

Nottinghamshire and Nottingham Local Aggregates Assessment

Containing 2016 sales data

Published October 2017

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Summary

This is the sixth Nottinghamshire and Nottingham Local Aggregates Assessment (LAA) to be produced under the requirements set out in the National Planning Policy Framework (NPPF). The assessment covers the geographical area of Nottinghamshire and includes the Nottingham City unitary authority area. It monitors annual sales data for aggregate minerals between 2007 and 2016 as well as identifying other relevant local information to enable the Mineral Planning Authorities to plan for a steady and adequate supply of minerals.

Aggregate minerals are made up of sand and gravel, Sherwood Sandstone and crushed rock and are used in the construction industry. Their main uses include concrete, mortar, asphalt, railway ballast and bulk fill.

The LAA sets out:

- Summaries of past aggregate sales, number of active quarries and the distribution of the extracted mineral;-
- The latest 10 and 3 year average sales data and a comparison to the previous average sales data; and,-
- The key issues that could affect the future demand for aggregates over the next plan period.

Key Findings

Nottinghamshire is an important producer of sand and gravel and Sherwood Sandstone and has a large export market particularly to South Yorkshire and the wider East Midlands. Crushed rock production is minimal with most imported from Derbyshire and Leicestershire.

Whilst aggregate mineral resources are present in the Nottingham City area, the opportunities to work these minerals are limited due to the built up nature of the area. As a result, the majority of aggregates consumed in the City are supplied from either Nottinghamshire or further afield.

The Nottingham City Land and Planning Policies document contains policies against which any proposal for minerals development within the City boundary would be assessed, including a Minerals Safeguarding Policy, however it does not include demand forecasts for aggregate minerals.

The recession has seen sales for all aggregate minerals fall since 2007. This can be seen most dramatically with sand and gravel. In 2009 and 2016, sales of sand and gravel fell to their lowest level since records began in 1973. This was due to the combined effects of both the recession and the fact that production from Finningley Quarry, which straddles the Nottinghamshire/Doncaster border, temporarily switched to Doncaster in those years.

The 2016 sales data shows a fall in sand and gravel sales and a small fall for Sherwood Sandstone sales compared to the 2015 data. Crushed rock (limestone) output remains at zero.

The latest 10 year average sales figures show that sand and gravel has steadily fallen since the first LAA was published in 2013, Sherwood Sandstone sales have remained broadly stable and sales of crushed rock (limestone) has continued to decline. This is due to the greater influence of the recession on the monitoring period for sand and gravel and the delay in replacement quarries coming forward to replace worked out quarries. The 3 year average sales figure shows that sand and gravel has steadily fallen, Sherwood Sandstone has remained broadly stable and crushed rock (limestone) has steadily fallen (see table 1).

Table 1: Sales and landbank figures as of 2016

	2016 sales (million tonnes)	10 year sales average 2007-2016 (million tonnes)	3 year sales average 2014-2016 (million tonnes)	Permitted reserves (million tonnes)	Landbank (years)
Sand and gravel	1.27	1.7	1.4	17.5	10.29
Sherwood Sandstone	0.32	0.37	0.35	3.7	10
Crushed rock (limestone)	0.00	0.005	0.00	3.34	668*

*The landbank figure should be used with caution as sales have been at zero for a number of years.

Introduction

- 1.1 The requirement to prepare a Local Aggregates Assessment (LAA) was introduced in the National Planning Policy Framework (NPPF) in March 2012. The LAA should include the latest 10 years average sales data taking into account any important local considerations, sub national and national guidelines on aggregate provision. The data contained in the LAA will then enable the Minerals Planning Authorities (MPAs) to make provision for a steady and adequate supply of aggregate minerals in their area over the life of the Minerals Local Plan.
- 1.2 The Planning Practice Guidance also sets out an additional requirement to identify the 3 year average sales figure in particular to identify the general trend of demand as part of the consideration of whether it might be appropriate to increase supply.
- 1.3 This LAA sets out the aggregate minerals found in the geographical area of Nottinghamshire including Nottingham City, the current situation in terms of annual sales, the number of active quarries and the amount of aggregate that will need to be provided over the plan period.
- 1.4 It is important to note that whilst aggregate mineral resources are present in the Nottingham City boundary, the opportunities to work these minerals are limited due to the built up nature of the area. As a result the majority of aggregates consumed in the City are supplied from either Nottinghamshire or further afield.
- 1.5 The Nottingham City Land and Planning Policies document contains policies against which any proposal for minerals development within the city boundary would be assessed against, including a Minerals Safeguarding Policy, however it does not include demand forecasts for aggregate minerals.
- 1.6 The information used in this LAA is supplied by the East Midlands Aggregate Working Party and relates to the period 1st January to 31st December 2016.
- 1.7 The Aggregates Working Party is made up of MPAs from across the region and industry representatives. Its role is to provide technical advice about the supply and demand for aggregates and undertake annual monitoring of aggregate production and levels of permitted reserves across the East Midlands. This information is supplied to MPAs and to the National Aggregate Co-ordinating Group to inform national aggregate provision.
- 1.8 The LAA is required to be updated on an annual basis, and will enable the County and City Councils to monitor ongoing patterns and trends in aggregate sales and ensure that adequate reserves are maintained over the plan period.

Aggregates in Nottinghamshire and Nottingham City

- 2.1 Aggregates account for around 90% of minerals used in construction and are essential in maintaining the physical framework of buildings and infrastructure on which our society depends. Aggregates are usually defined as hard granular materials and include sand and gravel, Sherwood Sandstone and limestone. Their main uses include concrete, mortar, Roadstone, asphalt, railway ballast, drainage courses and bulk fill.

Primary aggregates

- 2.2 Plan 1 illustrates the following primary aggregates that are found in the geographical area of Nottinghamshire and Nottingham.

Sand and gravel

- 2.3 Important alluvial (river) sand and gravel deposits are found in the Trent and the Idle Valleys which have made Nottinghamshire an important producer of sand and gravel in the East Midlands. Limited extraction also occurs in glaciofluvial sand and gravel deposits near East Leake, south of Nottingham. Sand and gravel is mainly used in ready mixed concrete production, although Nottinghamshire's reserves are particularly valuable because they meet high strength concrete specifications as the gravel is made up of quartzite.

Sherwood Sandstone

- 2.4 Although defined as sandstone, this rock formation rapidly breaks down to sand when extracted. The sandstone occurs as a broad north-south belt stretching from the border with South Yorkshire, southwards to Nottingham. The mineral is mainly used to produce asphalt and mortar sand. There is relatively little overlap with the uses for which alluvial and glacial sand and gravels are suitable. Sherwood Sandstone is also used for non-aggregate industrial and other specialist end-uses.

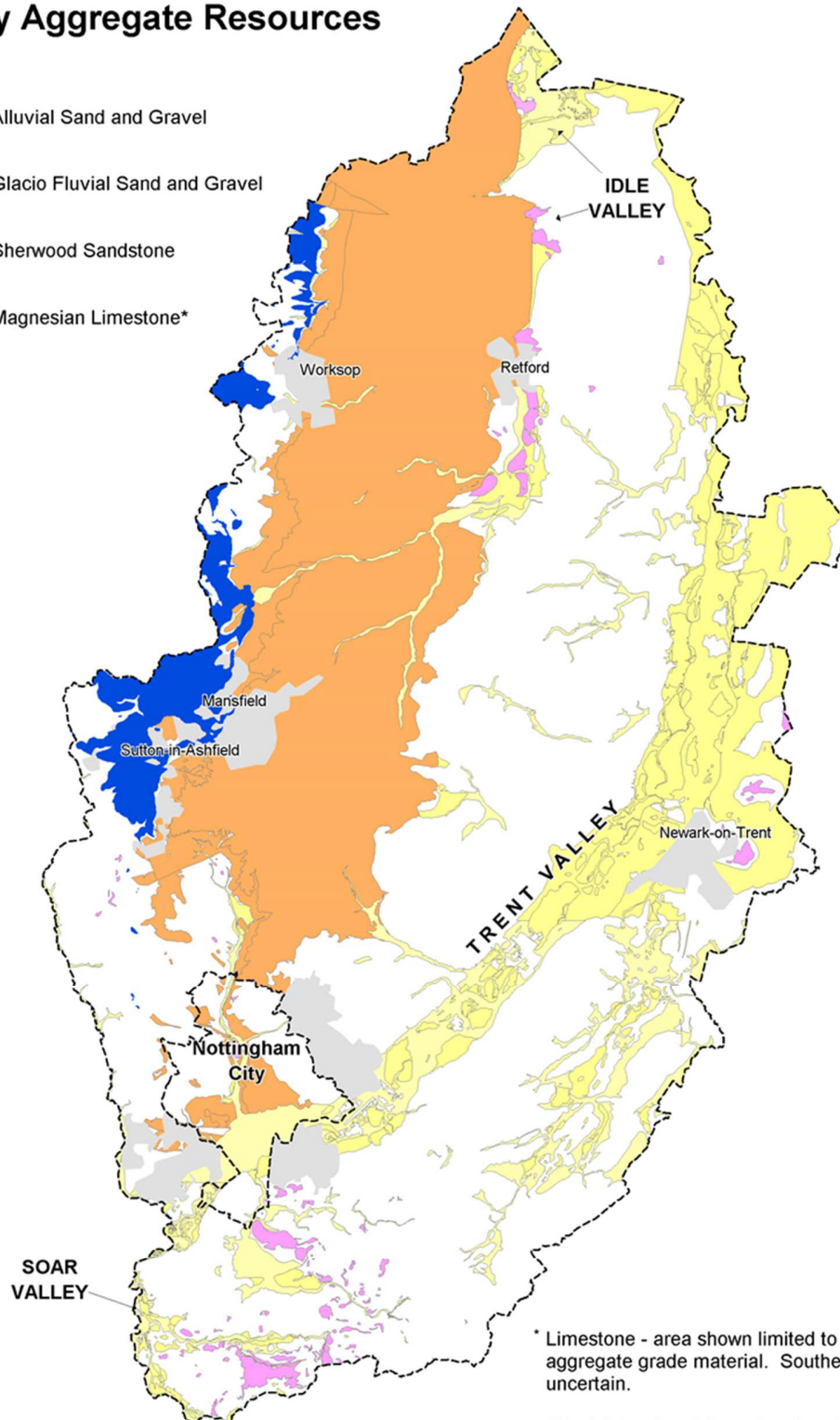
Magnesian Limestone

- 2.5 This resource occurs as a relatively narrow belt to the west of the Sherwood Sandstone. This outcrop comprises the southernmost limits of the UK's second largest limestone resource that extends from the Durham coast through Yorkshire into Derbyshire and Nottinghamshire. Limestone suitable for use as an aggregate is only found in the Mansfield area and to the north where the mineral is used mainly as a road sub-base material although some mineral is of industrial grade quality. Production is relatively small scale and the lowest in the East Midlands. Around Linby the limestone is suitable for building and ornamental purposes, although aggregates can be produced as a by-product of utilising reject building stone.

Plan 1 - Nottinghamshire - Primary Aggregate Resources

Key

- Alluvial Sand and Gravel
- Glacio Fluvial Sand and Gravel
- Sherwood Sandstone
- Magnesian Limestone*



* Limestone - area shown limited to aggregate grade material. Southern limit uncertain.

* Alluvial Sand and Gravel - minor tributaries and glaciofluvial - economic potential limited.

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 British Geological Survey, 2013. Digital Geological Map of Great Britain 1:625 000 scale (DiGMapGB-625)
 Superficial Deposits data [CD-Rom] Version 1.10. Keyworth, Nottingham: British Geological Survey.
 Release date 30-04-2003

Alternative aggregates

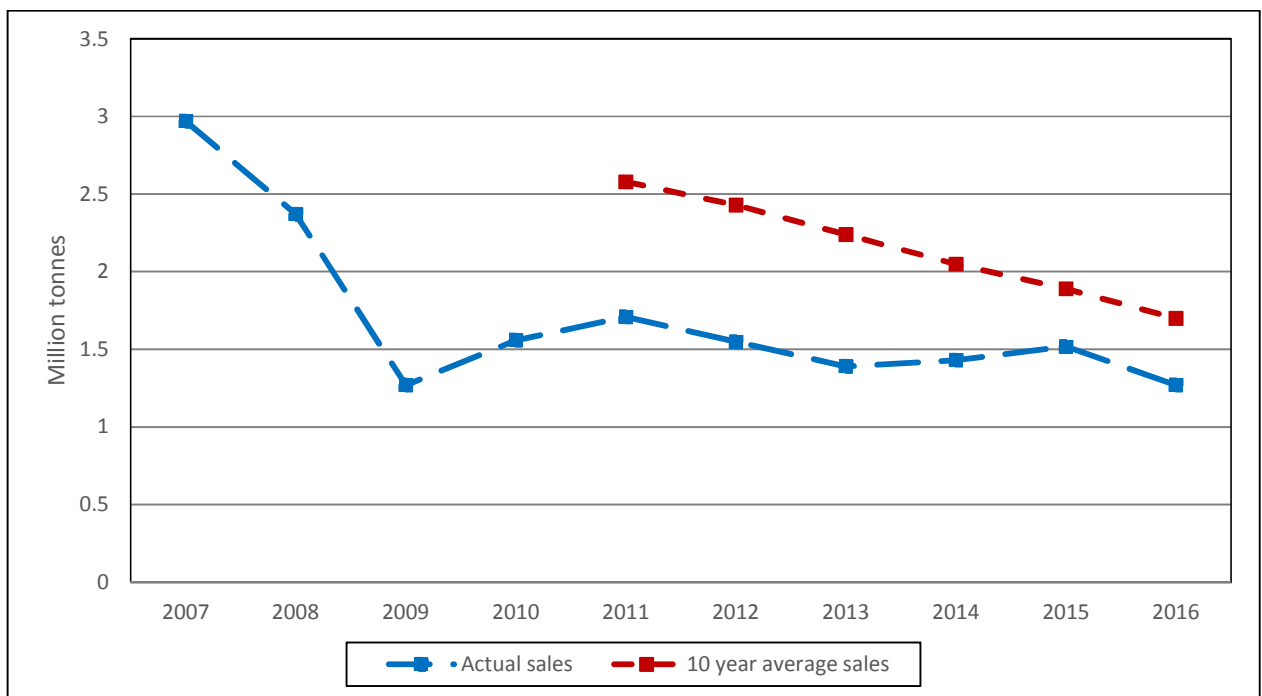
- 2.6 Alternative aggregates comprise secondary and recycled materials, although these terms are often used interchangeably. Recycled aggregates are materials that have been used previously and include some types of construction and demolition waste, asphalt road planings and used railway ballast. Secondary aggregates are by-products of other processes that have not been previously used as aggregates. They include colliery spoil, china clay waste, slate waste, power station ashes, blast furnace and steel slag, incinerator ashes and foundry sands.
- 2.7 Alternative aggregates are currently most widely used in lower grade applications such as bulk fill. However, the range of uses is widening due to advances in technology and the increasing economic incentive to use them instead of primary aggregates.
- 2.8 In Nottinghamshire, sources of alternative aggregates include construction and demolition waste, power station ash, river dredgings, road planings and rail ballast.

Local production

Sand and gravel

- 3.1 Sales fell sharply from 2.97 million tonnes in 2007 to just 1.27 million tonnes in 2009, the lowest production figure since records began in 1973. This was a result of both the recession and production at Finningley quarry temporarily moving across the County boundary into Doncaster. Sales increased in 2010 and 2011 as a result of extraction at Finningley quarry recommencing in the County and increased economic activity, before falling slightly in 2013. Small increases were recorded in 2014 and 2015, however sales fell in 2016 due to approximately half the annual output from Finningley quarry moving across the County boundary into Doncaster again. (see Figure 2 below).
- 3.2 Along with the fall in sales due to the recession, the number of permitted quarries coming online to replace worked out quarries has also fallen affecting sales figures.

Figure 2: Sales of sand and gravel 2007-2016 against the 10 year average sales figure. (Figures in million tonnes)



Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Sales (Million tonnes)	2.97	2.37	1.27	1.56	1.71	1.55	1.39	1.43	1.52	1.27

Resources and landbank

- 3.3 The landbank is calculated by dividing existing permitted reserves by the level of production based on the average sales over the last 10 years. This is in line with guidance set out in the National Planning Practice Guidance.
- 3.4 Permitted reserves currently total 17.5 million tonnes, with average sales over the last 10 years standing at 1.7 million tonnes per annum. Therefore as of December 2016 the landbank stood at 10.29 years of production. This is above the minimum 7 year landbank requirement set out in the NPPF.
- 3.5 There are eleven permitted sand and gravel quarries in Nottinghamshire, although at present only nine are in full production with a further quarry, Girton, only working existing stockpiles (see Table 2 below).

Table 2: Permitted sand and gravel quarries in Nottinghamshire

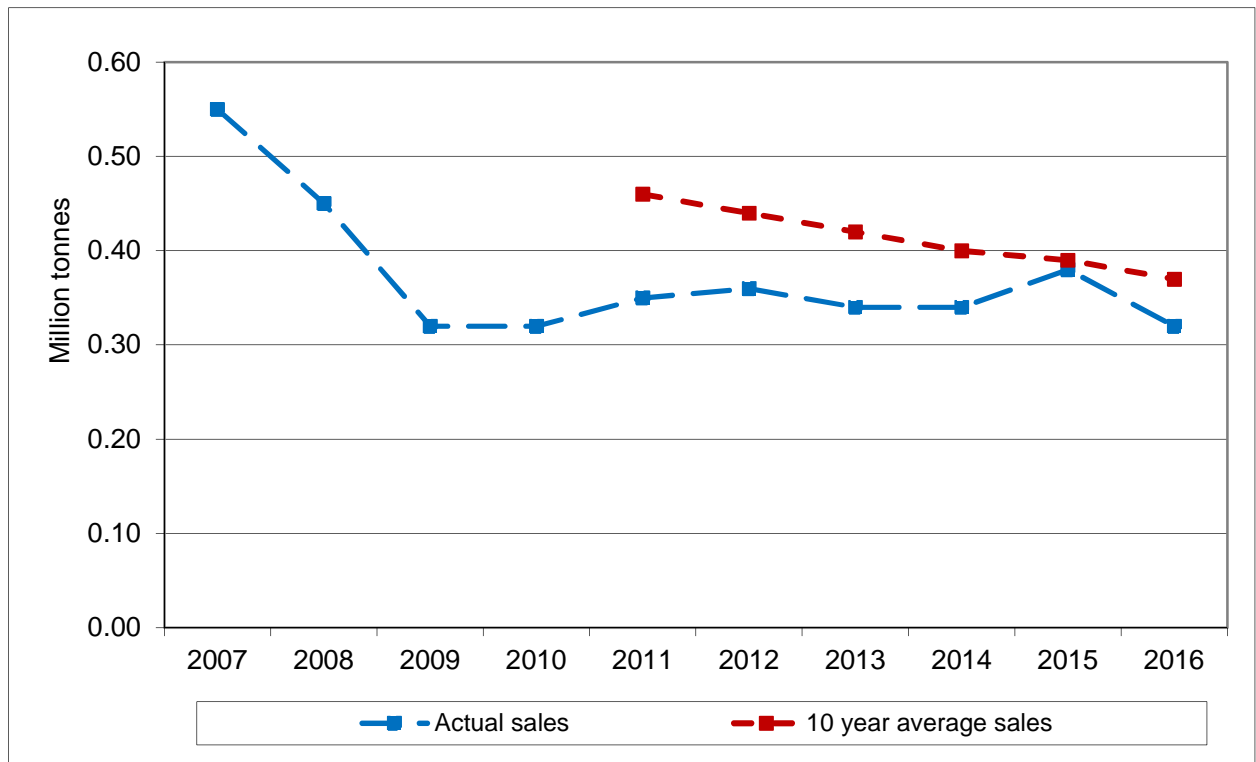
Site	Operator	Status	Permitted reserves (mt)
Langford Lowfields	Tarmac	Active	1.35
Girton	Tarmac	Inactive	3.56
Besthorpe	Tarmac	Active	0.50
Sturton Le Steeple	Tarmac	Yet to be worked	7.5
East Leake	CEMEX	Active	0*
Cromwell	CEMEX	Active	2.4
Misson West	Hanson	Active	0.03
Misson Newington	Hanson	Active	0.39
Scrooby	Rotherham Sand & Gravel	Active	0.72
Finningley	Tarmac	Active	0.45
Misson Bawtry Road	Rowley	Active	0.60
TOTAL			17.5

Note: *Planning permission for extension to existing quarry (containing approximately 2.34 million tonnes) pending Section 106 agreement

Sherwood Sandstone

3.6 Historically Sherwood Sandstone sales have been much lower than sand and gravel sales as it is generally used in different, more specialist markets. Sales fell from 0.55 million tonnes in 2007 to a low of 0.32 million tonnes in 2009. Since 2010 sales have remained relatively stable between 0.32 and 0.38 million tonnes a year. (see Figure 3 below). Sales in 2016 were 0.32 million tonnes.

Figure 3: Sales of Sherwood Sandstone, 2007-2016 against 10 year average sales figure. (Figures in million tonnes)



Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Sales (million tonnes)	0.55	0.45	0.32	0.32	0.35	0.36	0.34	0.34	0.38	0.32

Resources and landbank

3.7 There are five permitted Sherwood Sandstone quarries although at present only four are being worked, with one dormant (see Table 3 below). Permitted reserves currently total 3.73 million tonnes, with average sales over the last 10 years standing at 0.37 million tonnes. Therefore as of December 2016 the landbank stood at 10 years. This is above the minimum 7 year requirement.

Table 3: Permitted Sherwood Sandstone quarries in Nottinghamshire

Site	Operator	Status	
Burntstump	Tarmac	Active	1.88
Bestwood 2	Tarmac	Active	1.30
Carlton Forest	Tarmac	Dormant	0.07
Two Oaks Farm	Mansfield Sand Company	Active	0.48
Scrooby Top	Rotherham Sand & Gravel	Active	0**
TOTAL			3.73

Note: ** Pending reassessment by the mineral operator

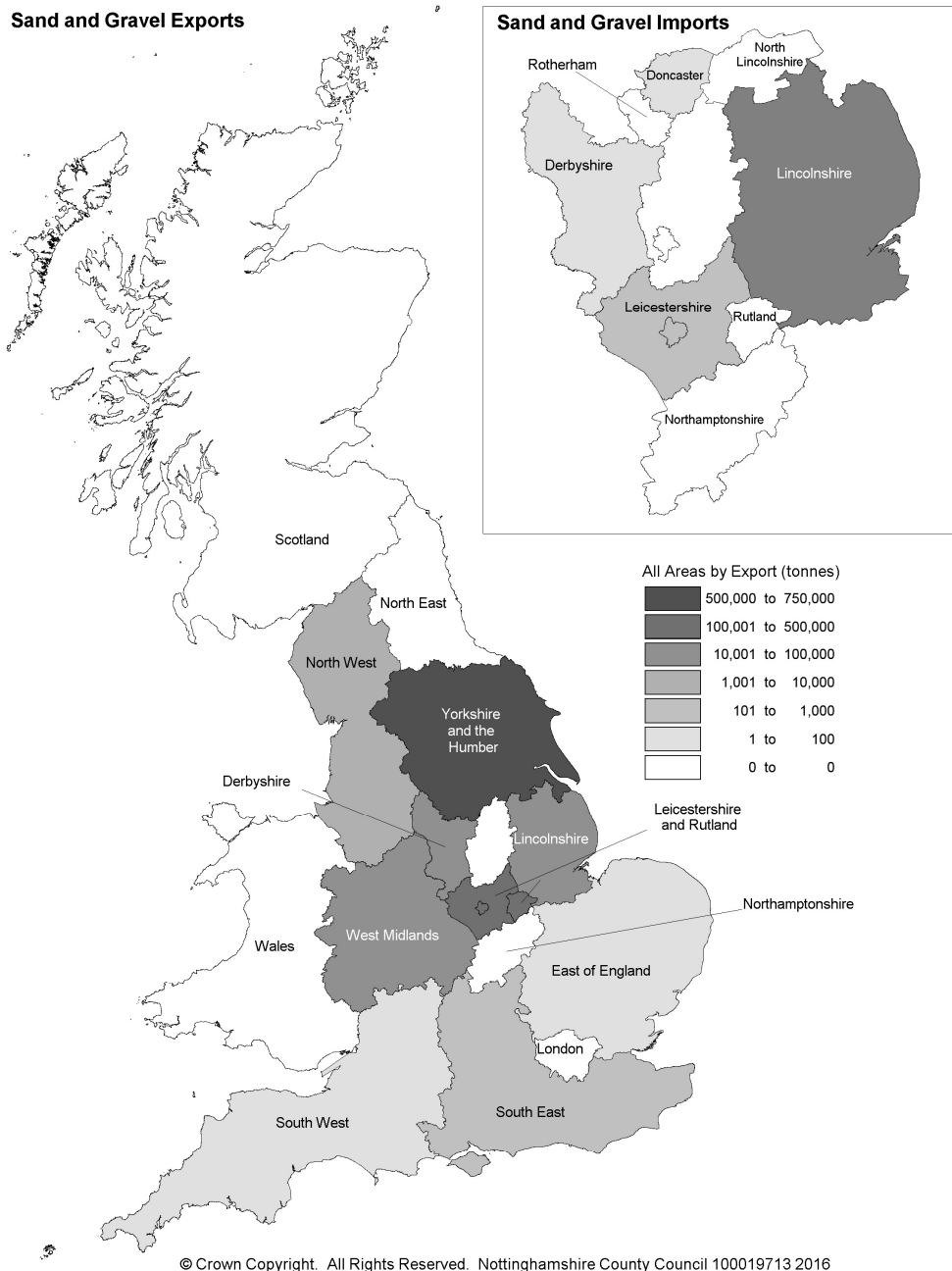
Imports and exports of sand and gravel (including Sherwood Sandstone)

- 3.8 Imports and exports of aggregates are only recorded as a one year snap shot every four years as part of the full surveys undertaken by the East Midlands Aggregate Working Party (EMAWP). The most recent full survey was undertaken in 2014. The surveys do not include a breakdown for Sherwood Sandstone, hence all sand and gravel import and export figures in this report include Sherwood Sandstone.
- 3.9 The amount of sand and gravel and Sherwood Sandstone known to be exported from Nottinghamshire is 1.07 million tonnes, or 60% of the total amount extracted (1.77 million tonnes). However an additional 210,000 tonnes is classified as having an unknown destination. If this 210,000 tonnes is also exported the figure rises to 72%. However it should be noted that the export figure in 2009 (the last time such data was collected) was 52% so it is considered more likely that this 210,000 tonnes actually served markets within Nottinghamshire.
- 3.10 The results of the 2014 full survey shows that Nottinghamshire exported approximately 400,000 tonnes to Rotherham and Doncaster making it the main export market followed by other neighbouring authorities in the East Midlands¹. This is due to limited resources elsewhere and the quality of the gravel that meets the specifications for making high strength concrete. However some is transported a much greater distance. See Figure 4 below.
- 3.11 Imports of sand and gravel from elsewhere in the East Midlands were lower compared to the amount extracted from the County's own quarries. However, the amount imported still totalled approximately 530,000 tonnes. It is likely that these imports supply markets close to the county boundary.
- 3.12 Figure 4 sets out the latest available data on import and exports of sand and gravel.

¹ Source: Aggregate Minerals Survey 2014, conducted by the Department of Communities and Local Government

3.13 Given the relatively low value and bulky nature of aggregates, transport forms a major part of its cost. As a result the distance minerals can be economically transported by road is relatively limited. National figures identify the average distance travelled in 2015 was 35 miles, although the distance travelled has steadily been increasing². No data is available at the local level.

Figure 4: Sand and gravel (including Sherwood Sandstone) imports and exports to and from Nottinghamshire, 2014 (tonnes)

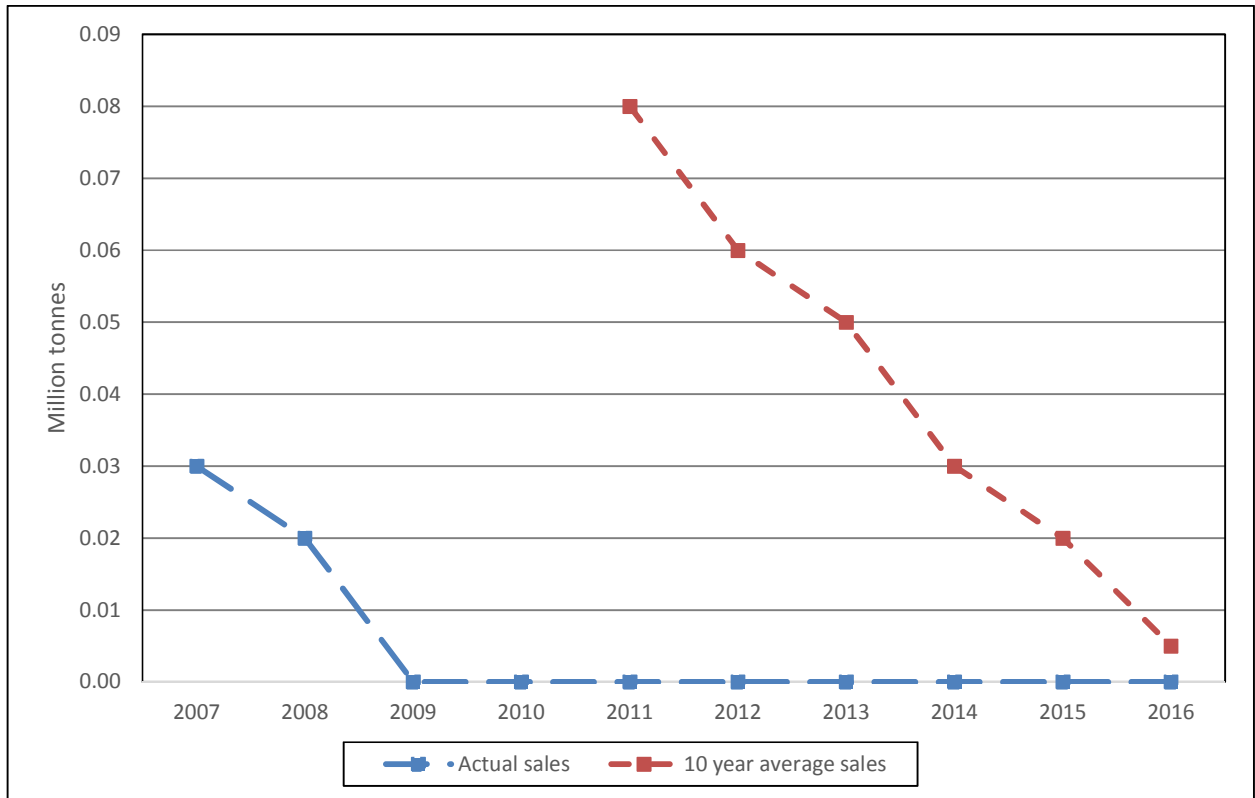


² Minerals Products Association

Crushed rock (including aggregate limestone)

3.14 Crushed rock sales (predominately aggregate limestone) in Nottinghamshire have stood at zero over the majority of the 10 year period. This lack of sales has continued in 2016. (see figure 5 below).

Figure 5: Sales of aggregate limestone, 2007-2016 against 10 year average sales figure. (Figures in million tonnes)



Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Sales (million tonnes)	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Resources and landbank

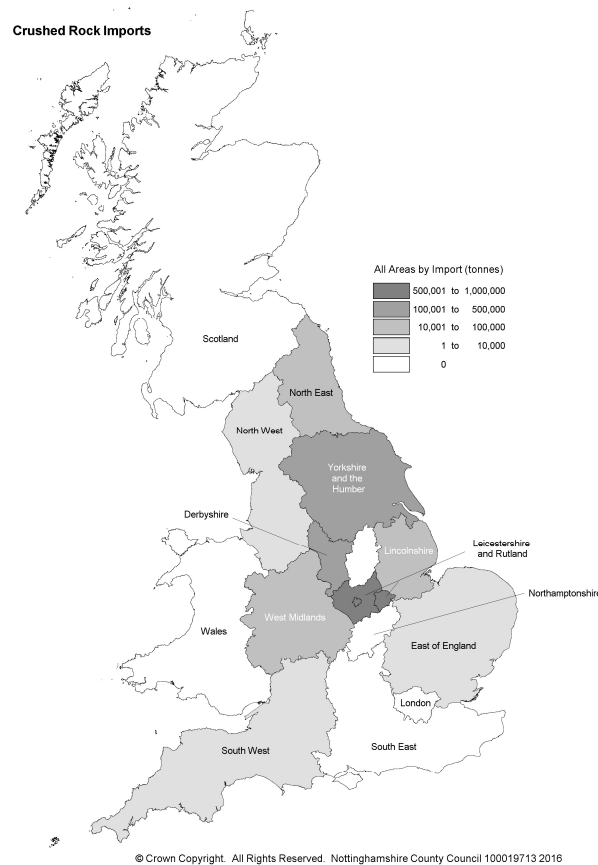
3.15 Nottinghamshire only has one dedicated aggregate limestone quarry (at Nether Langwith). The quarry was originally opened to supplement a much larger quarry in Derbyshire, however it has been mothballed since 2007. Some aggregate is also produced from reject stone at a building stone quarry at Linby although this tonnage is small. Given that no significant quantity of aggregate is currently being worked, the landbank is theoretically increasing rapidly. Permitted reserves currently total 3.34 million tonnes, with average sales over the last 10 years standing at 0.005 million tonnes. Therefore as of December 2016 the landbank stood at 668 years. This is significantly

above the minimum of 10 years and will continue to increase rapidly if Nether Langwith quarry remains dormant.

Imports and exports of crushed rock

- 3.16 Limestone resources in Nottinghamshire and Nottingham are relatively limited therefore the majority of crushed rock used is imported. The 2014 Full East Midlands Annual Minerals Survey states that 1.26 million tonnes of crushed rock were imported into Nottinghamshire, whilst no mineral was exported.
- 3.17 The survey identified Leicestershire, Derbyshire (including the Peak District National Park Authority) and Yorkshire and Humberside (predominately Doncaster Metropolitan Borough Council) as the main sources of crushed rock.
- 3.18 The Leicestershire LAA states that adequate reserves are available to meet expected future demand over the plan period. The Derbyshire LAA also states that adequate reserves remain available to meet expected future demand from outside Derbyshire. This takes into account the reduction in output from the Peak District National Park. The Doncaster and Rotherham LAA identifies a 33 year landbank for crushed rock based on 2015 figures.

Figure 6: Crushed rock imports into Nottinghamshire, 2014 (tonnes)



Source: East Midlands Aggregate Working Party 2014

Alternative aggregates

- 3.19 Production figures for secondary and recycled aggregates are limited to national estimates. Since 1980 there has been a significant increase in annual alternative aggregate production in Great Britain (GB), rising from 20 million tonnes to a high of 71 million tonnes in 2007 (25% of total aggregates sales). Sales of recycled aggregates rise and fall in line with sales of primary aggregate / economic trends and in 2015 stood at 63 million tonnes (29% of total aggregates sales)³ due to the wider fall in aggregate production as a result of the recession. It is estimated that alternative aggregates use in GB is around three times higher than the European average.
- 3.20 The British Geological Survey and Minerals Products Association acknowledge that further significant growth is likely to be limited due to the high levels that are already being recycled along with changing construction methods which are also likely to reduce the availability and quality of these materials in the future.
- 3.21 Local data for alternative aggregates is very limited however the main types of alternative aggregates in Nottinghamshire are set out below:

Power station ash

- 3.22 Fly ash and furnace bottom ash (FBA) from power stations can be used as alternatives to virgin aggregates in the manufacture of concrete, cement and other construction materials. Nottinghamshire has three power stations which produce around 1.7 million tonnes of ash each year⁴. There is limited local information as to how much of the ash is sold, but nationally around 70 per cent of total fly ash and 100 per cent of FBA produced in 2014 was sold for use in construction products and engineering materials. The remaining material is often stored in stockpiles and can be sold at a later date⁵.
- 3.23 As all of Britain's coal fired power stations are set to close by 2025 and be replaced with other types of power generation, the availability of power station ash is likely to fall significantly in the future.

Construction and demolition waste

- 3.24 Construction and demolition waste is made up of a range of materials including rubble, metals, glass, plastic and other construction materials.
- 3.25 National estimates suggest that around 80-90% of construction and demolition waste is re-used or recycled. Old concrete and rubble is often crushed on site using mobile processing plant and used in situ as bulk fill. The remainder of the materials such as metal is taken off site and sent to be processed elsewhere.

³ Minerals Products Association – The Mineral Products Industry at a Glance 2016

⁴ East Midlands Aggregate Working Party - Annual Survey and Report 2014

⁵ UK Quality Ash Association

- 3.26 There are no up to date figures for the amount of construction and demolition waste generated in Nottinghamshire but estimates suggest that around 1 million tonnes was produced in 2010/11⁶.
- 3.27 There are currently 15 dedicated aggregates recycling facilities which have a maximum permitted capacity of 1.1 million tonnes. There are also 22 general transfer facilities which are able to handle construction and demolition waste but no separate data on capacity is available.
- 3.28 Worn out rail ballast is taken by rail to recycling centres for crushing into aggregate. As this material comprises high quality limestone or granite it can be re-processed for high-grade uses. There are approximately 7 rail ballast recycling sites across the country. One of these is located at Toton railway sidings in Stapleford. Table 4 sets out annual throughputs.
- 3.29 Road planings produced as a result of highway resurfacing schemes can be used as a recycled aggregate to form a range of surfaces such as car parks, driveway or tracks. The availability of this material will vary depending on the level of highway maintenance being carried out at any given time (these figures are already included in table 4 below).
- 3.30 Table 4 sets out estimates for the amount of inert waste (considered suitable for recycled aggregates) that has passed through permitted recycling and transfer facilities in Nottinghamshire⁷. The figures show that over the 10 year period, throughput hit a low in 2010 before steady increasing to 2015.

Table 4: Throughputs of inert waste (considered suitable for recycled aggregates) at permitted recycling and transfer facilities.

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Ballast recycling facility, Toton. (million tonnes)	0.21	0.31	0.26	0.18	0.05	0.11	0.10	0.13	0.15	0.13
All other sites (million tonnes)	0.26	0.09	0.08	0.20	0.08	0.10	0.21	0.28	0.32	0.34
Total (million tonnes)	0.47	0.40	0.34	0.38	0.13	0.21	0.31	0.41	0.47	0.47

⁶ Data sourced from Local estimate based on national data contained in the Waste Resources Action Programme Study of construction, demolition and Excavation Waste Arisings, use and Disposal for England.

⁷ Data sourced from the Environment Agency Waste Data Interrogator

- 3.31 No sales data exists for specific types of recycled or secondary aggregates. However, as these types of aggregates are available on the open market, their contribution is already taken into account when calculating future demand for primary aggregates.
- 3.32 Planning policies relating to recycled and secondary aggregates can be found in the Nottinghamshire & Nottingham Waste Core Strategy (adopted December 2013).

Local production conclusion

- 3.33 Compared to historic (pre 2007) sales of sand and gravel and Sherwood Sandstone, the 2016 sales data clearly reflects the continued subdued nature of sales from Nottinghamshire. This has also combined with a fall in the number of permitted quarries coming online to replace worked out quarries.
- 3.34 At the end of 2016, Nottinghamshire had sufficient permitted reserves of sand and gravel to meet the 7 year minimum landbank. Further reserves will, however, need to be released over the life of the Minerals Local Plan to 2036, as existing quarries are worked out. A call for sites with the minerals industry along with additional work will be undertaken as part of the Nottinghamshire Minerals Local Plan evidence base.
- 3.35 Exports of both sand and gravel and Sherwood Sandstone continue to remain a significant proportion of sales. This trend is likely to continue over the next plan period as sand and gravel resources, particularly those in Rotherham and Doncaster are limited.
- 3.36 At the end of 2016, Nottinghamshire had sufficient permitted reserves of Sherwood Sandstone to meet the 7 year minimum landbank. Further reserves will, however, need to be released over the life of the Nottinghamshire Minerals Local Plan to 2036, as existing quarries are worked out. A call for sites with the minerals industry and additional work will be undertaken as part of the Nottinghamshire Minerals Local Plan evidence base.
- 3.37 Crushed rock sales remain at zero with the county's needs being met by imports from adjoining counties. At the end of 2016, the landbank was technically well above the minimum 10 year landbank, however this figure should be treated with caution as sales have been at zero for a number of years.
- 3.38 Recycled and secondary aggregates continue to play an important role in meeting wider aggregate demand, however the ability of recycled aggregates to replace primary aggregates will be dependent on a range of issues such as availability, cost, and the technical specifications required for specific end uses. As these types of aggregates are available on the open market, their contribution is already taken into account when calculating future demand for primary aggregates.

Future Aggregate Provision

- 4.1 In order to provide a steady and adequate supply of aggregates over the plan period, the NPPF states that a LAA should be prepared based on the last 10 years average sales data taking into account any important local considerations and national and sub national guidelines.

National and Sub-National Aggregate Guidelines

- 4.2 Prior to the introduction of the NPPF, the supply of land-won aggregates in England was based on national and sub national guidelines for aggregates provision published by the Department for Communities and Local Government (DCLG). The most recent guidelines covering the period 2005-2020 were published in 2009.
- 4.3 The East Midlands Aggregate Working Party used these guidelines to produce draft apportionment figures for each MPA. The figures were then approved by the East Midlands Regional Assembly in 2010 and were to be incorporated into the Regional Plan via the review process. However due to the abolition of the Regional Spatial Strategy the figures were never adopted.
- 4.4 The guidelines for the East Midlands stood at 174 million tonnes for sand and gravel and 500 million tonnes for crushed rock over the 2005-2020 period. For Nottinghamshire the guidelines were equivalent to 3.81 million tonnes per annum (a combined figure for sand and gravel and Sherwood Sandstone).
- 4.5 It was decided at the Aggregate Working Party meeting in February 2013 that the draft 2009 figures were considered out of date as they were only based on aggregate output from a period of economic growth, and should, therefore, not be taken into account when determining the new apportionment figures.
- 4.6 Long term demand for aggregates to be provided for in the Minerals local Plan will be reviewed annually through the LAA using the 3 and 10 year sales averages as the key evidence base specifically monitoring trends. Annual monitoring of the Local Plan will also take place based on the updates to the LAA and if required early review may be necessary.

Sand and gravel provision

- 4.7 The biggest planning issue for Nottinghamshire and Nottingham is the long term provision of sand and gravel over the plan period.
- 4.8 Based on the most recent data, the 10 year average figure stands at 1.7 million tonnes. This figure has steadily fallen since the first LAA was produced in 2013 and reflects the greater influence of the recession and continued lower level of economic output over the most recent 10 year period. The three year average figure has also slowly fallen since the first LAA was produced and stands at 1.40 million tonnes. Table 5 sets out the average production figures.

Table 5: Sand and Gravel average sales figures

	2013 LAA (2002-2011)	2014 LAA (2003-2012)	2015 LAA (2004-2013)	2016 LAA (2005-2014)	January 2017 LAA (2006-2015)	Current LAA (2007-2016)
10 year average sales (million tonnes)	2.58	2.43	2.24	2.05	1.89	1.7
	(2009-2011)	(2010-2012)	(2011-2013)	(2012-2014)	(2013-2015)	(2014-2016)
3 year average sales (million tonnes)	1.51	1.61	1.55	1.46	1.45	1.4

Resource depletion in the Idle Valley and the north of the County

- 4.9 The Idle Valley, located in the north of the County, has a long history of sand and gravel extraction. Traditionally a large proportion of this has supplied markets in Rotherham and Doncaster due to its close proximity and limited mineral reserves elsewhere.
- 4.10 Resource depletion is now starting to limit output, and since 2006 the number of active quarries has fallen from 8 to 5. This has seen capacity fall from around 1.2 million tonnes in 2006 to around 500,000 tonnes in 2016. Some of the loss in capacity is due to the delay in implementing the permitted quarry at Sturton Le Steeple.
- 4.11 The impact of resource depletion in the Idle Valley on the Rotherham and Doncaster markets is discussed further in the following chapter.

Marine won sand and gravel

- 4.12 Marine won sand and gravel is not used in Nottinghamshire due to the availability of locally sourced land won material and the high costs involved in transporting the mineral long distances. It is therefore assumed that marine sources are not a significant issue for Nottinghamshire and will therefore not form part of this assessment.

Sherwood Sandstone provision

- 4.13 Sherwood Sandstone sales are much lower than sand and gravel and historically have been in steady decline. The most recent 10 year average figure reflects the long term decline and the greater influence of the low level of economic output and stands at 0.37 million tonnes. The 3 year average figure has remained stable and stands at 0.35. Table 6 sets out average sales figures.

Table 6: Sherwood Sandstone average sales figures

	2013 LAA (2002-2011)	2014 LAA (2003-2012)	2015 LAA (2004-2013)	2016 LAA (2005-2014)	January 2017 LAA (2006-2015)	Current LAA (2007-2016)
10 year average sales (million tonnes)	0.46	0.44	0.42	0.40	0.39	0.37
	(2009-2011)	(2010-2012)	(2011-2013)	(2012-2014)	(2013-2015)	(2014-2016)
3 year average sales (million tonnes)	0.33	0.34	0.35	0.35	0.37	0.35

- 4.14 No additional specific local factors have been identified when considering the future apportionment for Sherwood Sandstone.

Crushed rock (limestone) provision

- 4.15 Crushed rock (limestone) is only worked from one quarry in Nottinghamshire and production has been limited due to the seasonal working of the site and abundance of limestone worked in Derbyshire and Leicestershire.
- 4.16 The most recent 10 year average figure is 0.005 million tonnes which reflects sales earlier in the 10 year period. The 3 year average figure is 0.00 million tonnes (see Table 7).

Table 7: Crushed rock average sales figures

	2013 LAA (2002-2011)	2014 LAA (2003-2012)	2015 LAA (2004-2013)	2016 LAA (2005-2014)	2017 LAA (2006-2015)	Current LAA (2007-2016)
10 year average sales (million tonnes)	0.08	0.06	0.05	0.03	0.02	0.005
	(2009-2011)	(2010-2012)	(2011-2013)	(2012-2014)	(2013-2015)	(2014-2016)
3 year average sales (million tonnes)	0.00	0.00	0.00	0.00	0.00	0.00

Future provision

- 4.17 A pre-cast concrete factory was built near Worksop in 2009 and produces concrete structures on site for delivery and installation at construction sites. The factory uses crushed limestone as part of the production process.
- 4.18 No recent data on consumption is available however this was previously around 40,000 tonnes per annum. The factory is currently supplied by quarries in Derbyshire as the only limestone quarry in Nottinghamshire is mothballed.

Future aggregate provision conclusion

- 4.19 National guidance states that consideration should be given to the national and subnational demand forecasts, however these are now considered out of date as they were based purely on a period of economic growth over a shorter timescale than the 10 year sales average stated in the NPPF.
- 4.20 The 10 year sales average for sand and gravel continues to fall as a greater period of recession data is taken into account and current quarrying output in Nottinghamshire remains flat. The 3 year average sales figures have shown a small but steady decline indicating sales have not increased in the last three years. Based on current sales data, it is considered appropriate to base future demand for sand and gravel on the 10 year sales average.
- 4.21 The 10 years sales average for Sherwood Sandstone has slowly fallen, although it remains more stable than sand and gravel sales. The 3 year average is much closer to the 10 year average and has remained generally flat indicating steady sales. Based on the current sales data, it is considered appropriate to base future demand for Sherwood Sandstone on the 10 year average.
- 4.22 Crushed rock sales remain at zero as the majority of material used in Nottinghamshire is imported from adjoining authorities. Based on the current sales data it is not considered necessary to identify additional reserves.
- 4.23 Resource depletion in the Idle Valley along with continued demand from Rotherham and Doncaster will remain a long term issue, however in the short term adequate reserves remain.
- 4.24 The potential use of marine sourced sand and gravel is not a significant issue for Nottinghamshire due to the availability of locally sourced land won mineral and the significant additional cost in transporting marine sourced minerals greater distances.

Future Growth

National Infrastructure Projects identified for Nottinghamshire

- 5.1 The 2016 National Infrastructure Plan identified two infrastructure schemes for Nottinghamshire, the Midland Mainline electrification (MME) programme estimated to start in 2019 and the A1/A46 junction improvements near Newark estimated to start between 2020 and 2025. However in July 2017 the Department for Transport announced that the MME from Kettering to Leicester, Derby and Nottingham has been cancelled. The A1/A46 junction improvements have also been put back to around 2027. The High Speed 2 line (HS2) phase two is also proposed to pass along the western boundary of the county. At this stage it is difficult to identify a start date or quantify the amount of aggregates for the section of the line in Nottinghamshire.
- 5.2 It is likely that the schemes above will increase demand for minerals in Nottinghamshire. However, given the current lack of detail, the amount of minerals required is uncertain. Future LAAs will continue to monitor progress on these schemes.

Annual Minerals Raised Inquiry survey

- 5.3 The Annual Minerals Raised Inquiry (AMRI) survey is an annual survey undertaken by the Office for National Statistics which collects, collates and publishes a comprehensive set of statistics for the production of minerals. The survey covers all mineral working sites across the whole of Great Britain. The most recent version was published in March 2016 and includes 2014 data.
- 5.4 The data contained in the previous versions of the AMRI show that national sales of sand and gravel hit a low in 2012 of just over 50 million tonnes, however sales have increased since, and in 2014 stood at just over 56 million tonnes. Sales of crushed rock hit a low of just under 91 million tonnes in 2012, however sales have increased since, and in 2014 stood at just under 105 million tonnes.

East Midlands Aggregates Working Party – Annual Monitoring Report 2016

- 5.5 The EMAWP Annual Monitoring Report collates data relating to aggregates sales for each Minerals Planning Authority in the East Midlands. (The sales data for Nottinghamshire has been used in this report). At the start of the monitoring period in 2007 sand and gravel sales in the East Midlands stood at 8.9 million tonnes before falling to a low of 5.5 million tonnes in 2009 as a result of the recession. Since 2009 sales have steadily increased standing at 6.95 million tonnes in 2016. This is a small increase from 6.89 million tonnes in 2015.
- 5.6 Although Nottinghamshire produces very little crushed rock, it is useful to monitor sales across the East Midlands as a wider indicator of demand. In 2007 crushed rock sales stood at 30.7 million tonnes. Unlike sand and gravel, sales did not reach a low point until 2012 when sales stood at 19.74 million tonnes. Between 2012 and 2015 sales have

steadily increased. 2016 sales increased significantly compared to 2015 rising to 28.11million tonnes from 22.99 million tonnes.

Population forecasts

- 5.7 The population of Nottinghamshire (the geographic County, including Nottingham City) is expected to grow from 1.13 million in 2016 to 1.25 million in 2036 (Minerals Local Plan period) based on 2014 Office of National Statistics data. Development associated with this growth is likely to be focused around the existing major urban areas of the Nottingham conurbation, Newark and Mansfield, however it is difficult to make direct comparisons between population growth and minerals use.

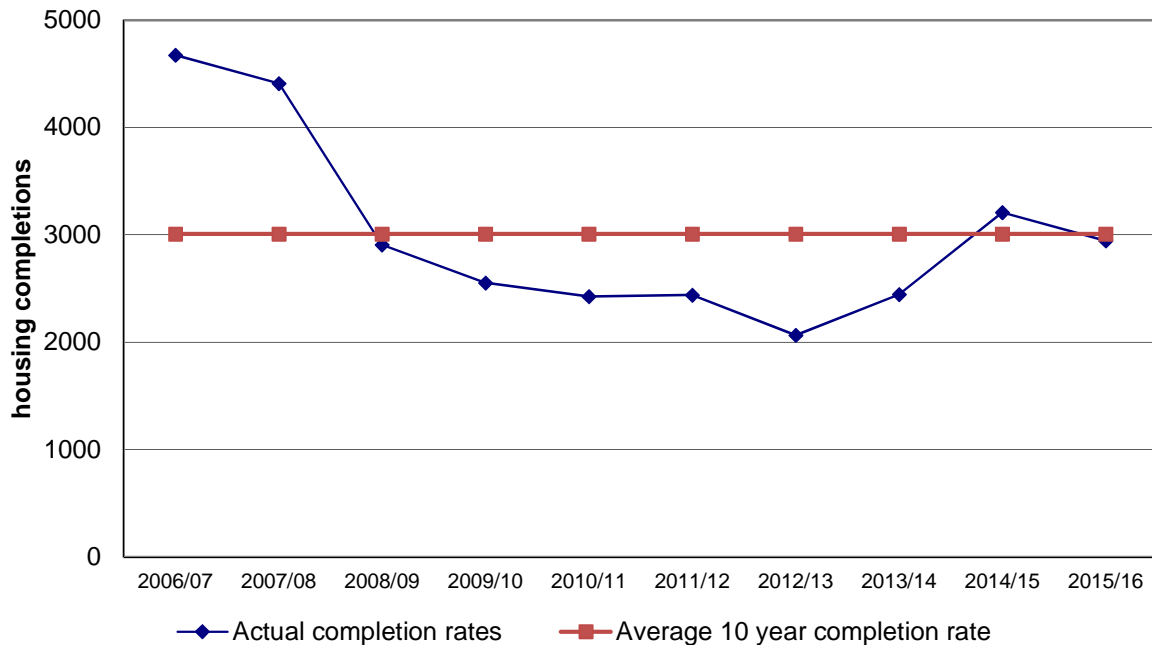
House building

- 5.8 Nottingham City and the District/Boroughs throughout the County are at different stages of their Local Plan preparations, however, all have identified their future housing requirements set out over different time periods. Planned house-building rates for the area are estimated at 4,574 dwellings per annum (see table 8). Average completions over the last ten year period have been 3,008. Completions peaked at 4,674 in 2006/2007 (see figure 7).
- 5.9 Depending on future local economic conditions, housing completions are expected to increase over the life of the plan period, however there is some uncertainty regarding the potential achievement of the planned housing completion rates.

Table 8: Future house building rates per annum

District/Borough	Requirement	Average Annual Requirement
Ashfield District Council Ashfield Local Plan Publication Local Plan, September 2016	7,683 dwellings (2016 to 2032)	452 dwellings
Bassetlaw District Council Bassetlaw Initial Draft Local Plan October 2016	6525 dwellings (2019-2034)	435 dwellings
Broxtowe Borough Council Greater Nottingham Aligned Core Strategies Part 1 Local Plan, September 2014	6,150 dwellings (2011-2028)	362 dwellings
Gedling Borough Council Greater Nottingham Aligned Core Strategies Part 1 Local Plan, September 2014	7,250 dwellings (2011-2028)	426 dwellings
Mansfield District Council Mansfield Local Plan Consultation Draft, January 2016	7,520 dwellings (2016-2033)	376 dwellings
Newark and Sherwood District Council Newark and Sherwood Allocations and Development Plan Document July 2013	14,800 dwellings (2006-2026)	740 dwellings
Nottingham City Council Nottingham Land and Planning Policies Part 2 Local Plan, January 2016	17,150 dwellings (2011-2028)	1,009 dwellings
Rushcliffe Borough Council Rushcliffe local Plan Part 2: Issues and Options January 2016	13,150 dwellings (2011-2028)	774 dwellings
	TOTAL	4,574 dwellings

Figure 7: Housing completions in Nottinghamshire



5.10 Whilst house building uses a significant amount of aggregates, the Minerals Product Association estimate that new house building only makes up approximately 20% of overall aggregate use and therefore is only part of the equation when considering future demand.

Future demand from the Rotherham and Doncaster markets

5.11 The draft Rotherham and Doncaster Local Aggregates Assessment 2016 states that whilst its sand and gravel landbank stands at 16.8 years (4.2 million tonnes), there are limited reserves of sharp sand remaining in the area and that current permitted reserves may not be adequate to cover the plan period to 2028. Therefore, whilst the draft 2016 Rotherham and Doncaster LAA states that the sand and gravel shortfall over the plan period is estimated to be only 50,000 tonnes this is based on the continued importation of sand and gravel from Nottinghamshire and elsewhere.

5.12 Given that Nottinghamshire has traditionally supplied a large proportion of sand and gravel to the Rotherham and Doncaster markets from the Idle Valley and North Nottinghamshire, their future requirements are unlikely to be completely new demand and this has been taken into account as part of the 10 year average sales figures. It is likely that in the short term, output from the Idle Valley and north Nottinghamshire will be maintained at current levels from existing permitted reserves.

5.13 A planning permission at Sturton Le Steeple with an estimated output of 500,000 tonnes per annum (including circa 150,000 tonnes per annum potential river barge

transportation) was formally implemented in the first half of 2017 but has yet to come into active production due to delays in installing site infrastructure. If this quarry was fully operational it would provide a valuable long term source of sand and gravel to supply North Nottinghamshire and the Rotherham and Doncaster markets for approximately 20 years.

- 5.14 A call for sites exercise will be undertaken as part of the new Minerals Local Plan evidence base which will identify any remaining sand and gravel reserves in the Idle Valley that the industry wishes to be considered for allocation.
- 5.15 Longer term, output from the Idle Valley is likely to fall as the remaining resources are used up and this will be monitored through the LAA process. 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 latter scenario other resources outside of Nottinghamshire may start to become increasingly viable for South Yorkshire markets, however at this stage it is difficult to predict the extent of this.
- 5.16 Paragraph 73 of the draft Rotherham and Doncaster 2016 LAA also notes that in 2014 half the crushed rock sales in the Boroughs were used for concreting aggregate, identifying a potential transition away from sharp sand to crushed rock for concreting products. If this is the case this could reduce the long term demand for sharp sand for concreting purposes.
- 5.17 It is important to note the LAA is reviewed annually and an Annual Monitoring Report is prepared by the County Council to monitor the effectiveness of the Local Plan.
- 5.18 A joint minerals position statement was agreed between Nottinghamshire County Council, Rotherham MBC and Doncaster MBC in May 2013 which identifies the above issues and states that provision from Nottinghamshire will continue in the short term however long term reserves are less certain. Further discussions will be required in the future.

Future growth conclusion

- 5.19 National sales of aggregates (up to 2014) have steadily increased since the low experienced in 2012. This has also been the case (up to 2016) across the East Midlands area. This would suggest that demand for aggregates is increasing across the board however this is not the case in Nottinghamshire as sales have remained flat and declined in 2016. The reasons for this have been set out earlier in the document.
- 5.20 No additional infrastructure projects have been identified since the last LAA was published. The existing projects include HS2 rail project and the A46/A1 road improvements. Although these projects are likely to increase demand for aggregate, it is not possible at this stage to quantify the amount of additional aggregates that are likely to be needed from within the County.
- 5.21 The population of Nottinghamshire is expected to increase steadily over the plan period potentially increasing demand for the supply of aggregates although it is not possible to

quantify this. Planned house building rates across Nottinghamshire are expected to increase over the life of the district/borough local plans (generally to 2030), however actual housing completions will vary and will be largely be dependent on the health of the economy in the future. House building is likely to increase demand for aggregates although it is just one element of overall demand.

- 5.22 Demand for sand and gravel from Rotherham and Doncaster is likely to continue into the future as sand and gravel resources are limited in this area. Remaining reserves within the Idle Valley will meet short term demand, however in the long term as this sand and gravel resource becomes worked out, sand and gravel will have to be transported further from elsewhere.
- 5.23 Based on the information available, it is not considered necessary to identify additional aggregate reserves to meet future growth over the plan period.

Conclusion

- 6.1 The provision of sand and gravel is the biggest issue for Nottinghamshire and Nottingham over the plan period. The 10 year sales average has fallen significantly from 2.58 million tonnes in the first LAA published in 2013 to 1.7 million tonnes in this LAA. This is largely due to the recession, in the immediate post 2008 period, however the number of permitted quarries coming online has also fallen, even though significant sand and gravel resources remain in the Trent Valley.
- 6.2 Additional reserves will need to be identified over the plan period to 2036 to replace existing quarries as they are worked out. It is likely that a mix of extensions to existing permitted quarries and new quarries will be needed, however until a call for sites has been undertaken with the minerals industry this cannot be confirmed.
- 6.3 No major infrastructure projects are planned in the short term, however longer term, the proposed route of the HS2 and the potential highway improvements to the A46/A1 junction and the A46 near Newark could increase demand for aggregates. An increase in house building is forecast, however, housing completion rates are likely to be more unpredictable as they will be dependent on the economy.
- 6.4 Resource depletion in the Idle Valley is likely to be the biggest factor potentially influencing exports to South Yorkshire. The extent of the impact will depend on the level of demand, due to economic conditions and the increasing trend of replacing sharp sand with crushed rock in concreting products. However it is likely that sand and gravel will either be sourced from quarries around Newark or from other areas outside of Nottinghamshire that may be closer.
- 6.5 Sherwood Sandstone sales are much lower than sand and gravel sales but have also fallen over the plan period. It is likely that additional reserves will be needed over the plan period however until a call for sites has been undertaken with the minerals industry it is not possible to quantify this.
- 6.6 The importation of crushed rock from adjoining areas to meet the County's needs is set to continue as limestone sales from Nottinghamshire remain at zero. The permitted but mothballed quarry at Nether Langwith contains permitted reserves and could be re-opened by the operator to meet additional demand in the future.
- 6.7 Recycled and secondary aggregates continue to play an important role in meeting wider aggregate demand, however the ability of recycled aggregates to replace primary aggregates will be dependent on a range of issues such as availability, cost, and the technical specifications required for specific end uses. As these types of aggregates are available on the open market, their contribution is already taken into account when calculating future demand for primary aggregates.
- 6.8 Based on the information set out in this LAA, it is considered appropriate to base future demand for plan making purposes on the 10 year sales average.

- 6.9 The LAA will be reviewed annually taking account of the most recent aggregate sales data and any other relevant local data. This will ensure that there is an adequate and steady supply of aggregate minerals provided over the plan period and that any fluctuations in future requirements can be addressed.