Leicestershire County Council

LOCAL AGGREGATE ASSESSMENT

2017

Leicestershire County Council

Local Aggregate Assessment

Published June 2019

(Data covering the period up to 31/12/2017)

CONTENTS

Executive summary

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

- forecast the demand for aggregates based on average 10-years sales data and other relevant local information;
- analyse all aggregate supply options and;
- assess the balance between demand and supply.

Planning Policy Guidance states that MPAs should also look at average sales over the last three years in particular to identify the general trend of demand as part of the consideration of whether it might be appropriate to increase supply.

This is the sixth LAA for Leicestershire which includes the most recent (2017) aggregate sales and reserves data for the County. The 10-year period covered by this LAA is 2008 up to 2017. The main facts and figures from the report (by aggregate type) are set out below:

Sand and gravel

Leicestershire currently has five active sand and gravel quarries, which have a total potential production capacity of around 1.65 million tonnes.

The average sales for sand and gravel for the most recent 10-year rolling period (2008 – 2017), and most recent three-year rolling period (2015 – 2017), is 1.16 Mt pa and 1.46 Mt pa respectively.

Sales in 2017 were 1.465 million tonnes, which was 2% lower than that experienced in 2016. Sales of sand and gravel within the County between 2014 and 2017 have been significantly higher than over the period 2008 to 2013 when sales showed the effects of the economic recession.

Estimated permitted reserves as at 31st December 2017 were 2.67 million tonnes. This will provide sufficient reserves for 2.3 years, based on average sales over the most recent 10-year rolling period.

Crushed rock

Leicestershire currently has four active igneous rock quarries, all of which are rail-linked, together with two active limestone quarries. These quarries have a total potential production capacity of around 15.5 million tonnes.

The average sales for crushed rock for the most recent 10-year rolling period (2008 – 2017), and most recent three-year rolling period (2015 – 2017), is 13.1 Mt pa and 13.9 Mt pa respectively.

Sales of crushed rock within the County in 2017 were 14.34 million tonnes, which was 2% higher than in 2016. Whilst sales since 2013 have shown signs of significant improvement compared to the years of economic recession, they still remain below the level of sales in 2008.

Estimated permitted reserves as at 31st December 2017 were 380 million tonnes. Based on the 10-year provision rate, there are currently sufficient permitted reserves for 29 years, more than sufficient to maintain the government's requirement for a landbank of at least ten years.

Secondary and recycled aggregate

There are 23 operational construction and demolition (C&D) recycling sites within Leicestershire. The total capacity of these sites is estimated to be around 860,000 tonnes. There are currently no industrial processes in Leicestershire which are known to produce 'secondary' aggregates.

Future provision

The production guideline identified by this Local Aggregates Assessment is 1.16 million tonnes per annum for sand and gravel and 13.1 million tonnes per annum for crushed rock.

There will be a potential shortfall of sand and gravel reserves within Leicestershire over the period to 2031 of some 13 million tonnes based on the production guideline. The Submission Minerals and Waste Local Plan (March 2018) includes proposals for the extraction of 7.2 million tonnes of potential reserves. The Plan allows for additional provision to be made from unallocated areas provided certain criteria are met.

There are sufficient permitted crushed rock reserves to meet requirements up to 2031.

Summary sales figures for the period 01/01/2017 – 31/12/2017

	2017 Sales (in million tonnes	**10-year Sales Average** (in million tonnes)	**3-year Sales Average** (in million tonnes)	**Change** (compared to 2016)	**LAA Rate** (in million tonnes)	**Reserves** (in million tonnes)	**Landbank** (in remaining years)	**Theoretical Capacity** (in million tonnes per annum)	**Comments**
All land-won sand and gravel	1.465	1.16	1.46		1.16	2.67	2.3	1.65	Sales were 2% lower than in 2016. They were significantly higher than the 10-year sales average.
Crushed rock	14.34	13.1	13.9		13.1	380.25	29	15.5 *(excluding inactive sites)*	Sales were 2% higher than in 2016. They were slightly higher than the 10-year sales average.
Recycled / secondary aggregates								0.73	
Trend analysis	Sales of sand and gravel between 2014 and 2017 have been significantly higher than over the period 2008 to 2013. Sales of crushed rock since 2013 have shown signs of significant improvement compared to the years of economic recession, but still remain below the level in 2008.								

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. Aggregates are materials used in the construction industry for building purposes, including asphalt and concrete.

1.2 This document is the sixth Local Aggregate Assessment for the County of Leicestershire. The LAA sets out the current supply of and demand for aggregates in the County and indicates the provision that will be needed in order to ensure that Leicestershire 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.

1.3 The Leicestershire Minerals Core Strategy and Development Control Policies Development Plan Document (DPD) was adopted by Leicestershire County Council on 8th October 2009.

1.4 Policy MCS2 (strategy for aggregate minerals) of the Core Strategy indicates the level of provision to be made for aggregate minerals within Leicestershire over the period 2001 to 2021, namely 26.25 million tonnes of sand and gravel and 337.75 million tonnes of crushed rock, an annual requirement of 1.25 million tonnes for sand and gravel and 16.1 million tonnes for crushed rock.

1.5 The Leicestershire Minerals and Waste Local Plan was formally submitted to the Government for independent public examination in March 2018. The Plan contains policies and proposals related to the winning and working of minerals and waste management development in the County for the period to 2031.

1.6 Policies M1 (Supply of Sand and Gravel Aggregate) and M4 (Crushed Rock) of the Pre-submission document indicate the level of provision to be made for aggregate minerals within Leicestershire over the period 2015 to 2031, namely 19 million tonnes of sand and gravel and 231 million tonnes of crushed rock, an annual requirement of 1.12 million tonnes for sand and gravel and 13.6 million tonnes for crushed rock.

2. Types of aggregate produced in Leicestershire

Sand and Gravel

2.1 In Leicestershire, sand and gravel for aggregate use has usually been obtained from two distinct types of deposit, namely sub-alluvial and river terrace; and glaciofluvial.

2.2 The main sources of sub-alluvial and river terrace deposits in Leicestershire are Quaternary and Recent age deposits in the valleys of the Rivers Trent, Soar and Wreake. Similar, but smaller areas, of sand and gravel are also associated with the River Sence and the Rivers Avon and Welland along the southern borders of Leicestershire.

2.3 A series of isolated Glaciofluvial deposits occurs in areas to the south and west of Leicester. The full extent of this resource is unknown, however, as areas of wholly concealed bodies of sand and gravel may occur under spreads of till and other drift deposits. The extensive boulder clay and other drift deposits which cover central and eastern parts of Leicestershire may conceal potential deposits.

2.4 Deposits of solid sand and gravel sources in the form of the Triassic Bunter Pebble Beds occur in two areas in the north-west of Leicestershire, around Measham and Castle Donington. Blown sand deposits resulting from aeolian reworking of river and glacial deposits and bare Triassic bedrock occur in the Vale of Belvoir.

2.5 The deposits will be considered collectively under the term "sand and gravel" in the rest of this report.

Igneous Rock

2.6 A number of small outcrops of Precambrian/Cambrian igneous rocks occur in Charnwood Forest and in south Leicestershire. Within Charnwood Forest, the intrusions form two main groups: a southern group around Markfield, Bradgate and Groby; and a northern group, which extends towards Shepshed. Volcanic lavas of Precambrian origin occur in exposed masses around Bardon Hill, High Sharpley and Pedlar Tor. Igneous rock intrusions also occur around Mountsorrel, and at a number of locations to the south-west of Leicester, including Enderby, Earl Shilton, Huncote, Stoney Stanton and Sapcote.

Limestone

2.7 In north-west Leicestershire, Carboniferous limestones crop out in several small isolated inliers which locally form prominent hills

above the surrounding Triassic rocks near to the Leicestershire/Derbyshire border. The inliers between Breedon and Thringstone consist mainly of pinkish-yellow, bedded and massive dolomite (dolostone).

2.8 Lincolnshire Limestone of Jurassic age occurs in North East Leicestershire. The various limestone units making up the Lincolnshire Limestone form a relatively thick and persistent formation which is capable of lower quality aggregates, such as fill and sub-base roadstone.

3. Current Situation regarding Land won Aggregates in Leicestershire

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 most recent Aggregates Monitoring (AM) survey provides data for 2017.

3.2 Every fourth year Aggregate Working Parties conduct a major in-depth survey. This includes the collection of data on the distribution of sales. Such data was last collected as part of the survey for 2014.

Land-won sand and gravel

Production sites

3.3 There are 5 sites currently active in Leicestershire, at Brooksby, Cadeby, Husbands Bosworth, Lockington, and Shawell (see Table 1 below). Two of these sites involve the working of alluvial and river terrace deposits, while the remainder work glacial deposits.

Table 1: List of Current Sand & Gravel Sites, 2018

Site	District
Husbands Bosworth Quarry	Harborough
Shawell Quarry	Harborough
Cadeby Quarry	Hinckley
Brooksby Quarry	Melton
Lockington Quarry	North West Leicestershire

Sales

3.4 Sales of aggregate from sand and gravel operations within Leicestershire over the last 10 years are shown in Table 2 below. Sales for the period 2008 to 2013 show the effects of the economic recession as production slowed. During this period, sales of sand and gravel averaged 0.96 million tonnes per annum. Sales between 2014 and 2017 averaged 1.45 million tonnes per annum, around 50% higher than that experienced between 2008 and 2013, reflecting improvements in the economy and levels of construction. Sales in 2017 were 2% lower than in 2016.

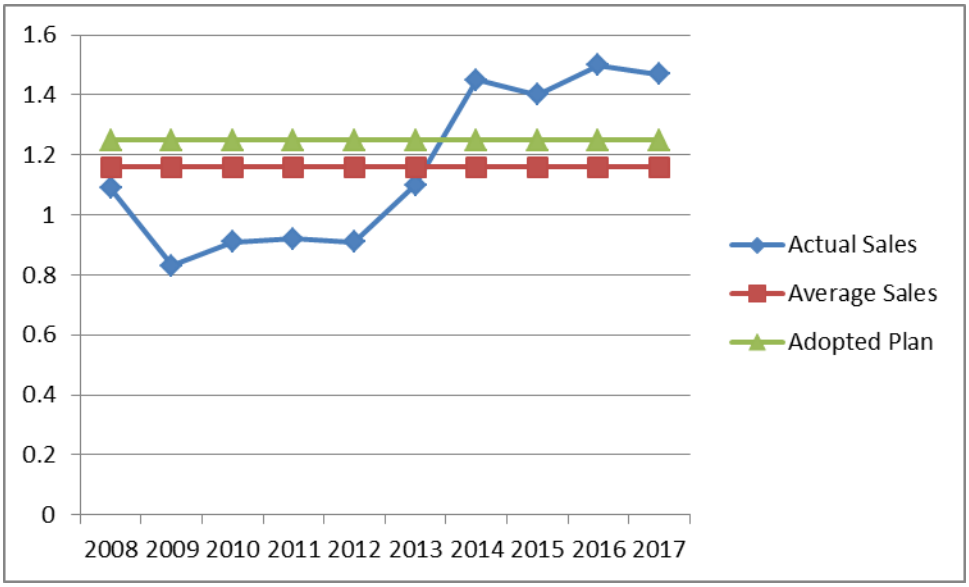
Table 2: Sales of Sand and Gravel 2008-2017

Year	Sales (Million tonnes)
2008	1.09
2009	0.83
2010	0.91
2011	0.92
2012	0.91
2013	1.1
2014	1.45
2015	1.4
2016	1.5
2017	1.47
Average	1.16

Source: EMRAWP Surveys

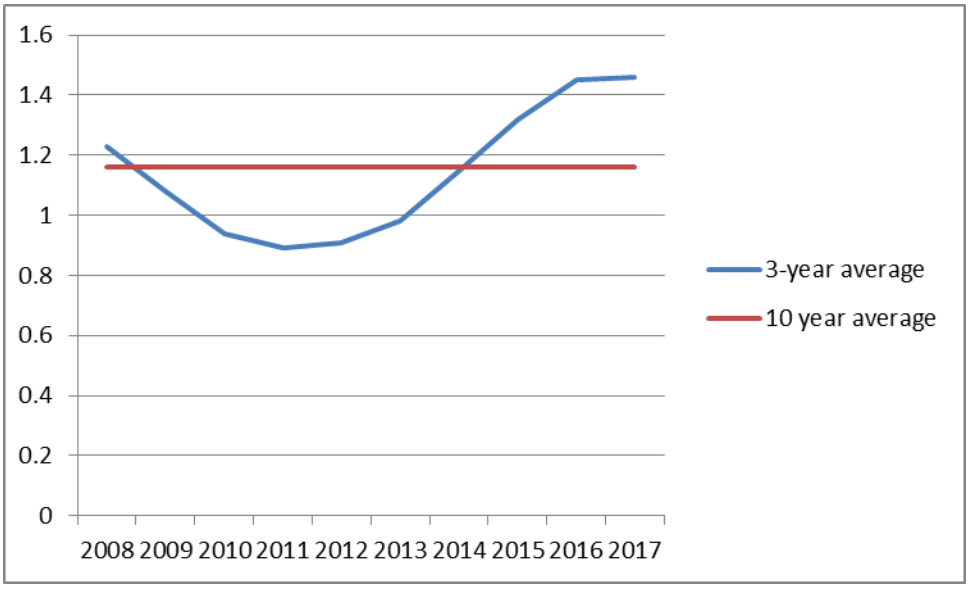
3.5 Average sand and gravel sales over the last 10 years were 1.16 million tonnes per annum. Recent sales have however exceeded the annual requirement set out in adopted Minerals Core Strategy (1.25Mtpa) (see Figure 1 below).

Figure 1: Sales of Sand and Gravel 2008-2017



3.6 Average sand and gravel sales over the last three years were 1.46 million tonnes per annum, 26% higher than the 10-year average. The trend in sales based on 3-year averages since 2008 is shown in Figure 2. This indicates falling sales from 2008 to 2011. Sales then rose significantly up to 2016, before levelling off in 2017. Subsequent monitoring iterations will identify whether this trend will continue.

Figure 2: Trend in Sales of Sand and Gravel 2008-2017



Landbank

3.7 Estimated permitted reserves of sand and gravel in Leicestershire as at the end of 2017 were 2.67 million tonnes. The reserves will provide sufficient permitted material to last about two years based on the annual provision identified in the adopted Minerals Core Strategy, and 2.3 years based on the average rate of production over the last 10 years. The level of reserves has fallen from 2016 in line with sales during 2017. No additional reserves were permitted during the year. Two planning applications were submitted for the extension of sand and gravel working at Shawell and Cadeby Quarries in 2017, but both remained undetermined at the end of the year.

Production Capacity

3.8 The existing sites have a total potential production capacity of around 1.65 million tonnes, which means that they would be capable of producing sufficient material to satisfy the level of provision identified in the adopted Minerals Core Strategy. The sites would not however be able to meet the County's future requirements without the benefit of extensions to their currently permitted operations. Table 3 below provides information on the productive capacity, potential reserves and permission end dates for sand and gravel sites with Leicestershire.

Table 3: Production Capacity of Sand and Gravel Sites

Site	Operator	Status	Production Capacity (tonnes p.a.)	Reserves*#	Permission End Date
Husbands Bosworth	Tarmac	Active	180,000**	300,000 (2010) Additional reserves permitted in 2010: 925,000	31-07-2020
Shawell	Tarmac	Active	600,000**	Up to 1.8Mt (2015) Additional reserves permitted in 2015: 1Mt	31-12-2044
Cadeby	Tarmac	Active	170,000*	Less than 170,000 (2015). Additional reserves permitted in 2015: up to 420,000	31-12-2021
Brooksby	Tarmac	Active	300,000*	1.85 Mt (2012)	31-12-2026
Lockington	Tarmac	Active	400,000**	1.29 Mt (2007). Additional reserves permitted in 2008: 3.9 Mt	02-12-2025

* information from recent planning applications
** Information provided by operator
# date of reserves information given in brackets.

Exports and imports

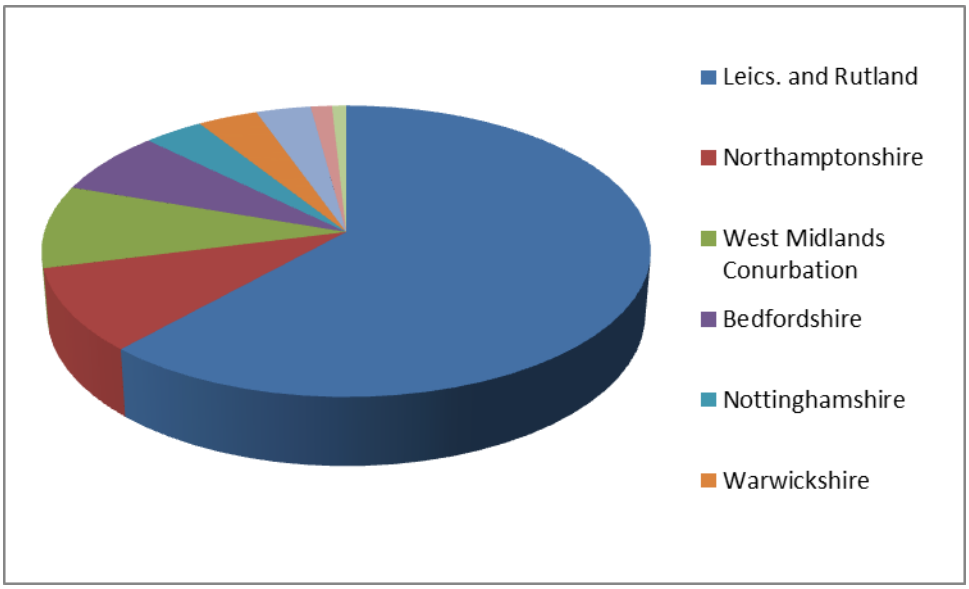
3.9 Sand and gravel operations within Leicestershire tend to serve local markets. The distribution of sand and gravel from the County in 2014 is set out in Table 4 below. 57.8% of sales were within Leicestershire/Rutland. The remaining material generally travelled to neighbouring counties and regions from sites located close to the County boundary. The main destinations for material exported beyond the County were the West Midlands (12.8%), and Northamptonshire (8.7%), see Figure 3 below. All the material was transported by road.

Table 4: Distribution of Sand and Gravel 2014
(Destinations receiving over 10,000 tonnes)

Destination	tonnes	%
Derbyshire & PDNP	44701	3.1
Nottinghamshire	50088	3.4
Leics. and Rutland	837440	57.8
Northamptonshire	126193	8.7
Staffordshire	11367	0.8
Warwickshire	48822	3.4
West Midlands Conurbation*	124597	8.6
Bedfordshire	95764	6.6
Oxfordshire	16697	1.2

*Wolverhampton, Dudley, Walsall, Sandwell and Birmingham
Source: Aggregates Minerals Survey 2014

Figure 3: Distribution of Sand and Gravel 2014



3.10 Information on consumption by sub-region, as provided by BGS from the results of the AM2014, indicate that Leicestershire/Rutland consumed 1,410,000 tonnes of sand and gravel in 2014. (Separate figures for Leicestershire and Rutland are not provided.) The main sources of supply were Leicestershire (50-60%), Staffordshire (10-20%), Peterborough, Derbyshire, Lincolnshire and Nottinghamshire (1-10% each). Imports of sand and gravel into Leicestershire and Rutland totalled 537,000 tonnes, making Leicestershire/Rutland a net exporter of some 81,000 tonnes of sand and gravel.

Crushed Rock

Production sites

3.11 Igneous rock extraction within Leicestershire is currently taking place at four sites, namely Bardon; Cliffe Hill; Croft; and Mountsorrel (see Table 5 below). Whitwick and Groby quarries are currently inactive, although coating and concrete plants are maintained at Groby. Two carboniferous limestone quarries are operational within Leicestershire at Breedon on the Hill and Cloud Hill.

Table 5: List of Current Crushed Rock Sites, 2018

Site	District	Mineral
Croft Quarry	Blaby	Igneous Rock
Mountsorrel Quarry	Charnwood	Igneous Rock
Cliffe Hill Quarry	Hinckley	Igneous Rock
Bardon Quarry	North West Leicestershire	Igneous Rock
Breedon Quarry	North West Leicestershire	Limestone
Cloud Hill Quarry	North West Leicestershire	Limestone

Sales

3.12 Sales of aggregate from crushed rock quarries within Leicestershire over the last 10 years are shown in Table 6 below. Sales of rock aggregate within the County in 2008 were 14.7 million tonnes, but then fell between 2009 and 2012 as a result of the economic recession. During this period, sales of crushed rock averaged 11.8 million tonnes per annum. Sales between 2013 and 2017 are around 17% higher, with an average of 13.8 million tonnes per annum, reflecting improvements in the economy, although they still remain below sales in 2008. Sales in 2017 were 2% higher than that experienced in 2016.

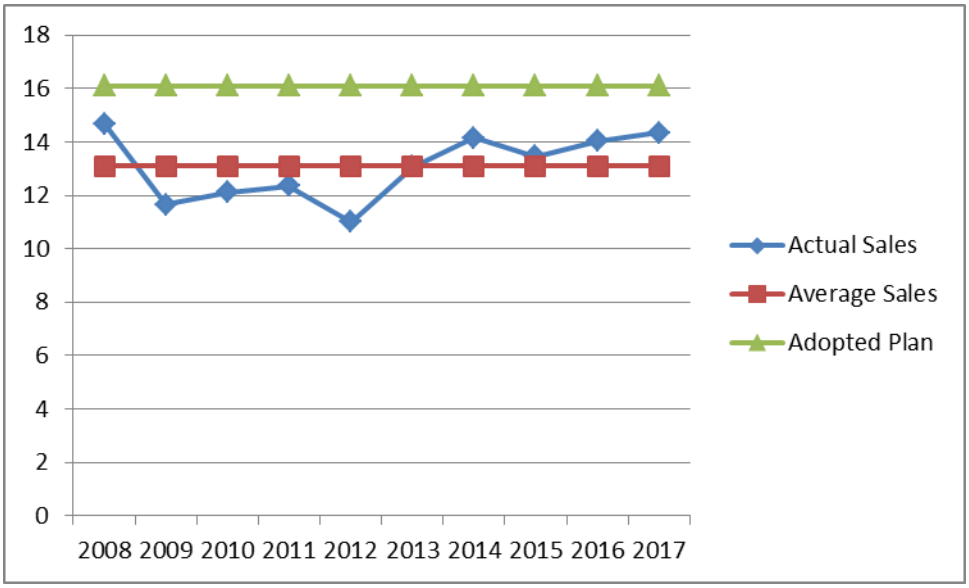
Table 6: Sales of Crushed Rock 2008-2017

Year	Sales (million tonnes)
2008	14.68
2009	11.66
2010	12.12
2011	12.36
2012	11
2013	13.08
2014	14.15
2015	13.45
2016	14
2017	14.34
Average	13.09

Source: EMRAWP Surveys

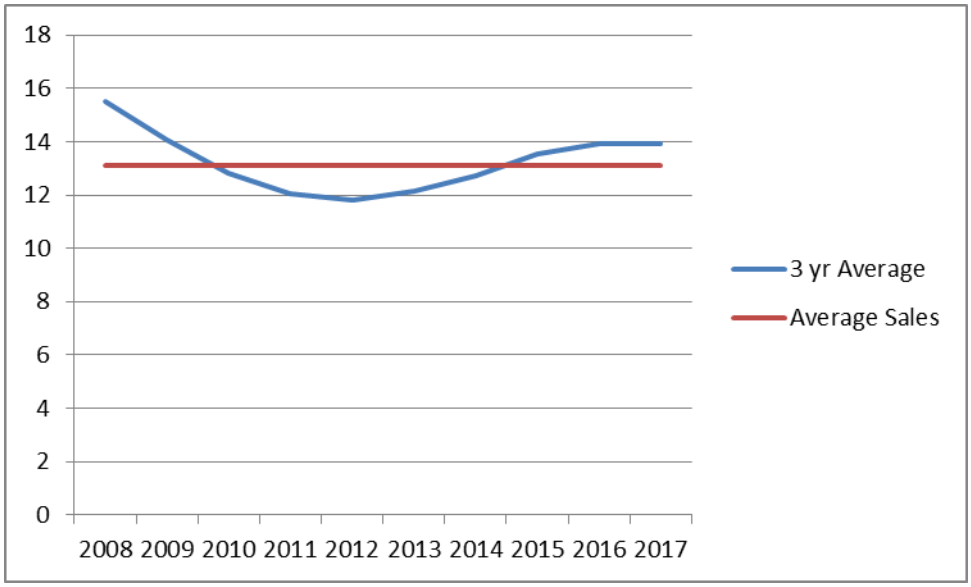
3.13 Average crushed rock sales were 13.1 million tonnes over the last 10 years. Crushed rock sales from Leicestershire have been lower than the annual requirement set out in the adopted Plan (16.1 million tonnes) throughout this period (see Figure 4 below).

Figure 4: Sales of Crushed Rock 2008-2017



3.14 Average crushed rock sales over the last three years were 6% higher than the 10-year average at 13.93 million tonnes. The trend in sales based on three-year averages since 2008 is shown in Figure 5. This indicates falling sales from 2009 to 2012, since when sales have risen although still well below the level attained in 2008. Subsequent monitoring iterations will identify whether this trend will continue.

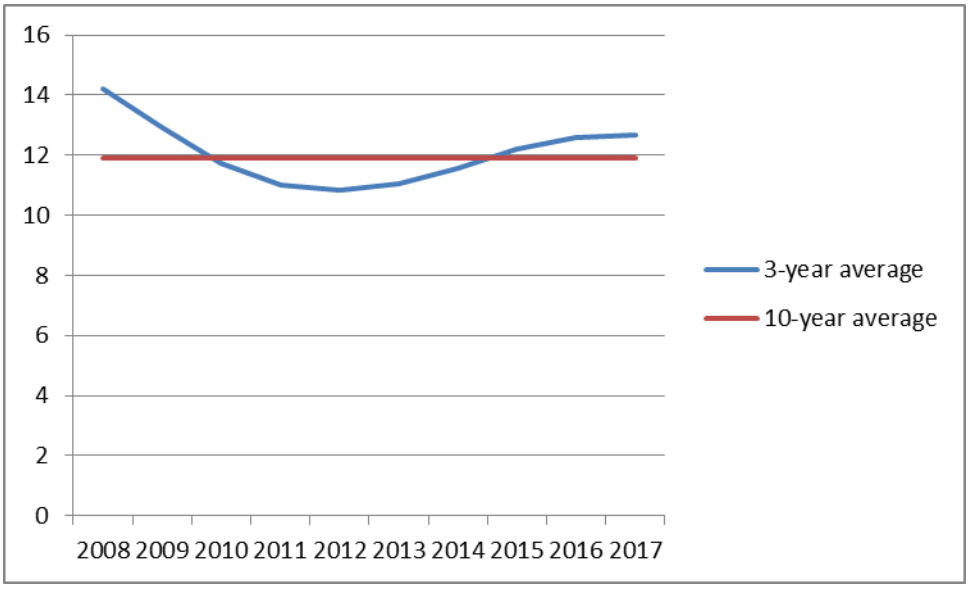
Figure 5: Trend in Sales of Crushed Rock 2008-2017



3.15 The four active **igneous rock** quarries together account for around 65% of the igneous rock output in England. These quarries supply crushed rock aggregate of varying types, ranging from general purpose aggregate suitable for a wide range of end-uses including concrete production, to higher specification end-uses such as rail ballast and high PSV (Polished Stone Value) aggregate that is capable of being used in skid-resistant road surfacing applications. There are relatively few alternative sources of such High Specification Aggregate in England.

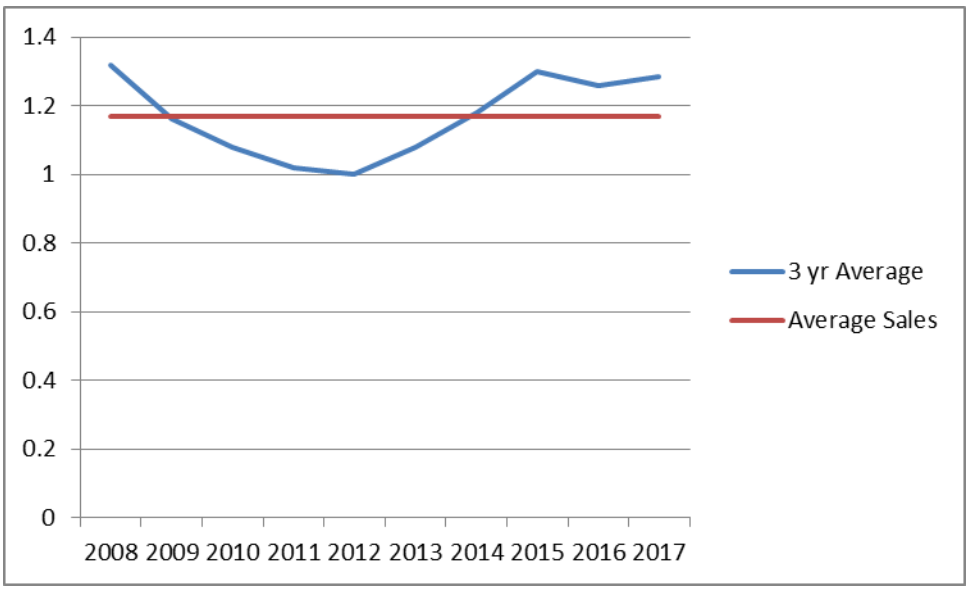
3.16 Average igneous rock sales from Leicestershire were 11.9 million tonnes per annum over the last 10 years and 12.7 million tonnes per annum over the last three years. Figure 6 below shows the general trend of sales of igneous rock within Leicestershire based on three-year averages over the period 2008 to 2017. Sales fell between 2009 and 2012 but have subsequently risen, although they are still below levels achieved in 2008.

Figure 6: Trend in Sales of Igneous Rock 2008-2017



3.17 Average limestone sales within Leicestershire were 1.17 million tonnes per annum for the last 10-year period (2008-2017) and 1.28 million tonnes per annum for the last three-year period (2015-2017). Figure 7 below shows the general trend of sales of limestone aggregate within Leicestershire based on three-year averages over the period 2008 to 2017. Sales fell between 2009 and 2012 but have subsequently risen back to around the 2008 level.

Figure 7: Trend in Sales of Limestone 2008-2017



Landbank

3.18 Estimated permitted reserves of crushed rock in Leicestershire as at the end of 2017 were around 380 million tonnes. This is sufficient permitted material to last about 24 years based on the annual provision identified in the adopted Plan (16.1Mtpa), and about 29 years based the average rate of production over the last 10 years.

3.19 Arithmetically, the level of permitted reserves for crushed rock in Leicestershire is therefore well in excess of the 10-year minimum landbank for rock required by the NPPF. A significant proportion of the permitted reserves, however, are at inactive sites (23%), all for igneous rock.

3.20 Estimated permitted reserves of igneous rock in Leicestershire as at the end of 2017 were around 339 million tonnes. This is sufficient permitted material to last about 28 years based the average rate of production over the last 10 years.

3.21 As at the end of 2017, the four active igneous rock quarries (which are all rail connected) had total reserves of some 250 million tonnes, a collective life of some 21 years based on the average rate of production over the last 10 years.

3.22 Estimated permitted reserves of limestone in Leicestershire as at the end of 2017 were around 41.5 million tonnes. This is sufficient permitted material to last about 35.5 years based on the average rate of production over the last 10 years.

Production Capacity

3.23 The existing active sites have the potential to produce around 15.5 million tonnes per annum, based on information contained in recent planning applications. Existing rail-linked quarries have a capacity of around 13.5 million tonnes per annum. This suggests that existing sites would be capable of producing sufficient material to satisfy the average rate of production over the last 10 years, but this would be just below the level of provision identified in the adopted Minerals Core Strategy. Not all of the sites would however be able to continue contributing to future requirements without the benefit of extensions to their currently permitted operations. Table 7 below provides information on the productive capacity, potential reserves and permission end dates for crushed rock sites within Leicestershire. (N.B. The 'production capacity' figures are only indicative and do not necessarily represent a maximum limit. Annual sales at some sites have exceeded that identified in planning applications.)

Table 7: Production Capacity of Crushed Rock Sites

Site	Mineral	Operator	Status	Production* (tonnes p.a.)	Reserves*#	Permission End Date
Croft	Igneous Rock	Aggregate Industries	Active	2 million	33 Mt (2008)	31-12-2029
Mountsorrel	Igneous Rock	Tarmac	Active	4.5 million	87 Mt (2014) Additional reserves permitted in 2015: 20Mt	31-12-2040
Cliffe Hill	Igneous Rock	Midland Quarry Products	Active	4 million	60 Mt (2007) Additional reserves permitted in 2016: 2.6Mt	31-12-2032
Bardon	Igneous Rock	Aggregate Industries	Active	3 million	45 Mt (2009). Additional reserves permitted in 2011: 132 Mt	31-12-2051
Groby	Igneous Rock	Midland Quarry Products	Inactive	up to 3 million	90 Mt (1995)	31-12-2038
Whitwick	Igneous Rock	Midland Quarry Products	Inactive	up to 1 million	8 Mt (2010)	21-02-2042
Breedon	Limestone	Breedon Aggregates	Active	up to 0.5 million	3.1 Mt (2003). Additional reserves permitted in 2006: 17Mt	31-12-2042
Cloud Hill	Limestone	Breedon Aggregates	Active	1.5 million	12 Mt (2009). Additional reserves permitted in 2010: 4.3 Mt	31-12-2025

* information from recent planning applications
# date of reserves information given in brackets

Exports and imports

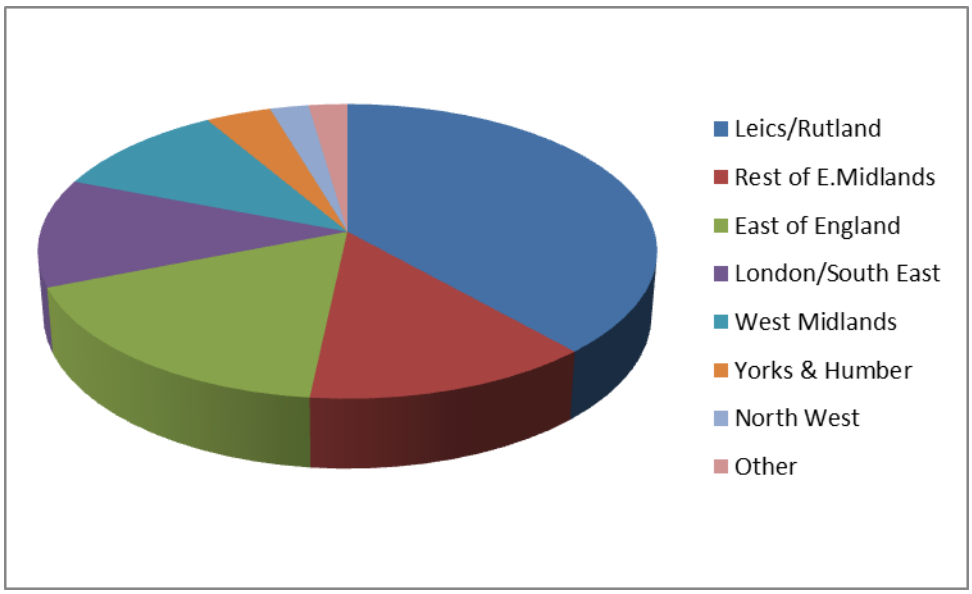
3.24 The distribution of crushed rock from Leicestershire in 2014 is set out in Table 8 below. A significant quantity (61.6%) of crushed rock was exported from the county. Thirteen per cent of material was distributed to other authorities within the East Midlands. The main destinations for material exported beyond the East Midlands were the East of England (17.3% of total sales); London and the South East (11.9%); and the West Midlands (10.6%) – see Figure 8.

Table 8: Distribution of Crushed Rock 2014

Destination	All		By Rail	
	tonnes	%	tonnes	%
Derbyshire & PDNP	316694	2.2		
Nottinghamshire	772556	5.5	150279	3.6
Lincolnshire	158225	1.1		
Leics. and Rutland	5428259	38.4	14180	0.3
Northants	631452	4.5		
North West	324776	2.3	292129	7.0
Yorkshire & Humberside	551888	3.9	454330	10.9
West Midlands	1493265	10.6	140800	3.4
East of England	2447314	17.3	1673253	40.3
London	889583	6.3	605872	14.6
South East	792355	5.6	558007	13.5
South West	159231	1.1	140800	3.4
North East	153451	1.1	121511	2.9
Wales	24838	0.2		
Total Rock	14145069		4149161	29.3

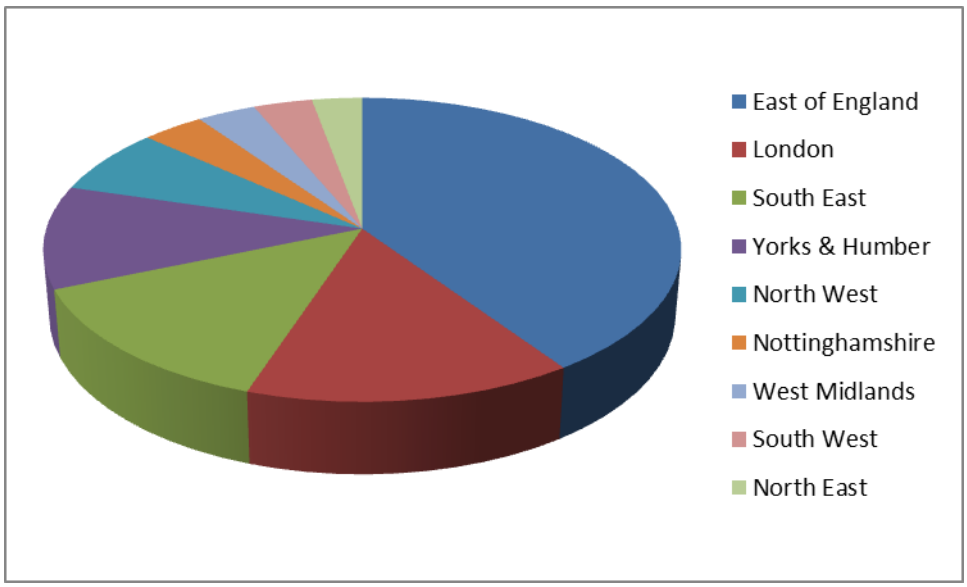
Source: Aggregates Minerals Survey 2014

Figure 8: Distribution of Crushed Rock 2014



3.25 In 2014, the amount of crushed rock transported by rail was 29.3%, around 4.1Mt. The main destinations for material exported by rail were the East of England (40% of rail-borne sales) and London and the South East (28%) – see Table 8 and Figure 9. All the material exported by rail came from the four active igneous rock quarries.

Figure 9: Distribution of Crushed Rock by rail 2014



3.26 Information on consumption by sub-region, as provided by BGS from the results of the AM2014, indicate that Leicestershire/Rutland consumed 5,766,000 tonnes of crushed rock in 2014. (Separate figures for Leicestershire and Rutland are not provided.) The main sources of supply were Leicestershire (90-100%), Rutland and Shropshire (1-10% each). Imports of crushed rock into Leicestershire were thus relatively insignificant, meaning that the County was a significant net exporter of crushed rock.

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 110 million tonnes 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 production of recycled aggregate in Leicestershire and Rutland in 2005 was 697,252 tonnes. In addition, 60,194 tonnes of recycled soil (excluding topsoil) was produced and re-used.

4.4 There is currently no audited data available to the Council with regards to tonnages of construction demolition and excavation (CD&E) waste arising in the Leicestershire. A large proportion of construction and demolition waste is recycled on construction sites using mobile processing plant. Operational stand-alone permanent construction and demolition (C&D) recycling sites within Leicestershire are set out in Table 9 below. Existing recycling capacity for C&D waste in Leicestershire is estimated to be around 860,000 tonnes. There are currently no industrial processes in Leicestershire which are known to produce 'secondary' aggregates.

4.5 The lack of data will make it difficult to monitor the use of secondary and recycled materials at the local level, but available evidence does not suggest that there will be any significant alteration to the proportion of supply from these sources.

Table 9: List of Operational C&D Recycling Sites

Site	District
Granite Close, Enderby	Blaby
Enderby Road, Whetstone	Blaby
Huncote Quarry	Blaby
Granite Way, Mountsorrel	Charnwood
Ingleberry Road, Shepshed	Charnwood
Mountsorrel Quarry	Charnwood
Wanlip Plant Site, A46, Syston	Charnwood
Gilmorton Lodge Farm	Harborough
Shawell Quarry	Harborough
Cliffe Hill Quarry	Hinckley & Bosworth
Glebe Farm, Sibson	Hinckley & Bosworth
Groby Quarry	Hinckley & Bosworth
Lynden Lea, Hinckley	Hinckley & Bosworth
Orston Lane, Bottesford	Melton
Harrison Close, Wigston	Oadby & Wigston
Bardon Quarry	North West Leics.
Beveridge Lane, Ellistown	North West Leics.
Ellistown Quarry	North West Leics.
Lockington Quarry	North West Leics.
Wood Road, Battram	North West Leics.

4.6 Whilst the data currently available is not considered to be suitably robust to enable a recycling target to be set for Leicestershire, the adopted development plan demonstrates a strong support by the Council for aggregate recycling. Thus, the adopted Leicestershire Minerals Core Strategy and Development Control Policies DPD includes the following policies:

Policy MCS10: the strategy for resource management is to reduce the demand for primary minerals by encouraging the use of mineral waste, power station ash and construction and demolition wastes before primary minerals and supporting recycling initiatives.

Policy MDC22: Planning permission will be granted for aggregate recycling facilities and for development involving production of secondary and recycled aggregates at existing mineral sites provided that they are located close to the source of materials, have good infrastructure links and will not cause unacceptable harm to the environment or communities.

4.7 The Submission Leicestershire Minerals and Waste Local Plan also indicates that the County Council will support proposals for the recycling and reprocessing of materials for use as aggregates in appropriate locations.

4.8 The general trend in respect of inert recovery 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.

5. Future Provision

5.1 The Leicestershire Minerals Core Strategy (adopted in 2009) provided an indication of the likely future provision for the period 2001 – 2021 (see paragraph 1.4 above). A number of years have elapsed since the submission and subsequent adoption of the Minerals Core Strategy. It is therefore appropriate to look at the most up to date information.

5.2 The starting point for setting a production guideline for aggregates in the LAA is to estimate demand on the basis of a rolling average of 10 years sales data (the 10-year average) before considering other relevant local information. The 10-year average is 1.16 million tonnes per annum for sand and gravel (see paragraph 3.5 above) and 13.1 million tonnes per annum for crushed rock (see paragraph 3.13 above).

Sub regional apportionment

5.3 An indicator to be taken into account in identifying the level of future provision is the sub-regional apportionment derived from the National and regional guidelines for aggregates provision in England. The latest guidelines were produced to cover the period for 2005-2020 and set out the level of provision which should be made by each Region.

5.4 An annual "sub-regional apportionment" was produced from the 2005-2020 Guidelines by the East Midlands Aggregates Working Party (EMAWP). For Leicestershire, this was 1.51 million tonnes of sand and gravel and 16.6 million tonnes of crushed rock. This sub-regional apportionment is 1% higher than the 2016 sand and gravel sales figure and 18% higher than the 2016 crushed rock sales figure. This level of production has not been achieved in Leicestershire during the last 10 years.

5.5 At the meeting of the East Midlands Aggregates Working Party in February 2013, doubts were expressed about the validity of the latest 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 consequently not be taken into account in identifying future levels of provision. It was 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.

5.6 In the Inspector's Report on the partial review of the Northamptonshire Minerals and Waste Local Plan, the Inspector stated "as they (the national guidelines) were based on production before the recession and within a different policy context, it would

not be prudent to accord them very significant weight." This suggests that it would not be appropriate to base the production guideline in this LAA on the National and regional guidelines or the sub-regional apportionment.

Recent trends

5.7 An average of the last three years sales gives an indication of the most recent sales trends to identify the general trend of demand.

5.8 Average sand and gravel sales over the last three years were 1.46 million tonnes per annum, 26% higher than the 10-year average (see paragraph 3.6 above). The trend highlighted by the three-year average for sand and gravel warrants consideration of whether it would be appropriate to alter the production guideline from the 10-year average.

5.9 Average crushed rock sales over the last 3 years were 13.93 million tonnes, about 6% higher than the 10-year average (see paragraph 3.14 above). The trend highlighted by the three-year average for crushed rock does not appear significant enough to indicate that it would be appropriate to alter the production guideline from the 10-year average.

Local Factors

5.10 The NPPF states that the annual Local Aggregate Assessment should be based on a rolling average of 10 years sales data and *other relevant local information*. In respect of the latter, the following issues have been addressed: population forecasts; household projections; future house building; local economic objectives; and major infrastructure projects. The bulk of the analysis in this section focuses on Leicestershire and Leicester.

5.11 Table 10 below shows population and household projections from 2011 to 2036 in Leicester & Leicestershire, the East Midlands and England from the ONS/CLG 2014-based Population and Household Projections. The data shows that the population of Leicester & Leicestershire is projected to grow by 19.5%, which is above that projected across the region (16%) and for England as a whole (17.5%). Households within Leicester & Leicestershire are expected to grow by 20.7%, which is faster than the growth expected across the region (17.2%) and nationally (19.9%).

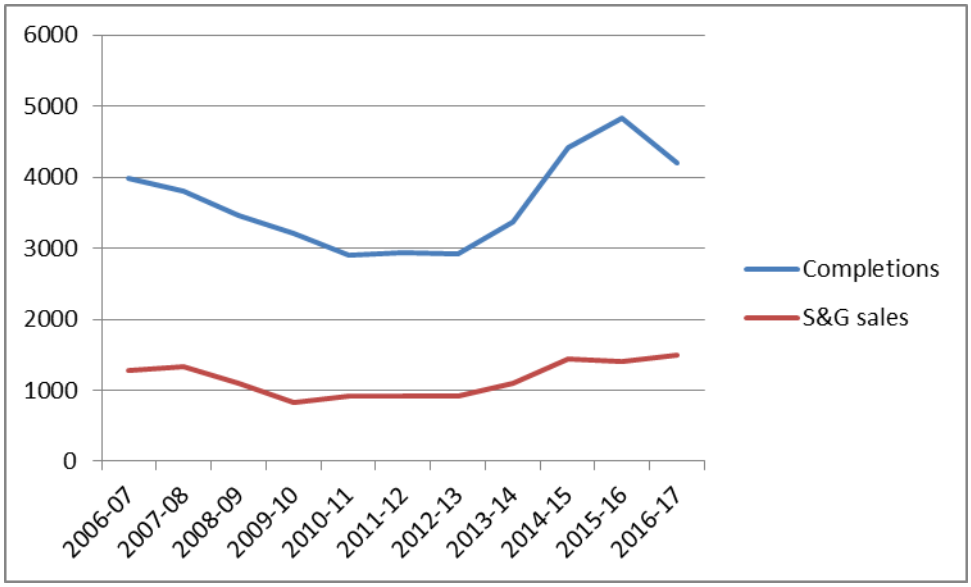
Table 10 Population and Household Projections (2011-2036)

	Population 2011	Population Growth 2011-36	% population growth	Change in households	% Household Growth
Leicester & Leicestershire	980,806	191,562	19.5%	80,778	20.7%
East Midlands	4,537,448	733,508	16.2%	335,623	17.7%
England	53,107,169	9,296,778	17.5%	4,394,788	19.9%

5.12 A steady and adequate supply of aggregates will be crucial to enabling the level of planned housing development to be delivered. The Mineral Products Association states that the construction of a typical new house uses up to 50 tonnes of aggregates from the foundations through to the roof tiles. This is a generalisation which should be treated with a degree of caution and does not distinguish between use of sand and gravel and crushed rock and does not include any requirements for infrastructure supporting housing development or the significant amount used in maintaining or refurbishing existing housing stock. There are no figures available to indicate the level of demand other types of development might create.

5.13 Considering levels of planned housing development could still provide an indication of whether demand for aggregates is likely to significantly increase or decrease. A comparison of sand and gravel sales against housing completions in the county since 2006/07 is shown in Figure 11 below. Any relationship should be treated with some caution given the amount of mineral that is exported out of the County (see paragraph 3.9 above). It would be prudent however to continue to examine trends in sand and gravel sales and housing completions in future LAAs.

Figure 11 Comparison of Sand and Gravel Sales and Housing Completions



5.14 In February 2016 GL Hearn along with Justin Gardner Consulting and Oxford Economics were appointed by the local authorities and the local enterprise partnership in Leicester and Leicestershire to undertake a Housing and Economic Development Needs Assessment (HEDNA) for the area to replace the 2014 Strategic Housing Market Assessment and the 2013 Leicester & Leicestershire Employment Land Study.

5.15 The HEDNA report was published on 27th January 2017. The report identifies an Objectively Assessed Need for Leicester and Leicestershire, based on demographic analysis, of some 96,580 dwellings for the period 2011-31 (4,829 dwellings per annum). For the period, 2011-2036, the figure is some 117,900 dwellings (4,716 dwellings per annum).

5.16 The nine local authorities and the LLEP have jointly agreed to produce a Strategic Growth Plan, a non-statutory strategic plan looking forward to around 2050. A draft Strategic Growth Plan was published for consultation in January 2018. This includes an estimate of the likely scale of growth for the period 2031-50, namely some 90,600 dwellings (4,768 dwellings per annum).

5.17 The HEDNA also included detailed work to interrogate future economic growth potential in Leicester and Leicestershire. GL Hearn and Oxford Economics have interrogated the area's economic structure and past performance, assessed baseline econometric forecasts from Oxford Economics Local Authority District Forecasting Model and overlaid local economic drivers and planned investment on this to derive a Planned Growth Scenario.

5.18 The Planned Growth Scenario sees employment growth in Leicester and Leicestershire of 99,200 between 2011 and 2036, representing growth of 0.7% pa, matching that expected nationally and exceeding regional performance. This significantly exceeds the historical growth rate of 0.4% pa (1993-2010).

5.19 The Leicester & Leicestershire Enterprise Partnership's (LLEP) Strategic Economic Plan sets out strategic objectives, priorities and actions for the period 2014 to 2020. The LLEP's ambition is that, by 2020, 45,000 additional jobs will have been created, £2.5b of private sector investment will have been attracted to the area, and that the Gross Value Added (GVA) will have increased by £4b to £23b. The Economic Plan identifies five growth areas within which there are four transformational priorities, namely Leicester Launchpad (6,000 jobs), East Midlands Gateway Strategic Rail Freight Interchange (7,000 jobs), Loughborough University Science & Enterprise Parks (4,000 jobs) and MIRA Technology Park (2,000 jobs).

5.20 The latest *National Infrastructure Plan* was published by the Government in December 2014. The plan sets out investment for energy, transport, flood defence, waste, water and communications infrastructure up to 2020 and beyond. The Top 40 priority infrastructure investments included 2 major transport projects within Leicestershire (M1 / M6 Junction 19 project and A453 widening project between Nottingham, the M1 and East Midlands Airport), both of which have now been completed.

5.21 The Midlands Engine Strategy was published in March 2017. This sets out Local Growth Fund investment of £392 million for skills, connectivity and local growth in the region, of which £25.87 million is allocated to the Leicester and Leicestershire LEP. Specific projects include £14 million to develop a global space technologies hub in Leicester, and £12 million to improve transport connections in and around Loughborough.

5.22 In January 2012, the Government announced its decision to proceed with a £32.7 billion national High Speed Rail network (High Speed Two) from London to Birmingham, continuing onto Manchester and Leeds. The preferred route for HS2 phase two published in July 2017 lies partly within Leicestershire. Main construction work on Phase 1 between London and the West Midlands is due to start in 2018/19. Construction of Phase 2 from the West Midlands to Manchester and Leeds is scheduled to begin in 2023.

Conclusion

5.23 Recent trends in production for sand and gravel, together with the local factors referred to above, suggest that there may be demand for sand and gravel from Leicestershire operations over and above the average experienced during the last 10-year period (2008 to 2017).

5.24 On the other hand, there are increasing signs of problems regarding the provision of further resources, as witnessed by the low landbank (see paragraph 3.7 above), the low number of new applications being submitted, the limited number of sites put forward for inclusion in the Minerals and Waste Local Plan, and the Plan's consequent inability to allocate sufficient sites for the plan period. Future sales may consequently be influenced by mineral reserve continuity at individual quarry sites. In the circumstances, it is considered appropriate for the production guidelines identified by this Local Aggregates Assessment to reflect the 10-year sales average, namely 1.16 million tonnes per annum.

5.25 The importance and current distribution of Leicestershire's crushed rock means that it is likely that the County's rock quarries will continue to supply major infrastructure both in the East Midlands and elsewhere in England. The scale of any potential increase in

demand is uncertain, however, and will largely depend on the rate of future growth in the national and local economy. Whilst there is no evidence that demand for crushed rock is likely to decrease, it is not considered there is sufficient robust evidence to support a specific level of production above the 10-year average of sales. The production guidelines identified by this Local Aggregates Assessment therefore reflect the 10-year sales average, namely 13.1 million tonnes per annum.

Sand and Gravel Provision

5.26 Table 11 below provides revised calculations of the potential future requirement for sand and gravel within Leicestershire based on average sales over the last 10 years. The calculations are based on making provision for the period up to 2031. The calculations take account of the level of permitted reserves as at 31st December 2017.

Table 11: Calculation of Sand and Gravel Provision 2018 – 2031

Calculation		Million Tonnes
A	Annual Requirement	**1.16**
B	Total Requirement 2018-2031	**16.24**
C	Total permitted reserves at 31/12/2017	**2.67**
D(B-C)	Shortfall 2018 – 2031	**13.57**

5.27 The table indicates that there will be a shortfall of sand and gravel reserves over the period to 2031 of some 13.6 million tonnes. The Submission Leicestershire Minerals and Waste Local Plan includes proposals for the extension of four of the active sand and gravel operations in the County, which would release some 7.2 million tonnes of potential reserves. The plan however provides for planning permission to be granted for sand and gravel outside unallocated areas.

5.28 Planning permission was granted in 2015 for a new wash plant facility at Mountsorrel Quarry. It is estimated that the plant will produce around 310,000 tonnes of washed quarry fines per annum, which will be comparable with washed concrete sand produced at sand and gravel sites elsewhere. This product will reduce the need to import equivalent materials to supply ancillary production at the quarry (i.e. ready-mix and precast concrete plant).

Crushed Rock Provision

5.29 The Leicestershire Minerals Core Strategy indicated there would be more than sufficient crushed rock reserves to meet requirements over the period to 2021. It was not therefore considered necessary to make specific provision for future rock extraction.

5.30 Table 12 below provides updated calculations of the potential future requirement for crushed rock from Leicestershire based on average sales over the last 10 years. The calculations are based on making provision for the period up to 2031. The calculations take account of the level of permitted reserves as at 31st December 2017.

Table 12: Calculation of Crushed Rock (Aggregate) Provision 2018-2031

Calculation		Million Tonnes
A	Annual Requirement	**13.1**
B	Total Requirement 2018-2031	**183.4**
C	Total permitted reserves, excluding reserves in dormant sites, at 31/12/2017	**380**
D(B-C)	Surplus 2018 – 2031	**196.6**

5.31 The table indicates that there will be more than sufficient crushed rock reserves to meet requirements up to 2031. The current level of permitted reserves is also sufficient to maintain a landbank of 10 years throughout the period to 2031.

5.32 Whilst the theoretical permitted reserves of igneous rock appear to be adequate (see paragraph 3.18 above), technical considerations led the East Midlands Aggregates Working Party (EMAWP) to express concern in 2010 regarding the medium to long term ability of Leicestershire to supply crushed rock, at existing levels, particularly to areas like the South East and London. The EMAWP advocated that action be taken to address concerns over medium to long term future supplies of igneous rock from Leicestershire, bearing in mind the nationally strategic and uncertain nature of the Leicestershire resources beyond the existing permissions.

5.33 This situation has also been recognised in a report from the British Geological Survey ('An evidence-based approach to predicting the future supply of aggregate resources in England' 2011) which concluded that "by far the most important foreseeable shortfall in the medium- to long-term is amongst the four rail-connected igneous quarries in Leicestershire."

5.34 The current strategy for aggregate minerals, as set out in Policy MCS2 of the existing Minerals Core Strategy (and reiterated in the Pre-Submission Draft Minerals and Waste Local Plan), is to release reserves of crushed rock to be worked as extensions to existing extraction sites where they are required to ensure sustainable supply. Options for the potential extension of existing sites are however limited by geology, depth of overburden, bio-conservation, local amenity and other factors.

5.35 In August 2011, Leicestershire County Council granted planning permission for the extraction of 132 million tonnes of mineral from an area adjacent to Bardon Hill Quarry. This has extended the life

of the quarry by around 40 years. The stone extracted at the quarry has a high PSV (60), enabling the aggregates to be used more extensively in road surfacing applications, as well as in other asphalt products, concrete and other uses.

5.36 Planning permission was granted in October 2015 for the extraction of an additional 20 million tonnes of mineral from an extension to Mountsorrel Quarry. This has extended the life of the quarry to 2040.

5.37 Planning permission at the two other rail-linked sites at Croft and Cliffe Hill currently expire at the end of 2029 and 2032 respectively. The amount of remaining permitted reserves at these quarries however suggests that they currently have respectively less than 5 years and around 10 years life left.

5.38 The nature of working is such that the costs of extraction rise considerably as these active quarries approach their planned maximum working depths. Other future constraints might include changing safe slope criteria or unforeseen geological factors which could reduce recovery of reserves.

5.39 If production at any of the existing active sites cannot be maintained, it may be possible to use production capacity at sites that are currently inactive in order maintain the level of provision from quarries within Leicestershire. Neither of the inactive sites in the County however are rail-connected nor have they any realistic prospect of being linked by rail.