted in Lincolnshire 2007-2016

Year	Aggregate Sales (mt)	Non-Aggregate Sales (mt)	Total (mt)
2007	0.99	0.04	1.03
2008	0.52	0.05	0.57
2009	0.46	0.17	0.63
2010	0.45	0.14	0.59
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
Av.(2007-2016)	0.53	0.17	0.71
Av.(2014-2016)	0.52	0.22	0.75

Source: EMAWP Annual Monitoring Reports

3.29 Most of the limestone is used for aggregate purposes, about 74% in 2016 with an average of 75% over the 10-year period 2007-2016. The relatively low output of the Lincolnshire limestone as an aggregate reflects the limitations upon its uses. Sales of limestone for aggregate purposes from Lincolnshire operations only represents a small proportion of the total output in the East Midlands, some 2.2% over the period 2007-16 (see Table 9 below).

Table 9: Total Sales of Limestone Aggregate in Lincolnshire compared to Total Crushed Rock Sales in the East Midlands 2007-2016

Year	East Midlands Region (mt)	Lincolnshire Limestone aggregate sales (mt)	Lincolnshire as % of Regional Crushed Rock Sales
2007	30.72	0.99	3.2
2008	26.79	0.52	1.9
2009	21.54	0.46	2.1
2010	21.18	0.45	2.1
2011	20.90	0.39	1.9
2012	19.74	0.51	2.6
2013	22.17	0.45	2.0
2014	21.89	0.38	1.7
2015	22.99	0.43	1.9
2016	28.11	0.76	2.7
Average	23.60	0.53	2.2

Source: EMAWP Annual Monitoring Reports

3.30 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. This information is provided in Table 8.

3.31 During the three year period 2014-2016, average annual sales of limestone for aggregate have amounted to 0.52mt. This figure is very close to the 10 year average (0.53mt) which does not indicate a need to increase supply.

Chalk Sales

3.32 Table 10 shows sales of chalk within the County over the period 2007-16. Towards the beginning of this period, the last major chalk producer (Singleton Birch Ltd) ceased mineral extraction in the County, focussing production at their operations in North Lincolnshire. As a result chalk sales went into rapid decline. Although no sales data is available since 2010, from the limited activities observed within the County's chalk quarries, it would appear that production remains at a low level.

Table 10: Sales of Chalk in Lincolnshire 2007-2016

Year	Aggregate Use	Non-Aggregate Use	Total
2007	248,752	0	248,752
2008	70,530	2,120	72,650
2009	40,000	10,465	50,465
2010	0	4,694	4,694
2011	c	c	c
2012	c	c	c
2013	c	c	c
2014	c	c	c
2015	c	c	c
2016	c	c	c

c: confidential/unavailable
Source: EMAWP Annual Monitoring Reports

Landbank of Limestone

3.33 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.

3.34 It is estimated that permitted reserves of limestone for aggregate purposes as at 31 December 2016 totalled some 25.60mt (EMAWP Monitoring Report 2016), 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 three alternative provision rates: the Sub-Regional Apportionment (SRA); the CSDMP; and the 10 year average annual sales. This shows that at the end of 2016 the landbank of limestone for the County significantly exceeded 10 years under all three provision rates.

Table 11: Landbank of Limestone (Aggregate) based on Alternative Provision Rates (as at 31 December 2016)

Permitted Reserves (as at 31.12.16) (mt)	Sub-Regional Apportionment 2005-2020*		Lincolnshire Minerals and Waste Local Plan*		10 Year Average Sales	
	Annual Rate (mt)	Landbank (Years)	Annual Rate (mt)	Landbank (Years)	Annual Rate (mt)	Landbank (Years)
25.60	1.1	23.27	0.62	41.29	0.53	48. 3

** As set out in the Core Strategy and Development Management Policies document (adopted 2016)*

3.35 The level of permitted reserves set out in Table 11 has taken into account the loss of permitted reserves at the Longwood Quarry (- 6.4 million tonnes) and at the Little Ponton Quarry (-1.8 million tonnes) arising from the First Periodic Reviews of these sites. It has also taken into account a re-evaluation of the permitted reserves at the South Witham Quarry. This quarry, located to the south of Mill Lane in South Witham, includes an old ironstone permission that extends to the north of Mill Lane. Whilst this permission allows the winning and working of the overlying limestone, until recently these reserves were unquantified and not included in the estimate of total permitted reserves of the County. However, recent information provided by the two operators of this site has enabled the overall reserves to be estimated (5.45 million tonnes) and included in the 2016 figure. This has partially offset the reduction in reserves at the Longwood Quarry and Little Ponton Quarry.

3.36 In addition to the above, the Council's Planning and Regulation Committee has resolved to approve a western extension of the South Witham Quarry, subject to the completion of a S106 Agreement. This will involve the applicant "surrendering" part of the permitted reserves to the north of Mill Lane (which are adjacent to the village) in exchange for permission to work reserves in a less environmentally sensitive location. It will, however, increase the net permitted reserves by 0.5 million tonnes.

Landbank of Chalk

3.37 It is estimated that the permitted reserves of chalk as at 31 December 2016 were 5.15mt (EMAWP Monitoring Report 2016). As no sales figures have been available since 2009, it is not possible to calculate the landbank based on the average of the past 10 years of sales. However, through the County Council's Site Monitoring Programme, it is estimated that production is currently less than 150,000 tonnes per annum. This would give a landbank of over 34 years.

Productive Capacity

3.38 The individual operator returns for the aggregate surveys are treated as confidential. Therefore in order to assess whether there are likely to be any supply issues which would necessitate maintaining a minimum landbank of more than 10 years for limestone and chalk, Tables 12 and 13 provide an indication of the productive capacity at each site based on information in the public domain (e.g. planning application files). These tables demonstrate that there are no issues regarding productive capacity.

Table 12: Productive Capacity of Limestone Sites (October 2017)

Site^	Operator	Current Status	Planned Production Level (tonnes per annum)*	Estimated Reserves (tonnes)*	Estimated life of the reserves (year of depletion)	General Comment
Longwood	Longwood Quarries	Active	200,000	4,900,000	#2042	Information based on 2013 ROMP application
Brauncewell	Brauncewell Quarries Ltd	Active	200,000	700,000	2021	Information based on 2007 application.
Dunston	Len Kirk Plant Hire Ltd	Active	50,000-80,000	almost worked out	2018	Information based on 2017 application
Metheringham Heath	Longwood Quarries Ltd	Active	(1)	1,250,000	#2042	Information based on 2006 application
Harmston	Harmston Waste Management	Active	30,000	135,000	2022	Information based on 2016 application
Castle Quarry (Ancaster)	Goldholme Stone	Active	(1)	850,000	#2049	Information based on 2007 application
Copper Hill Quarry (Ancaster)	Ancaster Copper Hill Stone	Active	30,000	1,325,000	#2044	Information based on 2013 application
South Witham	Breedon	Active	150,000-200,000	2,586,000 (South of Mill Lane) (2)	2025-2028	Information based on 2017 application
South Witham	Mick George	Inactive	Inactive	Nil (South of Mill Lane) 4,250,000(North of Mill Lane) (3)	#2042	Estimate of reserves incorporates information from 2014 application
Creeton	Creeton Quarry Ltd	Active	100,000	2,850,000	#2042	Information based on 2011 application
Station Quarry, Great Ponton	Harmston Waste Management	Active	100,000	1,350,000	#2055	Information based on 2011 ROMP application
Little Ponton	Geo Quarries Ltd	Active	30,000-100,000	6,750,000	#2042	Information based on 2013 ROMP application
Colsterworth Triangle	CESL	Active	150,000	925,000	#2026	Information based on 2015 application
Ropsley	Roplsey Quarry Ltd	Inactive	Not specified	1,530,000	#2042	Information based on 2012 ROMP application

* The overall sales and reserves include an average of 22% non-aggregate. # Expiry of permission ^Colsterworth has been excluded from this table as it is primarily a landfill site
(1) The Quarry operates primarily for building stone, but periodically may produce significant quantities of aggregate
(2) Includes application with a Committee resolution to grant planning permission subject to the completion of a S106 and excludes reserves to be surrended.

(3).Includes land not under the control of Mick George, but not the reserves to be "surrendered" by Breedon under the S106.(see above)

Table 13: Productive Capacity of Chalk Sites (October 2017)

Site	Operator	Current Status	Planned Production Level (tonnes per annum)*	Estimated Reserves (tonnes)*	Estimated life of the reserves (year of depletion)	General Comment
South Thoresby	GBM	Active	Unknown	350,000	Unknown	Based on recent sales brochure for the site
Highfield Quarry (Welton le Marsh)	Welton Aggregates Ltd	Active	Not specified	2,000,000	#2042	Information based on 2002 IDO application
Tetford Hill	JEG Farms	Inactive	To be determined	To be determined	#2042	The site is currently subject to a ROMP application which may affect the maximum production level and the amount of permitted reserves.
Nettleton Bottom	Able UK Ltd	Inactive	60,000	597,000	10 years from re-commencement	Information based on 2014 ROMP application

Expiry of permission

Exports and imports of Crushed Rock

3.39 The information available for the distribution of sales for crushed rock extracted in Lincolnshire is currently limited to the data compiled for the full Aggregate Monitoring Surveys, the latest surveys being carried out in 2009 and 2014. The analysis of these surveys remains unchanged from the previous LAA.

3.40 There were no significant changes in the distribution data for crushed rock extracted in Lincolnshire in the years 2009 and 2014, as shown in Table 14. In both years, most of the crushed rock went to destinations within the County (84.6% in 2009 and 87.2% in 2014). The largest markets outside the county were elsewhere in the East Midlands, particularly the adjacent County of Leicestershire (11.9% in 2014). The limited market for Lincolnshire's crushed rock reflects its limited uses as an aggregate.

Table 14: Distribution of Crushed Rock Sales from Lincolnshire in 2009 and 2014

		2009		2014	
Destination		**Tonnes***	**%**	**Tonnes#**	**%**
East Midlands	Lincolnshire	323,149	84.6	328,862	87.2
	Leicestershire/Rutland	5,000	1.3	44,896	11.9
	Unknown	40,000	10.5		
West Midlands		8,787	2.3		
East of England		5,000	1.3		
Unallocated				3,433	0.9

*Source: *EMAWP AM2009 Survey #Lincolnshire LAA May 2017*

3.41 Imports of crushed rock into Lincolnshire totalled 317,000 tonnes in 2009 which rose to 446,000 tonnes in 2014 (Collation of the Results of the 2009 Aggregate Minerals Survey for England and Wales, DCLG October 2011). Lincolnshire was therefore a net importer of crushed rock in both years, but with a higher amount (398,000 tonnes) in 2014. The EMAWP 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).

3.42 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. Higher quality aggregates suitable for road surfacing or for concrete production must therefore be imported. It is likely that Lincolnshire will continue to rely on imported, higher quality crushed rock to supply projects that require this material, principally from Derbyshire and Leicestershire. During the preparation of the CSDMP, neither Derbyshire County Council nor Leicestershire County Council have identified any supply issues.

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 (Construction, Demolition and Excavation Waste)

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.

4.5 In 2017 the Council commissioned an update of its Waste Needs Assessment to inform and support the preparation of the Lincolnshire Minerals and Waste Local Plan. The Waste Needs Assessment Update (2017) (WNAU) includes a summary of the CD&E Waste arisings generated in Lincolnshire based on the latest data (2015) from the Environment Agency's Waste Data Interrogator (WDI) and assesses the existing waste management capacity. The WNAU acknowledges the limitations of the data and, in particular, that waste arising from the construction and demolition industries is difficult to measure. This is because:

- firstly, 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

- secondly, 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 by the WNAU 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 The WNAU reports that C&D 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. An analysis of the waste categories in the WDI enabled the separation of data on C&D waste from Excavation waste.

4.7 Table 15 shows the total C&D waste arisings and deposits in Lincolnshire (i.e. C&D waste arising in Lincolnshire and managed in Lincolnshire, C&D waste arising in Lincolnshire and deposited outside Lincolnshire (exports), C&D waste arisings outside Lincolnshire but deposited in Lincolnshire (imports) and total waste managed within Lincolnshire) from 2008 to 2015. There was a significant decline in C&D waste between 2008 and 2011. Since that time arisings have generally increased. The relatively high level of arisings in 2008 was largely the result of a deposit of "mixed construction waste" at one landfill site in Lincolnshire, which may have contained excavation waste (Brauncewell Quarries recorded 294,831 tonnes of mixed construction waste deposited in 2008 reducing to 84,318 tonnes in 2009 and 46,748 tonnes in 2010 after which no deposits are recorded). It should be noted that the quantity of excavation waste is significantly higher in recent years than C&D waste whereas in 2008 C&D waste arisings were significantly higher than excavation waste arisings. It appears possible that C&D waste recorded as mixed construction waste in 2008 included a significant quantity of excavation waste, but there is no way of verifying this.

Table 15: Lincolnshire C&D waste arisings and deposits, 2008 to 2015

	2008	2009	2010	2011	2012	2013	2014	2015
C&D waste arising and deposited in Lincolnshire	367,875	126,770	108,768	103,066	164,711	161,665	171,984	205,102
C&D waste arising and deposited outside Lincolnshire (exported)	29,694	159,215	62,526	29,249	57,802	54,261	53,508	48,956
Total C&D waste arisings in Lincolnshire	**397,569**	**285,985**	**171,294**	**132,315**	**222,513**	**215,925**	**225,492**	**254,058**
C&D waste arising outside Lincolnshire and deposited in Lincolnshire (imported)	47,309	66,247	37,679	29,819	19,273	70,067	54,207	83,658
Total C&D waste managed within Lincolnshire	**415,184**	**193,017**	**146,447**	**132,885**	**183,984**	**231,731**	**226,191**	**288,760**

Source: Waste Needs Assessment Update 2017

4.8 The WNAU concludes that continuing economic recovery and the development projects in the County mean that the quantity of C&D waste is likely to increase further rather than stagnate or reduce. It also acknowledges that the primary arisings of 254,058 tonnes are not truly indicative of the quantity of C&D waste that needs to be managed if the Lincolnshire Minerals and Waste Local Plan is to deliver a net self-sufficient outcome. These arisings are mainly managed at transfer station (55%) and at treatment facilities (12%). Approximately 75% of that material (i.e. 191,321 tonnes) is removed from permitted sites within Lincolnshire and sent to other sites within Lincolnshire or outside Lincolnshire as secondary arisings. These secondary arisings have also been taken into account in assessing local management capacity needs.

4.9 Data on excavation waste in 2015 includes waste arising and managed in Lincolnshire, waste arising in Lincolnshire but sent outside Lincolnshire (exports), and waste arising outside Lincolnshire but deposited in Lincolnshire (imports). This information is presented in Table 16 for the years 2008 to 2015.

Table 16 Excavation waste in Lincolnshire, 2008-2015

	2008	2009	2010	2011	2012	2013	2014	2015
Excavation waste arising and deposited in Lincolnshire	119,470	149,296	186,256	147,585	292,938	228,962	249,964	309,236
Excavation waste arising and deposited outside Lincolnshire (exported)	150,993	272,628	103,445	136,523	138,443	112,196	131,202	107,353
Total excavation waste arisings in Lincolnshire	**270,463**	**421,924**	**289,701**	**284,108**	**431,381**	**341,159**	**381,166**	**416,589**
Excavation waste arising outside Lincolnshire and deposited in Lincolnshire (imported)	47,309	72,759	165,672	102,578	81,028	16,044	19,703	32,895
Total excavation waste managed within Lincolnshire	**166,779**	**222,055**	**351,928**	**250,163**	**373,966**	**245,007**	**269,667**	**342,131**

Source: Waste Needs Assessment Update 2017

4.10 The excavation trend from 2008 to 2015 is different from that of C&D wastes, with a significant increase in excavation seen in 2009 and 2012. The increase in 2009 could be attributed to a single development project and the increase in 2012 is due to excavation of large quantities of materials in preparation for the construction of the North Hykeham Energy from Waste facility. The WNAU concludes that arisings are likely to continue to be variable depending on the timing of specific development projects. In light of potentially increased activity following the emergence of the national and local economy, a baseline of 500,000 tonnes of excavation arisings per annum used in the previous WNA is applied in the update.

4.11 Table 17 summarises the baseline CD&E arisings in Lincolnshire in 2015 and the management routes that were used for updating the WNA model.

Table 17 Summary baseline CD&E arisings in Lincolnshire, 2015

Sub-stream	Arisings	Landfill	Transfer	Treatment	Recycling
C&D primary arisings in Lincolnshire	254,058	16,149	146,708	63,805	27,396
Managed offsite (secondary arisings)**	191,321	398	10,428	462	143,846
C&D arisings to be managed	**445,379**	**16,547**	**157,136**	**64,267**	**171,242**
Excavation waste arisings	500,000	200,897	72,282	188,764	38,057

***Includes 69,072 tonnes of C&D waste exported and 36,177 tonnes of C&D waste managed within Lincolnshire recorded with unknown destination.*

Source: Waste Needs Assessment Update 2017

4.12 Operational C&D waste management sites within Lincolnshire are set out in Table 18 below. Whilst there may be other transfer facilities managing C&D waste, Table 18 shows the main sites dealing with this waste stream.

Table 18: Waste Management Facilities accepting Construction and Demolition Wastes in Lincolnshire

Site	District	Facility Type
Lindum Group Ltd	West Lindsey	Transfer stations (hazardous)
Monksview Demolition Ltd	South Holland	Transfer stations (hazardous)
Sid Dennis & Sons Ltd	East Lindsey	Transfer stations (hazardous)
The Warehouse, Riverside Industrial Estate	Boston	Transfer stations (hazardous)
Westville Farm Transfer Station	East Lindsey	Transfer stations (hazardous, C&I and CD&E))
Bourne Skip Hire & Recycling	South Kesteven	Transfer stations (CD&E)
G B M Waste Management	East Lindsey	Transfer stations (CD&E)
Len Kirk Plant Hire	North Kesteven	Transfer stations (CD&E)
Bardney tyre Recycling	WestLindsey	Transfer (CD&E only)
M&M Services (skip hire)	East Lindsey	Transfer (CDE)
Fox Plant (Caenby Hall)	West Lindsey	Transfer (CD&E)
Caenby Hall Transfer Station	West Lindsey	Transfer (CD&E)
Rilmac Holding Skips	Lincoln	Transfer (Hazardous, C&I and CD&E)
Monks View Demolition	South Holland	Transfer (Hazardous C&I and CD&E)
The Old Bottle Yard	Lincoln	Transfer (CD&E)
Vacu Lug Traction Tyres Ltd	South Kesteven	Transfer (CD&E)
Mushroom Farm	Lincoln	Recycling (CD&E)
The Grange, Caistor Road	West Lindsey	Transfer (CD&E)

Mid UK Recycling ltd	South Kesteven	Recycling (C&D)
Brauncewell Quarry Transfer Station	North Kesteven	Recycling (C&D)
Dunston Quarry	North Kesteven	Recycling (C&D)
Highfield Quarry	East Lindsey	Recycling (C&D)
South Witham Quarry	South Kesteven	Landfill Inert (CD&E)
Whisby Quarry	South Kesteven	Recycling (CD&E)
Harmston Quarry	North Kesteven	Recycling (CD&E)
Kirkby on Bain Quarry	East Lindsey	Recycling (C&D)
Longwood Quarry	North Kesteven	Recycling (C&D)
Mansgate	East Lindsey	Recycling (C&D)
Park Farm Quarry Tattershall	East Lindsey	Recycling (C&D)
South Thoresby Quarry	East Lindsey	Recycling (C&D)
Swinderby Quarry	North Kesteven	Recycling (C&D)
Kettleby Quarry	East Lindsey	Recycling (C&D)
North Hykeham Quarry	North Kesteven	Recycling (C&D)
Colsterworth	South Kesteven	Recycling (C&D)
Copper Hill	South Kesteven	Recycling (C&D)
Mansgate	West Lindsey	Recycling (CD&E)
Harlaxton Engineering	South Kesteved	Recycling (CD&E)
Great Ponton (Station) Quarry	South kesteven	Recycling (CD&E)
Swinderby Quarry	North Kesteven	Recycling (CD&E)
Brauncewell Quarry	North Kesteven	Landfill (inert)
Colsterworth Triangle	South Kesteven	Landfill (inert)
Creeton	South Kesteven	Landfill (inert)
Harmston Quarry	North Kesteven	Landfill (inert)
South Thoresby	East Lyndsey	Landfill (inert)
South Witham (East)	South Kesteven	Landfill (inert)
Whisby Quarry	North Kesteven	Landfill (inert)

Source: Waste Needs Assessment Update 2017

4.13 Whilst the data currently available is not considered to be suitably robust to enable a recycling target to be set for Lincolnshire, the adopted CSDMP sets out criteria for the development of construction and demolition waste facilities. This includes Policy M1, which states that planning permission will be granted for recycling/reprocessing of materials for use as secondary or recycled aggregates in appropriate locations as specified in Policy W4, provided that the proposals accord with all relevant Development Management Policies set out in the Plan.

4.14 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.

4.15 The Council's Waste Needs will be periodically reviewed and the findings will be reported in subsequent Local Aggregate Assessments.

Secondary Aggregate

4.16 The WNAU states that 32,761 tonnes of incinerator bottom ash was produced by the Energy from Waste Plant at North Hykeham that was exported for recycling into aggregates.

5 Marine Won Aggregates

5.1 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 / North East Dredging Area. There are 7 dredging licences in place in this area permitted for the removal 4.7mt of material per annum. In 2016 1.35mt of material was dredged from the permitted licensed tonnage with another 0.45mt dredged for beach nourishment and 0.013mt for reclamation fill purposes[2].

5.2 The latest distribution figures (2014) for material dredged from the Humber/North East region indicated that 66.1% was delivered to mainland Europe, 27.3% to the Humber/North East, 6.4% to the Thames Estuary and 0.02% to the South Coast[3] . However locally the 2016 figures for landings of material to the Humber wharves reflect the continuation of a steady decline in this area over the last 10 years with only 17.5% (0.117mt) landed. The remainder was delivered to wharfs in Blythe and on the Rivers Tyne and Tees, with no material commercially landed in Lincolnshire.

5.3 For Lincolnshire this 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 although there are wharfs at Gainsborough, Sutton Bridge and Fossdyke they are not equipped for landing aggregates. However there are suitable and large deep water ports in North East Lincolnshire at both Grimsby and Immingham that are not at present utilised to provide wharfage for landing mineral from the Humber dredging area. This might suggest that when viewed in conjunction with the declining landings for the area, direct access to ready markets and lack of demand in the Humber/Lincolnshire area could be the limiting factor for local growth in the marine aggregates sector.

5.4 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 Sea Defence scheme which is underway to protect the coast between Mablethorpe and Skegness. The Environment Agency 'Lincshore' nourishment scheme 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

[2] Marine Aggregates, Summary of Statistics 2016, Crown EstateUpdate references

[3] Marine Aggregates Capability and Portfolio 2015, Crown Estates (http://www.thecrownestate.co.uk/media/389767/ei-marine-aggregates-2014.pdf

total of 6.21 million cubic metres of sand and gravel, dredged offshore was added to the Lincshore coast. In 2016 445,406 tonnes of material was used and 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)

5.5 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 is will be continued activity off the coast Lincolnshire that is transported to other areas both in the UK and abroad and 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 Local Aggregate Assessments 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 There have been no changes to the population projections since the previous LAA. During the period of the LMWLP (2014-2031) the population is projected to increase by 10.6% in the County (Table 19). At a district level, the largest increases would occur in the south of the County (South Kesteven, 13.2% and South Holland, 12.7%) with the lowest increase in the north east (East Lindsey, 7.0%).

Table 19: Population Projection from 2014 to 2031

Administrative Area	Population		Increase in population (%)
	2014	2031	
Boston	66,458	74,388	11.9
East Lindsey	137,623	147,237	7.0
Lincoln	96,202	104,065	8.2
North Kesteven	111,046	123,825	11.5
South Holland	90,419	101,887	12.7
South Kesteven	137,981	156,167	13.2
West Lindsey	91,787	101,223	10.3
Lincolnshire	**731,516**	**808,792**	**10.6**

Source: Lincolnshire Research Observatory: population projection tool based on Office for National Statistics Subnational population projections for England 2014)

Planned/Proposed Housing Provision

6.3 The Practice Guidance on the Production and Use of Local Aggregate Assessments (December 2016) (Planning Officers Society and Mineral Products Association) recommends comparing planned levels of housing provision with housing completions over the previous 10 years to provide an indication of relative scale and therefore of potential implications for aggregate demand and supply. In terms of the previous provision, Table 20 sets out the net additional dwellings for the County and for each district for the 10 year period 2006-7 to 2015-16.

Table 20: Housing Supply - Net Additional Dwellings for each District for the 10 Year Period 2006-07 to 2015-16

Administrative Area	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	Average
Lincolnshire	**4,760**	**4,530**	**3,410**	**3,350**	**2,610**	**2,220**	**1,750**	**2,110**	**2,500**	**2,220**	**2,946**
Boston	340	580	360	170	170	90	60	170	110	180	223
East Lindsey	800	610	660	1,000	310	260	230	340	490	320	502
Lincoln	600	570	330	430	470	440	210	250	170	130	360
North Kesteven	920	710	540	520	620	570	320	240	440	470	535
South Holland	380	590	450	320	240	170	200	250	260	290	315
South Kesteven	910	840	610	470	500	470	490	530	650	500	597
West Lindsey	800	620	460	440	300	220	240	320	390	330	412

Source: DCLG Table 122 Live tables on housing supply: net additional dwellings (15 November 2016)

6.4 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);
- East Lindsey District Council is producing a local plan in two parts: a Core Strategy and a Settlement Proposals Document. The Core Strategy (Submission Modification Draft) covers the period February 2016 -2031. This makes provision for the phased delivery of homes as follows: 2016-2021, an average of 591 per annum; 2021-2025, an average of 481 homes per annum; 2025-2031, an average of 482 homes per annum;
- South Kesteven District Council is producing a new local plan to cover the period from 2011 to 2036. The consultative Draft Local Plan (2017) which incorporates an updated strategic Housing Market Assessment sets out the need for the annual delivery of 625 homes over the plan period.
- A joint local plan is also being 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 is now in its examination stage and was submitted to the Secretary of State in June 2017. An updated Housing Implementation Strategy (to include completions as at 31 March 2017) June 2017, makes provision for a net increase in dwellings of 302 per annum in Boston Borough and 445 in South Holland.

6.5 The provision made in the above emerging plans amounts to an average of between 3393 and 3503 (net) dwellings per annum for Lincolnshire. Table 21 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:

- the boundaries of the Production Areas do not strictly coincide with the district boundaries; and
- 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 21: Comparison of Net Additions to Housing Stock over the past 10 Years to Planned/Proposed Net Housing Provision to 2031

Production Area	Administrative Area	Average annual net additions to housing stock 2006-16 **(A)**	Planned/Proposed net housing provision to 2031 in recently adopted and emerging local plans (average per annum) **(B)**	Percentage increase of planned housing provision **(B)** over the previous 10 year average **(A)**
Lincoln/Trent Valley	Lincoln	360	1540	17.8
	North Kesteven	535		
	West Lindsey	412		
	Total for Lincoln/Trent Valley	**1307**	**1540**	**17.8**
Central Lincolnshire	East Lindsey	502	518	3.2
	Boston	223	302	35.4
	Total for Central Lincolnshire	**725**	**820**	**13.1**
South Lincolnshire	South Holland	315	445	41.3
	South Kesteven	597	625	4.7
	Total for South Lincolnshire	**912**	**1070**	**17.3**
	County Total	**2,946**	**3,430**	**16.4**

Source: *Adopted and emerging local plans in Lincolnshire (October 2017)

6.6 This table indicates that the annual level of planned/proposed housing provision set out in the adopted/emerging local plans is higher than the annual levels of net additional dwellings achieved in the previous 10 year period. For the County as a whole, this amounts to an increase of 16.4%. The highest levels are in the south east of the County (South Holland, 41.3%) and the lowest in the north east (East Lindsey, 3.2%). They therefore, in part, reflect the population projections.

Economic Conditions

6.7 A 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.

6.8 Despite these issues, the assessment states that the county's economy is set to grow up to 2030 at an average rate of around 2.3% per year which is slightly over that seen for 2016 (2.0%). The most recent figures show UK GDP growth at a modest 0.2-0.3% per quarter[4], with the construction industry struggling in particular with output decreasing 1.3% in the last quarter (3rd quarter 2017). There has been some reported growth in manufacturing and in confidence for the East Midlands Region as a whole, however current data would indicate that overall and for the time being, a period of constrained growth and uncertainty will continue for a while longer. [4]

Infrastructure

6.9 The National Infrastructure Delivery Plan 2016-2021 (Infrastructure and Projects Authority) identifies two key projects and programmes in Lincolnshire which will have an impact on the demand for aggregate:

- The Lincoln Eastern Bypass – which aims to minimise traffic congestion, support Lincoln's growth as a principal urban centre, and serve as a step towards the completion of an eventual ring road around Lincoln;
- The Boston Barrier (and associated work to existing defences) – which will reduce the risk of flooding to around 15,0000 properties over the next 100 years. Construction is scheduled to start in 2017 with an anticipated completion date in late 2019.

6.10 A further scheme identified in the plan, Lincshore, is a flood defence scheme covering beaches from Mablethorpe to Skegness. This, however, only uses sand dredged from the sea bed which is pumped onto the beach to replace levels lost to the sea during the winter.

6.11 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

[4]Lincolnshire Research Observatory: Lincolnshire Economic Briefing Q3 2017

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:

- 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;
- Lincoln Central Transport Hub (a new bus station, pedestrian footbridge and car park and connecting to the Science and Innovation Park, improving transport links to attract new investment), which is currently under construction;
- Tentercroft East-West Growth Corridor, Lincoln (mixed use development to enhance public transport and pedestrian flows to enable the development of new housing and employment sites, which was completed at the end of 2016;
- Boston Quadrant, Phase 1 (mixed use development that will enable housing and employment land to be developed and deliver a new distributor road to reduce congestion in the town centre, which is currently under construction.

Calculating Aggregate Provision/Landbanks

6.12 Some of the local considerations set out above indicate that the annual demand for aggregate up to 2031 could be higher than in the preceding 10 year period. In practice, however, this may not be the case for the following reasons:

- Attempts to link future aggregate demand 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 significantly revise the basis for calculating the landbank in subsequent LAAs.
- The Local Economic Assessment is relatively old (2011), and the growth forecast has not resulted in a significant increase in aggregate demand in the intervening period.
- Recent updates to the Local Economic Assessment for Lincolnshire have indicated that a period of constrained growth and uncertainty will continue for a while.
- Although most of the infrastructure projects identified have been commenced, the average sales for sand and gravel in each Production Area during the past three years has only exceeded the 10 year average in the Lincoln/Trent Valley Production Area, and then only marginally.
- Whilst limestone sales rose sharply in 2016, this may be an isolated spike associated with a specific infrastructure project - particularly as the three year average still remains below the 10 year average.

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

6.13 **It is considered that the future levels of provision of sand and gravel and crushed rock that need to be made, and the means of calculating the landbanks, should continue to be based on the average of the last 10 years of sales (2007-2016). This will need to be kept under close review in subsequent LAAs, given the factors identified in this Assessment.**

7. Future Provision

Crushed Rock

7.1 Lincolnshire has sufficient permitted reserves of crushed rock to last well beyond the period of the CSDMP which ends in 2031 (see Chapter 4). The County Council has therefore not allocated further sites in the Site Locations document. Policy M5 (Limestone) and Policy M6 (Chalk) of the CSDMP do, however, 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 Plan.

Sand and Gravel

7.2 At the end of 2016, Lincolnshire had sufficient permitted reserves of sand and gravel for all three Production Areas, based on average sales over the period 2007-2016, to meet the 7 year minimum landbank . Further reserves will, however, need to be released to maintain production over the period of the CSDMP. The Site Locations document proposes to do this by:

- continuing the provision of sand and gravel from the remaining reserves (see Table 5 for the latest indicative position);
- the provision of sand and gravel from extensions to the Whisby Quarry (awaiting a S106 Agreement) and the Kirkby on Bain Quarry (subsequently granted planning permission); and
- granting planning permission for sand and gravel working from the sites allocated in the plan, subject to the proposals being in accordance with the development plan.

7.3 The Site Locations document 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. As some of these sites would not be required until well into the plan period, at current production levels they would only be partially worked during this period. Table 22 (taken from the Site Locations document) therefore indicates how the requirement for a steady and adequate supply of sand and gravel would be met from the allocated sites.

Table 22: Sites included in the Site Locations document for the Extraction of Sand and Gravel and the Estimated Contribution to the Shortfall in the Provision of Sand and Gravel 2014-2031

Production area (and shortfall)	Site reference	Site name	Total reserves	Estimated Contribution to the Shortfall
Lincoln/ Trent Valley **(shortfall 4.56 mt)**	MS04-LT MS05-LT	Swinderby Airfield Norton Bottoms Quarry, Stapleford	7.0mt 6.8mt	2.25mt 2.31mt
Total			13.8mt	**4.56mt**
Central Lincolnshire **(shortfall 1.21mt)**	MS07/08-CL MS09-CL	Kettleby Quarry, Bigby	3.25mt	0.86mt
	MS15-CL	North Kelsey Road Quarry, Caistor	0.15mt	0.13mt
		Kirkby on Bain (Phase 2)	3.1mt	0.22mt
Total			6.5mt	**1.21mt**
South Lincolnshire **(shortfall 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
Total			7.7mt	**5.35mt**

Source: Lincolnshire Minerals and Waste Local Plan: Site Location (Pre-Submission Draft)

7.4 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.

7.5 The level of provision made in the Site Locations document is based on the average 10 years' sales for the period 2004-2013 (in accordance with Policy M2 of the adopted CSDMP). Since 2013 annual aggregate sales in both the Central Lincolnshire and South Lincolnshire Production Areas have consistently fallen below the annual provision rates set out in Policy M2, whilst sales in the Lincs/Trent Valley production have only been marginally above the rate set for this area. In effect this represents under production of 0.6Mt that would now be available (subject to planning permission) during the remainder of the plan period.

7.6 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.

Conclusion

7.7 Based on the average of the last 10 years of sales data (2007-2016), the County Council considers that it is making more than sufficient provision for the supply of sand and gravel and crushed rock for the period of the Lincolnshire Mineral and Waste Local Plan, which ends in 2031. This is through existing permitted reserves, applications with committee resolutions to grant planning permission subject to the completion of S106 agreements (one of which has since been granted), and the sites allocated in the Site Locations document. Even if sales were to rise significantly in the near future, the LMWLP is likely to provide sufficient flexibility to accommodate increases in production.