LINCOLNSHIRE
LOCAL AGGREGATE ASSESSMENT
(reporting 2015 data)

May 2017

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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 fourth LAA for Lincolnshire and incudes the most recent published aggregate sales and reserves data for the County relating to 2015. It is also the first 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 11 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, 3 in Central Lincolnshire and 5 in South Lincolnshire. In 2015 sales for the County amounted to 2.19 million tonnes (mt), the same as the 10 year average of sales for the period 2006 to 2015. At a sub-county level, sales in 2015 were 1.02mt in the Lincoln/Trent Valley, slightly higher than the 10 year average (0.91mt); 0.41mt in Central Lincolnshire, slightly lower than the 10 year average (0.46mt); and 0.76mt in South Lincolnshire, slightly lower than the 10 year average (0.82mt).

After considering local factors 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 24.03mt at the end of 2015 provided a landbank of 11.0 years. At a sub-county level, the reserves/landbanks were 11.81mt/13.0 years in the Lincoln/Trent Valley; 3.46mt/7.5 years in Central Lincolnshire; and 8.76mt/10.8 years in South Lincolnshire.

Since 2015 the County Council has granted a planning permission and resolved to approve two further applications for the extraction of sand and gravel subject to the completion of S106 Agreements. These, together with the sites proposed for allocation in the second part of the Lincolnshire Minerals and Waste Local Plan, the Site Locations (Pre-Submission Draft), would 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 15 limestone quarries in the County (excluding dormant sites). In 2015 sales of limestone amounted to 0.43mt, slightly below the 10 year average (0.54mt). As with sand and gravel, it is concluded that the landbank should be calculated using the average of the past 10 years of sales (2006-2015). Using this average, the permitted reserves of limestone (30.97mt) provide a landbank of 57.4 years, which will last well beyond the period of the Lincolnshire Minerals and Waste Local Plan. No sites are therefore proposed for allocation in the Site Location (Pre-Submission Draft).

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 2015 were likely to be below 150,000 tonnes. With estimated reserves of 3.05mt, this would give a landbank of over 20 years. As with limestone, no sites are therefore proposed for allocation in the Site Locations (Pre-Submission Draft).

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

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 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 is being prepared in two parts. The first part, **the Core Strategy and Development Management Policies (CSDMP)** document is complete and was adopted by the County Council on 1 June 2016. This document 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 was published as a "Pre-Submission Draft" on 7

November 2016 and was subsequently submitted to the Secretary of State for examination in April 2017. This document 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 The CSDMP has replaced the former Lincolnshire Minerals Local Plan (1991) and most of the policies in the Lincolnshire Waste Local Plan, with the exception of Policies WLP2, WLP6 and WLP12 of that document. These policies are saved until the Site Locations document, has been adopted.

1.14 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.

1.15 Policy M2 of the CSDMP makes provision for the release of 42.66mt of sand and gravel (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 County Council's previous Local Aggregate Assessment (2015). This provision is split between the three production areas as follows:

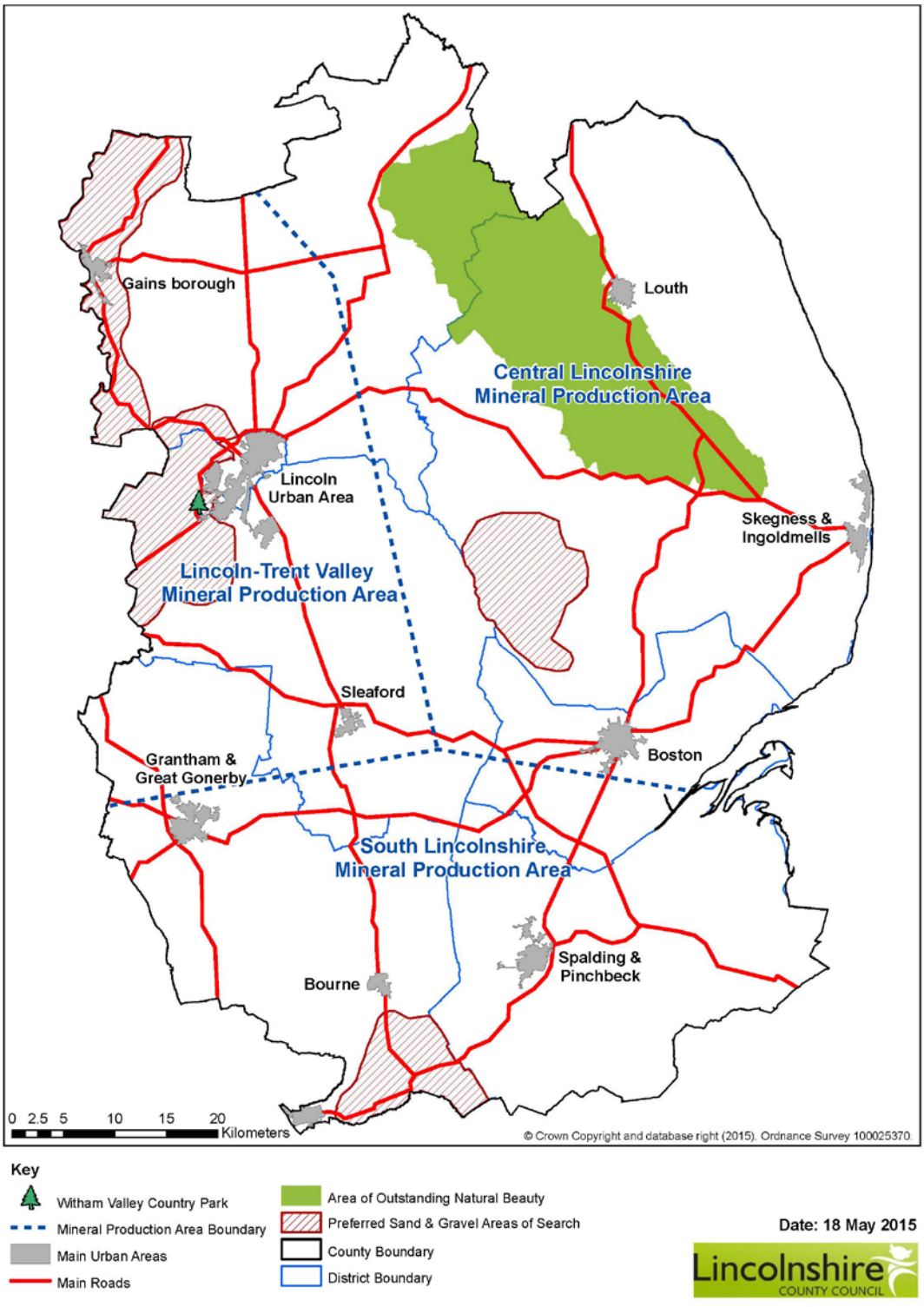
- Lincoln/Trent Valley, 35.28mt (1.68mt per annum);
- Central Lincolnshire, 12.6mt (0.6mt per annum); and
- South Lincolnshire, 21mt (1mt per annum).

1.16 The policy states that provision for the release of this sand and gravel will be through the Site Locations document, which will give priority to extensions to existing Active Mining Sites. New quarries will, however, 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. The Site Locations document (Pre-Submission Draft) allocates eight sites for the winning and working of sand and gravel.

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 Sand and gravel are defined on the basis of particle size as opposed to composition. The term 'gravel' is used to describe material coarser than 4mm, with a maximum size of 40mm. 'Sand' is described as material that is finer, but coarser than 0.063mm. Material with a particle size of less than 0.063mm is classed as 'fines'.

2.2 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).

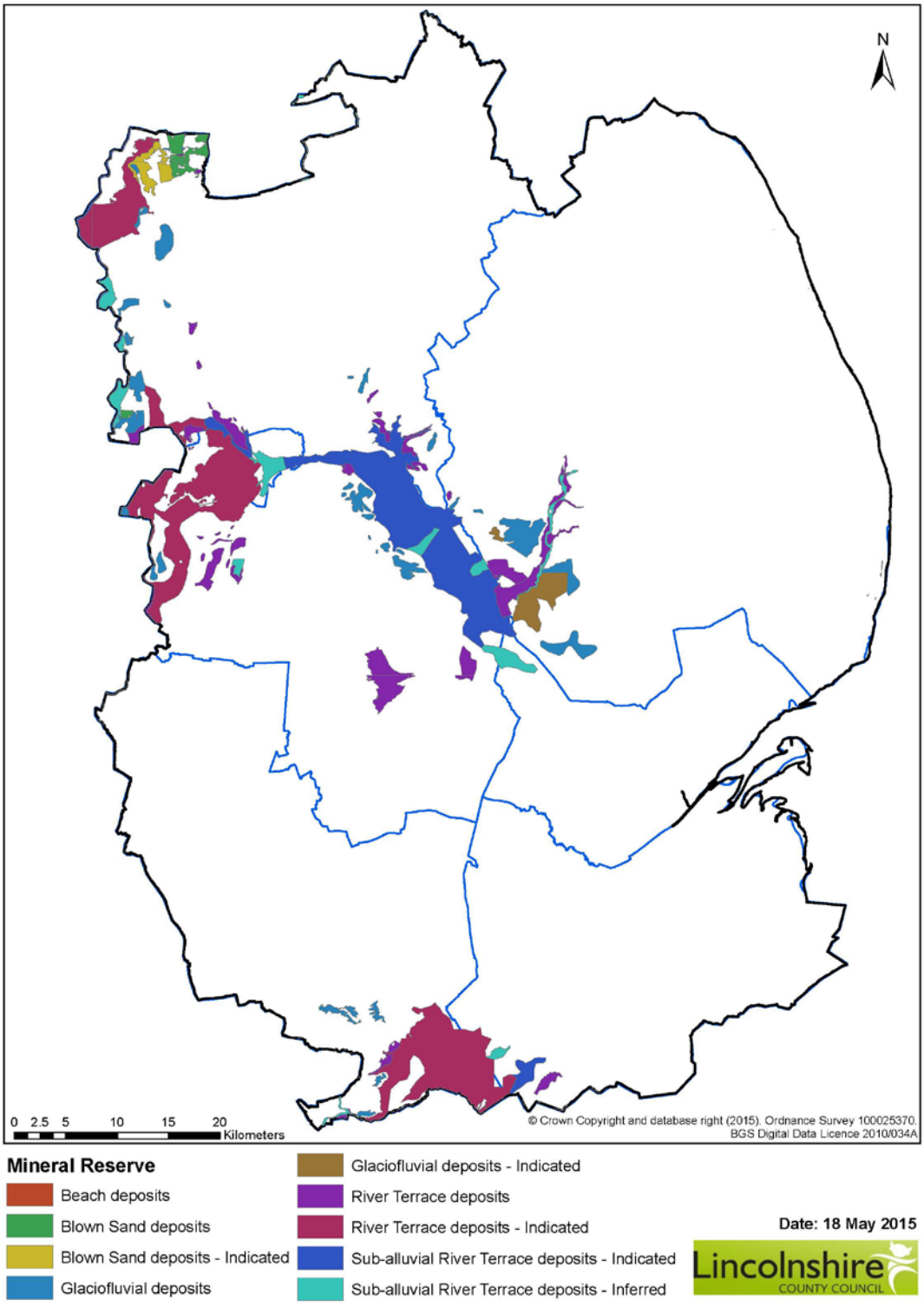
2.3 In 2010, the County Council commissioned the BGS to reassess the sand and gravel resources identified in the MARs and identify potential resources in areas of the county not covered by the MARs. The subsequent Lincolnshire Sand and Gravel Assessment (External Report CR/10/049) indicates that the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

2.4 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.

2.5 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

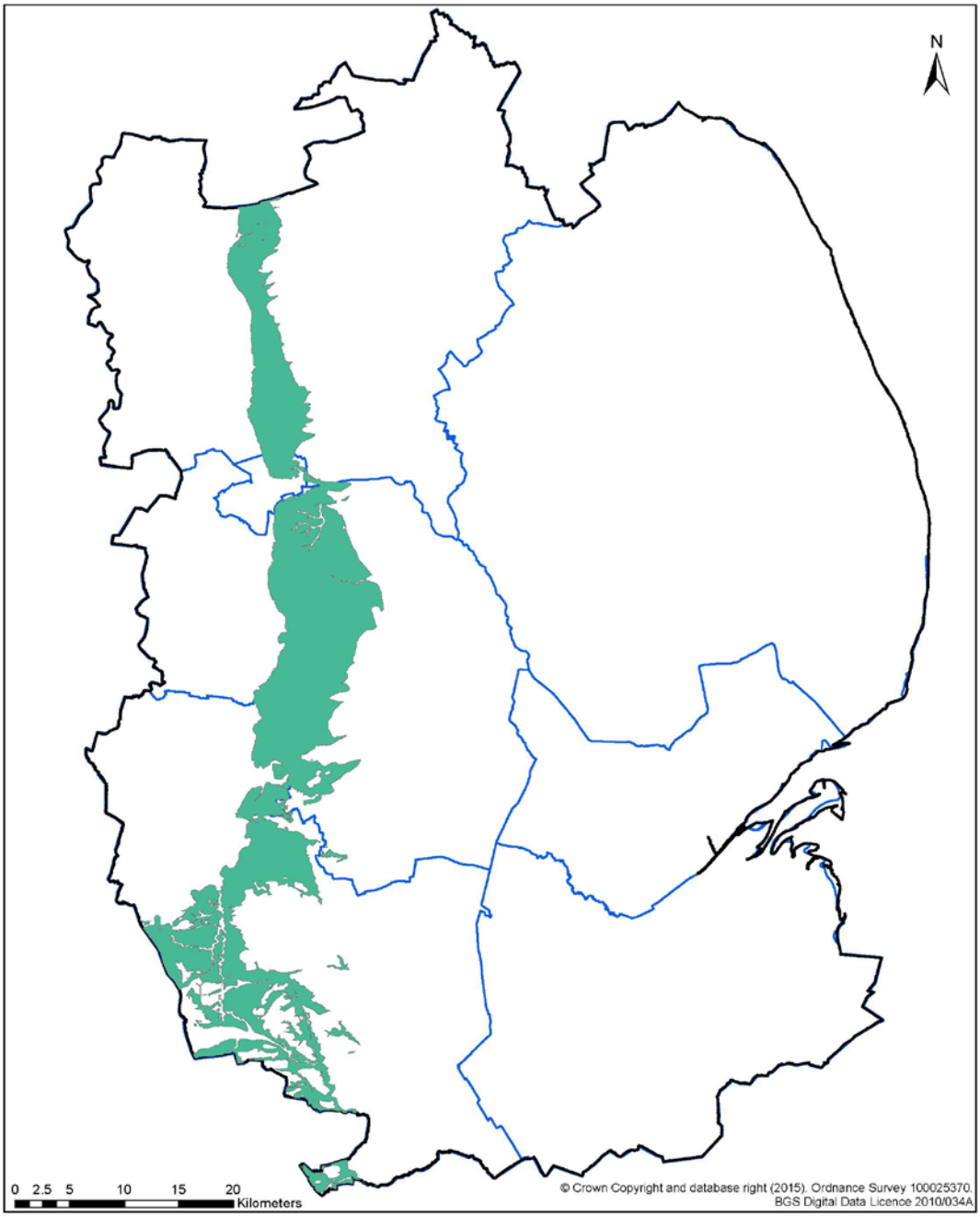
2.6 A variety of hard rocks are, when crushed, suitable for use as aggregates. Their technical suitability for different applications depends on their physical characteristics, such as crushing strength and resistance to impact and abrasion. Higher quality aggregates are required for coating with bitumen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

2.8 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 roadstone material.

2.9 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

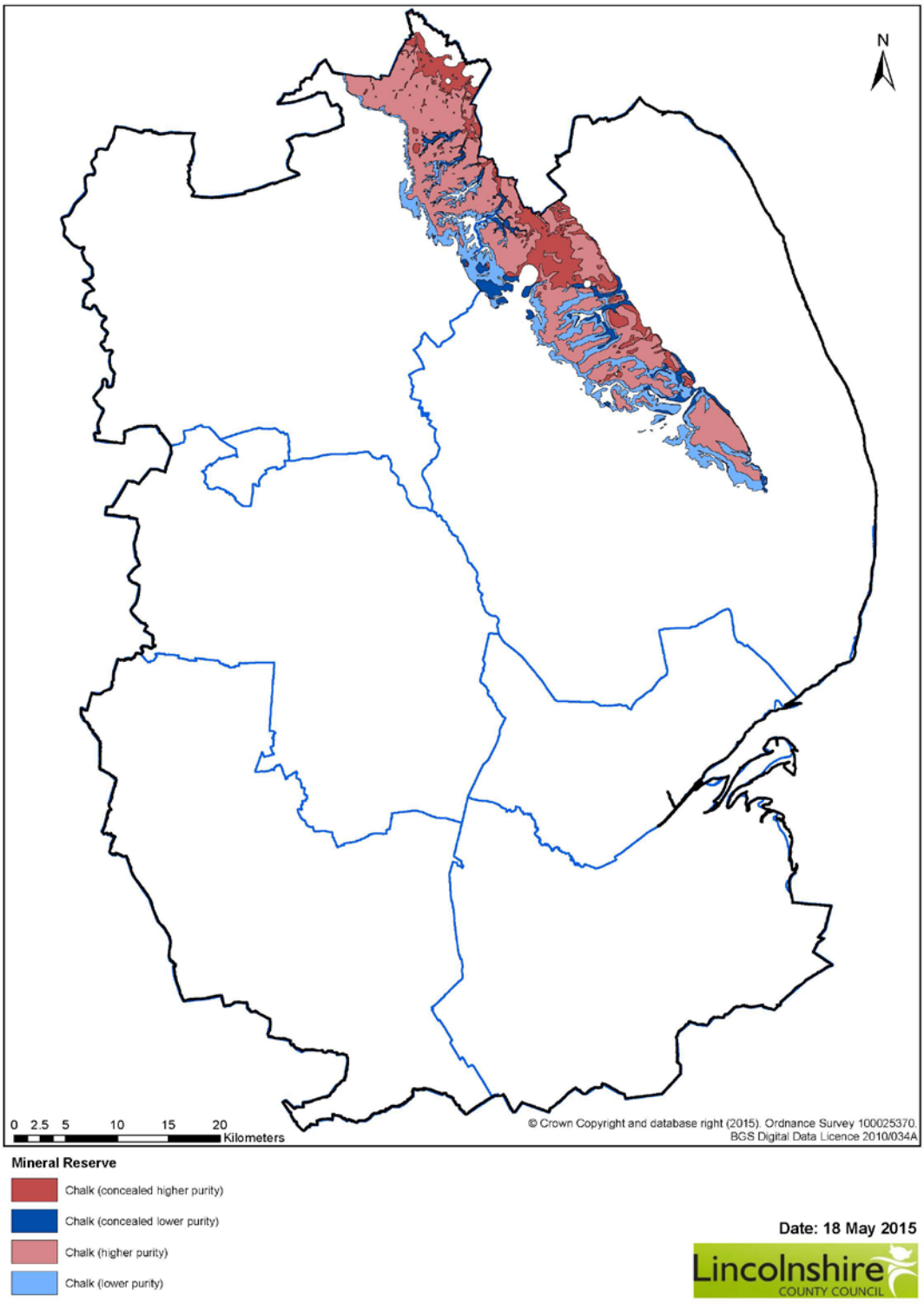


Chalk

2.10 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.

2.11 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 roadstone.

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 2015 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 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

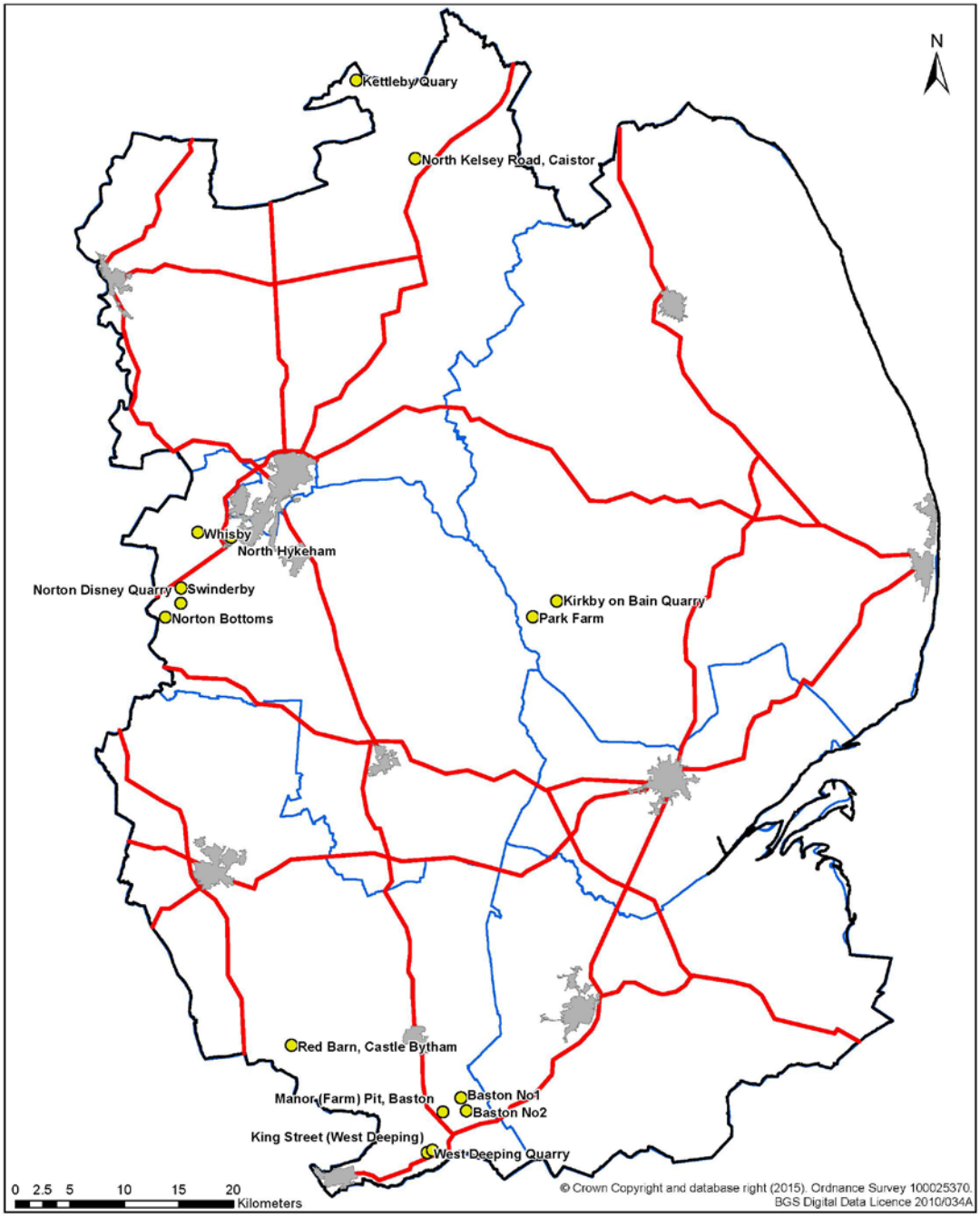
3.4 Table 1 below lists the sand and gravel sites in the County that were included in the 2015 Survey. The table excludes sites classified as Dormant either under the Planning and Compensation Act 1991 or the Environment Act 1995.

Table 1: List of Sand and Gravel Sites included in the 2015 Survey

Site	District	Production Area
Whisby	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	
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 2015
(1) The quarry, which was in production in 2015, is now exhausted and has been replaced by the Swinderby Quarry.
(2) This quarry, which was in production in 2015, is now exhausted with all production being transferred to the Baston No 2 Quarry.

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 in recent years has slightly overtaken that county. Notwithstanding this, over the period 2006-2015, the production of sand and gravel in Lincolnshire as a proportion of the total output in the East Midlands has remained relatively constant, averaging 31.5%.

Table 2: Sales of Sand and Gravel (Aggregate) 2006-2015

Year	East Midlands Region (mt)	Lincolnshire (mt)	Lincolnshire as percentage of Regional Sales
2006	9.92	3.37	34.0
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
Average	6.96	2.19	31.5

Source: EMAWP Annual Monitoring Report 2015

3.6 The County's production of sand and gravel amounted to 2.19mt in 2015, which equals the average annual sales for the 10 year period 2006-15 (see Table 2 above). This average, however, masks the large variations in sales that occurred during that 10 year period - with the highest level of 3.37mt reached at the beginning of the period in 2006, just prior to the recession. For the following three years 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 to just under 2.2mt per annum, but this level is still significantly below the pre-recession level and 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 0.91mt (41.6%). This is followed by the South Lincolnshire Production Area at 0.82mt (37.4%), with the Central Lincolnshire Production Area providing the lowest contribution at 0.46mt (21.0%).

Table 3: Sales of Sand and Gravel 2006-2015

Year	Total Sales (mt)	Production Area					
		Lincoln/Trent Valley		Central Lincolnshire		South Lincolnshire	
		(mt)	%	(mt)	%	(mt)	%
2006	3.37	1.39	**41.2**	0.66	**19.6**	1.32	**39.2**
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**
Av. (2006-2015)	2.19	0.91	**41.6**	0.46	**21.0**	0.82	**37.4**
Av. (2013-2015)	2.07	0.99	**47.6**	0.37	**18.0**	0.71	**34.4**

Source: EMAWP Annual Monitoring Report 2015

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 2013-2015, average annual sales of sand and gravel have amounted to 2.07mt, slightly under the 10 year average of 2.19mt. A more significant variation, however, relates to the relative contributions made by the three production areas to County production during these three years compared with the 10 year averages: the Lincoln/Trent Valley Production Area increasing from 41.6% to 47.6%; the Central Lincolnshire Production Area declining from 21.0% to 18.0%; and the South Lincolnshire Production Area declining from 37.4% to 34.4%. This indicates that during recent years the relative importance of the Lincoln/Trent Valley Production Area has generally increased compared with the situation towards the beginning of the 10 year period.

3.10 *The East Midlands Annual Report 2015 states that the permitted reserves of sand and gravel at the end of that year totalled some 24.03 million tonnes for the county, being comprised of: 11.81 million tonnes within the Lincoln/Trent Valley Production Area; 3.46 million tonnes in the Central Lincolnshire Production Area; and 8.76 million tonnes in the South Lincolnshire Production Area.*

3.11 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 2015)

Production Area	Permitted Reserves as at 31.12.15 (mt)*	Sub-Regional Apportionment 2005-2020+		Lincolnshire Minerals and Waste Local Plan ^		10 Year Average Annual Sales (2006-2015)	
		Annual Rate (mt)	Land-bank (Years)	Annual Rate (mt)	Land-bank (Years)	Annual Rate (mt)	Land-bank (Years)
Lincoln/Trent Valley	11.81	N/A	N/A	1.00	11.8	0.91	13.0
Central Lincolnshire	3.46	N/A	N/A	0.5	6.9	0.46	7.5
South Lincolnshire	8.76	N/A	N/A	0.87	10.1	0.81	10.8
Lincolnshire (Total)	**24.03**	**3.28**	**7.3**	**2.37**	**10.1**	**2.19**	**11.0**

** Source: EMAWP Annual Monitoring Report 2015*
+ 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)
Source: EMAWP Annual Monitoring Report 2015

3.12 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.

3.13 Table 4 shows that at the end of 2015, using all three provision rates, the landbank for the County exceeded seven years' supply. It 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 CSDMP.

3.14 Since the beginning of 2016, three planning applications involving the winning and working of sand and gravel have either been granted planning permission, or have resolutions from the County Council's Planning and

Regulation Committee to grant planning permission subject to the completion of Section 106 Agreements. These comprise:

- a section 73 application that has increased the permitted reserves at the Kirkby on Bain Quarry by about 60,000 tonnes and was granted on 29 September 2016;
- an application to extend the Kirkby on Bain Quarry which will increase the reserves by 3.5mt, subject to the completion of a S106 Agreement; and
- an application to extend the Whisby Quarry which will increase the reserves by 2.2mt, subject to the completion of a S106 Agreement.

3.15 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 2.4 years (based on the 10 year average);
- for the Central Lincolnshire Production Area, by 7.1 years (based on the CSDMP) or 7.7 years (based on the 10 year average); and
- for the County, by 1.8 years (based on the SRA), 2.4 years (based on the CSDMP) or 2.6 years (based on the 10 year average).

Productive Capacity

3.16 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 2015 because they include planning permissions granted after 31 December 2015 (or with a committee resolution to grant planning permission).

Table 5: Productive Capacity of the Sand and Gravel Sites (May 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	*3,000,000	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	4,110,000	2025	Information based on 2008 application and information provided by Cemex for the Site Locations document.
	Norton Bottoms	Breedon	Active	500,000	880,000	2019	Information based on 2015 Scoping Request
Central Lincolnshire	Park Farm, Tattershall Thorpe	Cemex	Active	230,000	3,280,000	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	*3,500,000	2031	Information base on 2015 application
	North Kelsey Road Quarry, Caistor	Breedon	Active	22,400	50,000	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	150,000	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	2,125,000	2025	Information taken from 2011 application
	Rectory Farm, West Deeping	Breedon/ Tarmac	Active	350,000-400,000	2,300,000	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*

3.17 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

3.18 The distribution of sales for sand and gravel extracted in Lincolnshire in 2009 and 2014 are set out in Table 6. 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).

3.19 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 #previously unpublished data from the AM2014 Survey.*

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.

3.21 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.

3.22 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.

3.23 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".

3.24 In the longer term, if material is sourced from the Trent Valley to supply South Yorkshire, this could result in increased production from quarries on both sides of the county boundary.

Crushed Rock (Limestone and Chalk)

Production sites

3.25 There were 19 sites in Lincolnshire at the end of 2015 as listed in the EMAWP Report 2015, 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

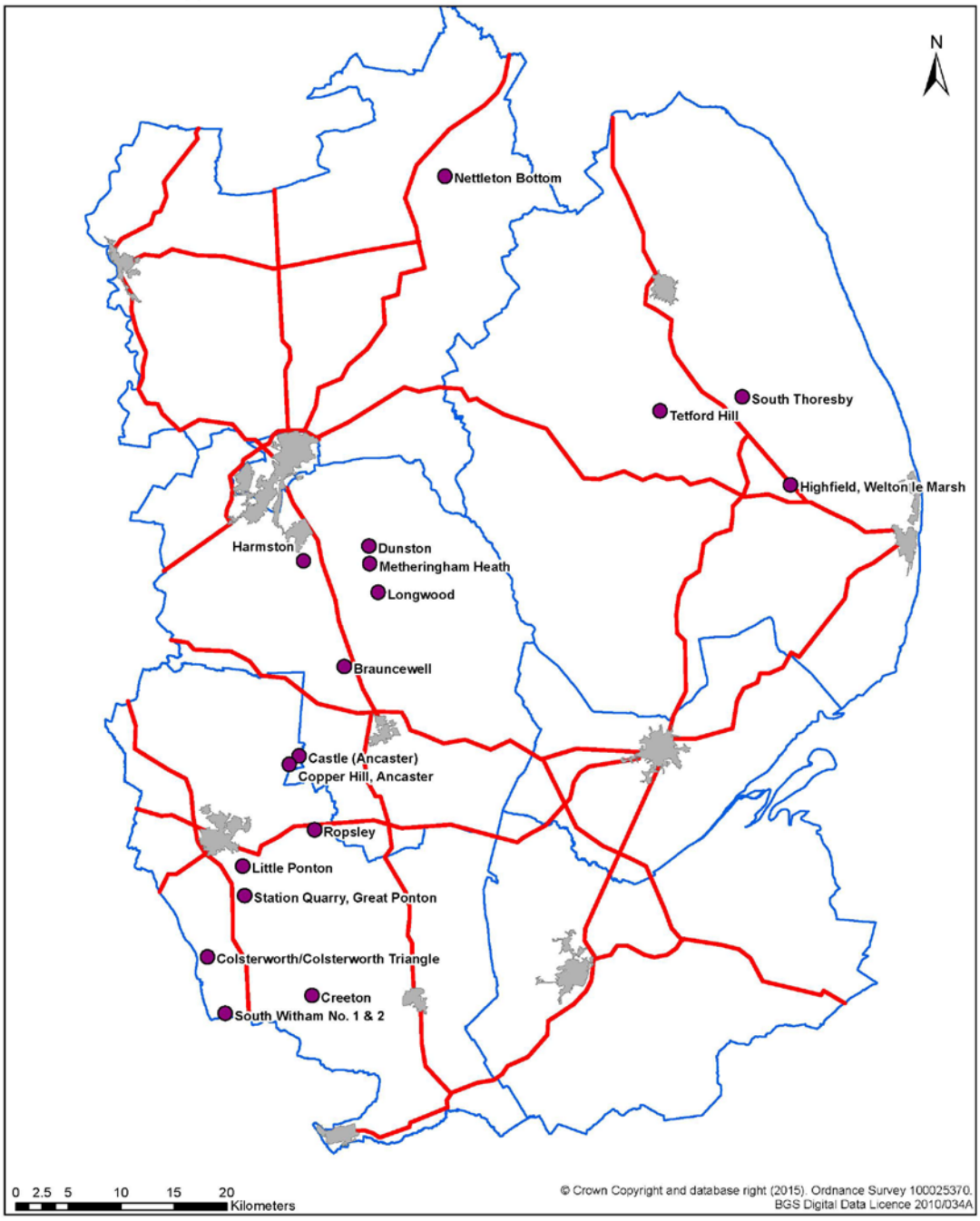
constraints on using chalk as an aggregate. For this reason, Lincolnshire's Sub-Regional Apportionment of Crushed Rock excluded chalk.

Table 7: List of Crushed Rock Sites 2015

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)		
South Witham (Mick George)*		
Creeton^		
Station Quarry, Great Ponton^		
Little Ponton*(2)		
Colsterworth*		
Colsterworth Triangle		
Ropsley*		
Copper Hill, Ancaster^		

* inactive during 2015
^ also produces building stone
(1) Currently subject to the suspension provisions of the Town and County Planning (Environmental Impact Assessment) Regulations 2011.
(2) Quarry has since re-opened

Figure 6: Current Crushed Rock Quarries in Lincolnshire



Sales of limestone

3.26 The County's production of limestone (aggregate and non-aggregate) amounted to 0.62mt in 2015 of which 0.43mt was for aggregate purposes. Over the 10-year period 2006-15, average sales of aggregate were 0.54mt per annum (see Table 8 below). The highest annual sales for aggregate during this period was 0.99mt in 2007. Since then, sales for aggregate have generally halved.

Table 8: Sales of limestone extracted in Lincolnshire 2006-2015

Year	Aggregate Sales (mt)	Non-Aggregate Sales (mt)	Total (mt)
2006	0.81	0.07	0.88
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
Av.(2006-2015)	0.54	0.15	0.69
Av.(2013-2015)	0.42	0.21	0.63

Source: EMAWP Surveys

3.27 Most of the limestone is used for aggregate purposes (about 69% in 2015). Over the 10-year period 2006-2015, the proportion of limestone extracted for aggregate purposes was approximately 78%. 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 2.3% over the period 2006-15 (see Table 9 below).

Table 9: Total Sales of Limestone Aggregate in Lincolnshire compared to Total Crushed Rock Sales in the East Midlands 2006-2015

Year	East Midlands Region (mt)	Lincolnshire Limestone aggregate sales (mt)	Lincolnshire as % of Regional Crushed Rock Sales
2006	29.69	0.81	2.7
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
Average	23.76	0.54	2.3

Source: EMAWP Annual Monitoring Report 2015

3.28 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.

3.29 During the three year period 2013-2015, average annual sales of limestone for aggregate have amounted to 0.42mt. This is less than the 10 year average (0.54mt) which does not indicate that there is a need to increase supply.

Chalk Sales

3.30 Table 10 shows sales of chalk within the County over the period 2006-15. 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 2006-2015

Year	Aggregate Use	Non-Aggregate Use	Total
2006	232,961	10,618	243,579
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

c: confidential/unavailable
Source: EMAWP Surveys

Landbank of Limestone

3.31 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.

3.32 It is estimated that permitted reserves of limestone for aggregate purposes as at 31 December 2015 totalled some 31.0mt (EMAWP Monitoring Report 2015), 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 2015 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 2015)

Permitted Reserves (as at 31.12.15) (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)
30.97	1.1	28.2	0.62	50.0	0.54	57.4

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

3.33 The landbank of permitted has not been increased by the granting of any further planning permissions between 31 December 2015 and the preparation of this Local Aggregate Assessment. However, one of the sites has been subject to a periodic review (ROMP) that has reduced the permitted reserves by about 6.4 million tonnes. This should be reflected in the next survey, but in practice it will not have a significant impact on the overall level of provision (particularly as those reserves were unlikely to have been worked prior to the expiry of the planning permission in 2042).

Landbank of Chalk

3.34 It is estimated that permitted reserves for chalk reserves as at 31 December 2015 were 3.05mt (EMAWP Monitoring Report 2015). 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 20 years.

Productive Capacity

3.35 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 production 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 production capacity.

Table 12: Productive Capacity of Limestone Sites (May 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	5,000,000	#2042	Information based on 2013 ROMP application
Brauncewell	Brauncewell Quarries Ltd	Active	200,000	800,000	2021	Information based on 2007 application.
Dunston	Len Kirk Plant Hire Ltd	Active	50,000-80,000	50,000	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	150,000	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	1,340,000	#2044	Information based on 2013 application
South Witham	Breedon	Active	150,000-200,000	727,000 (South of Mill Lane) (2)	#2020	Information based on 2017 application
South Witham	Mick George	Inactive	120,000	Nil (South of Mill Lane) (2)	Exhausted	Information based on 2014 application
Creeton	Creeton Quarry Ltd	Active	100,000	2,900,000	#2042	Information based on 2011 application
Station Quarry, Great Ponton	Harmston Waste Management	Active	100,000	1,400,000	#2055	Information based on 2011 ROMP application
Little Ponton	Geo Quarries Ltd	Active	30,000-100,000	6,800,000	#2042	Information based on 2013 ROMP application
Colsterworth Triangle	CESL	Active	150,000	1,000,000	#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) It is estimated by the MPA that there are over 5mt of permitted reserves to the north of Mill Lane, although there are no current proposals to work these reserves.

Table 13: Productive Capacity of Chalk Sites (May 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)		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

3.36 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 #Previously unpublished data from the AM2014 Survey.*

3.37 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).

3.38 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 roadstone material. Higher quality aggregates suitable for road surfacing or for concrete production must therefore be imported. It is therefore 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 (even for a single year, let alone an historic series), 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. 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 The Council prepared a Waste Needs Assessment to inform the MWLP (Waste Need Assessment 2014). Part of this work involved providing a 'best estimate' of Construction, Demolition and Excavation (CD&E) waste arising in the County. Although there are a number of caveats regarding how data on this waste stream is recorded, an estimate of total arisings has been made. A large proportion of C&D waste is recycled on construction sites using mobile processing plant.

4.5 Graph 1 shows the total estimated primary C&D arisings, and demonstrates a significant decline between 2008 to 2011 with a rise in 2012. The relatively high level of arisings in 2008 is largely the result of a deposit of mixed construction waste at one landfill site in Lincolnshire[2]. However, the primary C&D arising is not truly indicative of the quantity of C&D waste that needs to be managed if Lincolnshire wishes to deliver a net self-sufficient outcome for managing this waste stream. Many transfer stations and some quarries contain equipment for reprocessing materials such as waste rubble, bricks, sand, gravel, asphalt. The primary arisings referred to above are mainly managed at transfer station (56%) and treatment facilities (32%). Around 90% of that material (200,000 tonnes) is then sent to other sites as

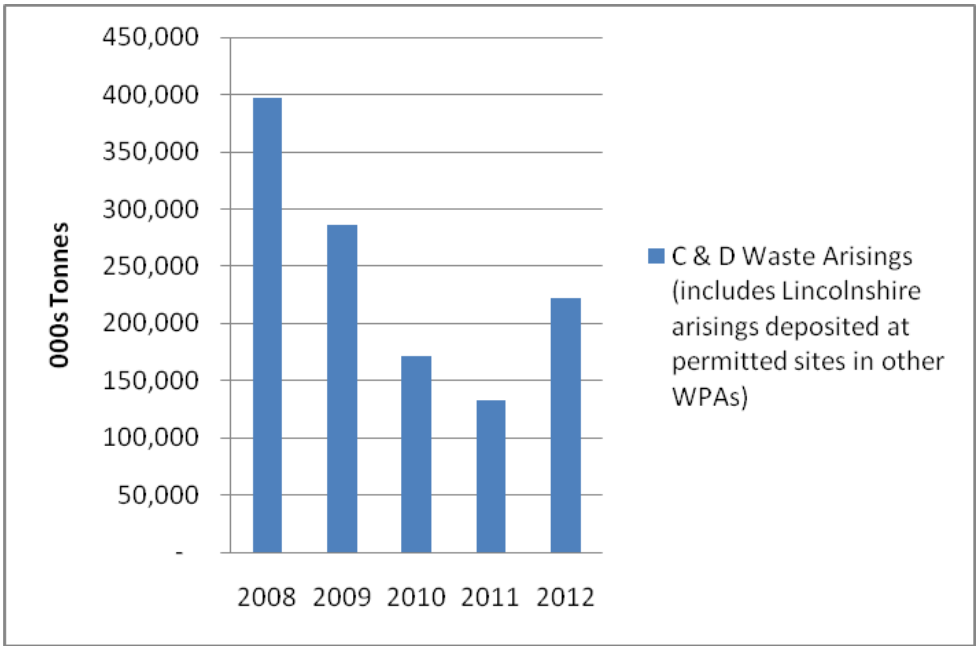
[2] Brauncewell Quarries recorded 294,831 tonnes of mixed construction waste deposited in 2008 reducing to 84,318 tonnes in 2009 and 46,748 tonnes in 2010 after which no deposits are recorded

secondary arisings for recycling. Therefore the total amount of C&D arisings managed at permitted facilities is in the order of 450,000 tonnes.

4.6 Graph 2 shows the total estimated quantity of excavation waste arisings in Lincolnshire between 2008 and 2012.

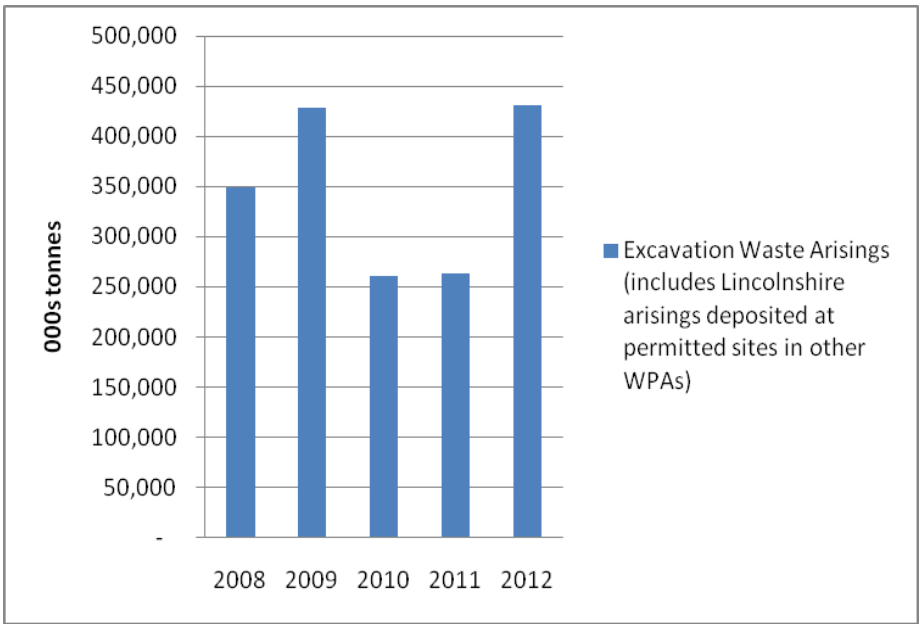
4.7 Table 15 shows the baseline arisings and management routes, including recycling, for CD&E waste in 2012 as has been used in the Waste Need Assessment modelling.

Graph 1: C&D Waste Arisings in Lincolnshire 2008 to 2012



(Source: Environment Agency Waste Data Interrogator 2012)

Graph 2: Excavation Waste Arisings in Lincolnshire 2008 to 2012



(Source: Environment Agency Waste Data Interrogator 2012)

Table 15: Estimated CD&E Arisings and Management Route in 2012

	Estimated Baseline Arisings Tonnes	Recycling	Transfer	Treatment	Landfill
C&D	450,000	91%	56%	32%	12%
		(200,000) secondary arisings	140,000	80,000	30,000
Excavation	500,000	1%	39%	19%	41%
		5,000	195,000	95,000	205,000

(Source: Environment Agency Waste Data Interrogator, 2012)

4.8 Operational C&D waste management sites within Lincolnshire are set out in Table 16 below. Whilst there may be other transfer facilities managing C&D waste, Table 16 shows the main sites dealing with this waste stream.

Table 16: 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)
Bourne Skip Hire & Recycling	South Kesteven	Transfer stations (inert)
G B M Waste Management	East Lindsey	Transfer stations (inert)
Len Kirk Plant Hire	North Kesteven	Transfer stations (inert)
Manor Pit Quarry	South Kesteven	Transfer stations (inert)
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	Recycling (C&D)
Whisby Quarry	South Kesteven	Recycling (C&D)
Harmston Quarry	North Kesteven	Recycling (C&D)
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)
Brauncewell Quarry	North Kesteven	Landfill (inert)
Colsterworth Triangle	South Kesteven	Landfill (inert)
Creeton	South Kesteven	Landfill (inert)
Harmston Quarry	North Kesteven	Landfill (inert)
Norton Bottoms Quarry	North Kesteven	Landfill (inert)
South Thoresby	East Lyndsey	Landfill (inert)
South Witham (East)	South Kesteven	Landfill (inert)
Whisby Quarry	North Kesteven	Landfill (inert)

4.9 In addition to the above permanent C&D waste management facilities, some inert waste is deposited at the following non-hazardous landfills. In 2012, 69,456 tonnes of inert waste was deposited at:

- Boston Landfill (Boston)
- Colsterworth Landfill (South Kesteven)
- Gainsborough Landfill (West Lindsey)
- Kirkby on Bain Landfill (East Lindsey)
- Leadenham Landfill (North Kesteven)
- Middlemarsh Landfill (East Lindsey)
- North Hykeham Landfill (North Kesteven)

4.10 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.

4.11 In brief, Policy W4 allows such facilities in and around the main urban areas where they accord with all the Development Management Policies of the Plan and are located on:

- previously developed land; or
- existing or planned industrial/employment land and buildings; or
- land already in waste management use; or
- sites allocated in the Site Locations document; or
- Active Mining Sites.

The policy also indicates the circumstances where facilities outside the main urban areas will be permitted.

4.12 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.

4.13 The Council's Waste Needs Assessment is currently being reviewed and the findings will be reported in the next Local Aggregate Assessment.

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 Dredging Area. There are 10 dredging licences in place in this area permitted for the removal 4.8mt of material per annum. In 2013 1.53mt of material was dredged from the permitted licensed tonnage and another 0.61mt as specifically dredged for beach nourishment purposes[3]. Of the material extracted from permitted tonnages, 61% of the material extracted was delivered to mainland Europe, 26% to the Humber and 13% to the Thames Estuary[4]. Material landing in the region was delivered to wharfs in Blythe and on the River Tyne, Tees and Humber[4]. Therefore no material was commercially landed in Lincolnshire.

5.2 The 2014 marine aggregate statistics report a similar pattern with 1.57mt of material dredged from the permitted licensed tonnage and another 0.62mt specifically dredged for beach nourishment purposes[5]. This may reflect that there are limited landing opportunities for marine aggregates in the County. Navigable wharfage is limited to Boston and although there are wharfs at Gainsborough, Sutton Bridge and Fossdyke they are not equipped for landing aggregates.

5.3 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. In 2013, 611,787 tonnes of marine material was used as part of this scheme[4] and in 2014, 620,422 tonnes[6].

5.4 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.

[3] Marine Aggregates, Summary of Statistics 2013, Crown Estate

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

[5]) Marine Aggregates, Summary of Statistics 2014, Crown Estate

6. Local Considerations and Future Demand

6.1 When looking ahead at possible future demand, the National Planning Policy 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 During the period of the LMWLP (2014-2031) the population is projected to increase by 10.6% in the County (Table 17). 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 17: Population Projection from 2014 to 2031

Administrative Area	Population		Percentage 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 18 sets out the net additional dwellings for the County and for each district for the 10 year period 2006-7 to 2015-16.

Table 18 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. A Regulation 18 Consultation was carried out in 2015, but since then the Strategic Housing Market Assessment has been updated. This update has been included in a subsequent Sites and Settlement Consultation (July 2016), which considers two scenarios: one based on baseline economic growth, which gives rise to a housing need of 636 new homes per annum; and one based on aspirational economic growth, which gives rise to a need of 698 homes per annum;
- 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 was published in March 2017. This makes provision for a net increase in dwellings of 300 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 3439 and 3501 (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:

- 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 19: 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	300	34.5
	Total for Central Lincolnshire	**725**	**818**	**12.8**
South Lincolnshire	South Holland	315	445	41.3
	South Kesteven	597	636-698	6.5-16.9
	Total for South Lincolnshire	**912**	**1081-1143**	**18.5-25.3**
	County Total	**2,946**	**3439-3501**	**16.7-18.8**

Source: *Adopted and emerging local plans in Lincolnshire (May 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 between 16.7-18.8%. 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 (close to the national rate of economic growth).

Infrastructure

6.9 The National Infrastructure Delivery Plan 2016-2021 (Infrasructure 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) - 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 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 On the face of it, the local considerations set out above all 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:

- other than for Central Lincolnshire, the proposed housing levels may be subject to change prior to the local plans being adopted;
- 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 the subsequent Local Aggregate Assessment 2015;
- 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;
- although most of the infrastructure projects identified have been commenced, aggregate sales have not so far increased. in fact, average annual sales of sand and gravel and limestone during the past three years are lower than the 10 year averages, indicating that at present there is no need to increase supply;
- the recent sales data reinforces 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 be based on the average of the last 10 years of sales (2006-2015). This will need to be kept under close review in subsequent LAAs, given the potential for demand to rise.**

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 (Pre-Submission Draft). 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 2015, Lincolnshire had sufficient permitted reserves of sand and gravel for all three Production Areas, based on average years over the period 2006-2015, 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 (Pre-Submission Draft) 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 and the Kirkby on Bain Quarry (both of which are subject to Committee resolutions to grant planning permission subject to the completion of S106 Agreements; 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 (Pre-Submission Draft) 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 20 (taken from the Site Locations (Pre-Submission Draft) November 2016 therefore indicates how the requirement for a steady and adequate supply of sand and gravel would be met from the allocated sites.

Table 20: Sites included in the Site Locations (Pre-Submission Draft) 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 indicated in the table, the County Council has made an over provision of sand and gravel. This amounts to:

- Lincoln/Trent Valley, 9.24mt (67.0%)
- Central Lincolnshire, 5.29mt (81.4%)
- South Lincolnshire, 2.35mt (30.5%)

7.5 The level of provision made in the Site Locations (Pre-Submission Draft) is based on the average 10 years' sales approach set out in the previous Local Aggregate Assessment covering the period 2004-2013 (in accordance with Policy M2 of the adopted CSDMP). As the 10 year average sales for the period 2006-2015 are slightly lower than those for 2004-2013, the over-provision has been increased by:

- Lincoln/Trent Valley, 9.0%
- Central Lincolnshire, 8.0%
- South Lincolnshire, 6.9%

7.6 In addition to this 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 (2006-2015), 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 a committee resolution to grant planning permission subject to the completion of S106 agreements, and the allocation of sites in the Site Locations (Pre-Submission Draft) document.