DERBYSHIRE COUNTY COUNCIL, DERBY CITY COUNCIL AND THE PEAK DISTRICT NATIONAL PARK AUTHORITY

Local Aggregate Assessment 2019

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Cover photos: Tunstead and Old Moor Quarry, Buxton and Swarkestone Quarry, Barrow upon Trent

1. INTRODUCTION

Minerals are important to the local and national economy and play an important part in our everyday lives. They have many uses, including material for construction and for a wide variety of industrial and commercial purposes, including the manufacture of paint, paper and toothpaste. The planning system has to ensure that sites are available to provide a steady and adequate supply of minerals for these industries.

Aggregate minerals are those that are used by the construction industry, for example in road making, house construction, in the manufacture of concrete and as railway ballast. They include limestone, sandstone and sand & gravel. It is the future provision of these minerals with which this assessment is concerned.

Background

The National Planning Policy Framework (NPPF) (July 2018) requires Mineral Planning Authorities (MPAs) to plan for a steady and adequate supply of aggregates by determining provision through the preparation an annual Local Aggregate Assessment (LAA). It sets out that this should be prepared either individually or jointly by agreement with another or other mineral planning authorities, based on a rolling average of 10 years sales data and other relevant local information, and an assessment of all supply options (including marine dredged, secondary and recycled sources). It is advised also that published National and Sub National Guidelines on future provision should also be taken into account. National Planning Practice Guidance elaborates further, setting out that it should also assess the balance between demand and supply, and the economic and environmental opportunities and constraints that might influence the situation. It should conclude if there is a shortage or surplus of supply and, if it is the former, how this will be addressed.

It also seeks to ensure that, as far as is practical, landbanks of non-energy minerals should be maintained in locations outside National Parks, Areas of Outstanding Natural Beauty (AONBs), World Heritage Sites, Scheduled Monuments and Conservation Areas. As a result, future contributions of aggregate from areas covered by these designations, including the Peak District National Park, will need to be considered in light of this.

Guidance on the preparation of LAAs[1] reinforces the above policy requirements, and sets out also that MPAs should look at the average 3 year sales in particular, to identify the general trend of demand as part of the consideration of whether it might be appropriate to increase mineral supply.

Derbyshire County Council, Derby City Council and the Peak District National Park Authority (PDNPA) have agreed to undertake a joint Local Aggregate Assessment. Government Guidance on preparing LAAs suggests that joint LAAs may be prepared where joint planning is taking place. Justification for the preparation of a LAA on a joint basis between Derbyshire and the PDNPA lies in the known interactions in terms of aggregates production and consumption within this area and the perceived benefits of closer cooperation on minerals planning within the area.

This assessment sets out the current and future situation in Derbyshire, Derby and the PDNP with regard to all aspects of aggregate supply, in particular, setting out the amount of land-won aggregate that the area will need to provide. It follows the Practice Guidance on the Production and Use of Local Aggregate Assessments produced by the Planning Officers Society and Mineral Products Association.

Derby does not produce any crushed rock or sand gravel but it is an important consumer of these minerals. **Unless otherwise stated, data on Derbyshire, including sales and movements of aggregate, incorporates information on Derby City.**

The LAA will be submitted to the Aggregates Working Party (AWP), an advisory body made up of MPAs and mineral operators across the region, for consideration and scrutiny. The AWP has a role to monitor the operation of the LAA system through providing technical advice, particularly on the apportionment of aggregate supply provision.

The work of MPAs and AWPs across the country will be overseen by a National Aggregate Co-ordinating Group (NACG), the main role of which will be to monitor the overall provision of aggregates in England and provide advice to AWPs and the Government.

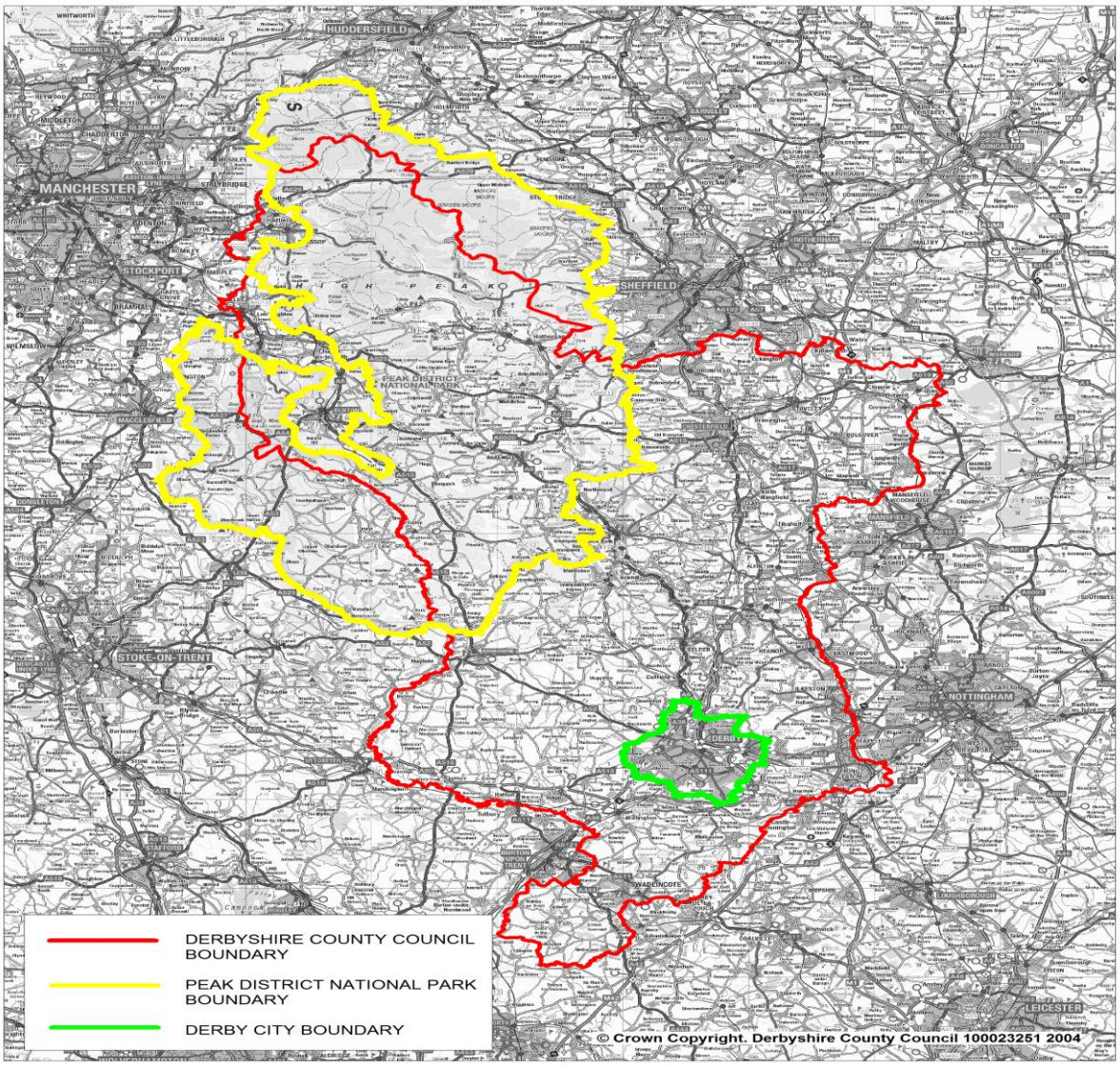
[1] Practice Guidance on the Production and Use of Local Aggregate Assessments; Planning Officers Society and Mineral Products Association (May 2017).

The latest survey information is from the calendar year 2018, and it is these figures on which this assessment is based. This information will continue to be updated on an annual basis.

Spatial Context

Derbyshire and the Peak District National Park are situated in the central part of England, mostly within the East Midlands region. The large conurbations of Nottingham, Sheffield, the North West and the West Midlands lie in close proximity to the area.

Figure 1: Derbyshire, Derby and the Peak District National Park



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Derbyshire and Derby have a population of around 1,018,400[2]. The majority of the population of Derbyshire and Derby lives in urban areas, with around three quarters living in settlements in the eastern half of the county. The largest settlements are Derby in the south and Chesterfield in the north. There are around 430,000 households in Derbyshire and Derby. By 2031, it is estimated that the population of the area will have increased to 1,149,460, an increase of 11%. It is estimated that there will be a further 96,000 households by 2031, the largest increases expected to be in Derby, Amber Valley and South Derbyshire. This population growth, in turn, will create the need for further employment opportunities and improvements in infrastructure.

As such, it is crucial that Derby City and Derbyshire County Councils and the PDNPA, as the MPAs for the area, are able to ensure a steady and adequate supply of mineral to realise these growth aims and to maintain the infrastructure already developed. Since the area also supplies a significant amount of aggregate to a large part of the country, particularly crushed rock, this need to maintain a steady and adequate supply of mineral applies also to this much wider area.

National and Sub National Aggregate Guidelines

The Government produced the 2005-2020 aggregate guidelines in 2009. The East Midlands Aggregates Working Party (EMAWP) used these figures to provide the Region's MPAs with their aggregate apportionments for this period.

These sub regional (i.e. county level) figures were considered and endorsed by the East Midlands Regional Assembly in 2010. They would then have been incorporated into the Regional Plan through the partial review process. However, with the abolition of the Regional Assemblies in March 2010, the revised Regional Plan did not progress so the figures have not been tested through public examination and not included in any Plan.

At the meeting of the East Midlands AWP in February 2013, it was agreed that these figures were based on information which is now 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 provision figures.

[2] 2011 Census and includes the area of Derbyshire within the Peak District which is around 30,000 (around 7,000 people live in the area of the National Park outside Derbyshire)

It was agreed by all members of the group, therefore, to base the new apportionment figure on the 10 year average of sales and to consider any flexibility in this figure, taking account primarily of local circumstances, particularly future economic growth.

2. AGGREGATE RESOURCES

Primary Aggregates

The geology of Derbyshire, Derby and the Peak District National Park gives rise to the following commercially viable primary aggregate deposits:

- Hard rock, including limestone and sandstone/gritstone
- Alluvial sand and gravel (river valleys)
- Sherwood Sandstones

For centuries, the rich geology of Derbyshire, Derby and the Peak District National Park has encouraged the search for workable minerals. **The principal sources of Limestones and Sandstones/Gritstones** were formed during the Carboniferous, Permian and Triassic Periods, between 354 and 200 million years ago. Most of the National Park and the northern part of Derbyshire is underlain by limestone and gritstone from the Carboniferous period.

The principal sources of Carboniferous limestones, which are worked in Derbyshire and the Peak District National Park are found mainly in an area which stretches from Buxton, in a south easterly direction through the southern half of the National Park, towards the Matlock and Wirksworth/Cromford area. This rock provides a valuable and important raw material which is used in crushed form, both as high grade aggregate for concrete making and roadstone (where the physical properties of certain deposits are important) and for industrial purposes (as a result of the chemical composition of certain deposits).

The Permian Limestone was formed slightly more recently, around 250 million years ago. This is found and worked in the north east of the county, in the area around Bolsover and Whitwell in the north east of the county. In terms of its use for aggregates, it is a lower grade material than the Carboniferous Limestone and is used principally as constructional fill. The specific chemical content of the resource in certain areas, particularly around Whitwell, makes it an important raw material for high quality industrial products.

Whilst total resources of sandstone and gritstone within Derbyshire and the Peak District National Park are large, the quantity and, in particular, the quality of the limestone in the area means that the focus for aggregate production is on limestone rather than sandstone

and gritstone. Relatively small amounts of sandstone/gritstone are quarried for aggregate in the north west of the area, around Glossop and Hayfield. The more extensive use of this mineral is for building stone.

The river valley sand and gravels were laid down much more recently, at the end of the last ice age (around 14,000 years ago).
Derbyshire has substantial resources of sand and gravel in the river valleys of the Trent, Lower Derwent and Lower Dove, occurring within the fluvial/alluvial and terrace deposits, as shown on Figure 2 below. The thickness of the river valley deposits varies considerably, ranging from less than one metre thickness in some areas to eight or nine metres thick in other areas. The gravel content of the deposits is usually high (50%-70%), the remainder being sand and fine silts. The majority of working to date has taken place in the Trent and the Lower Derwent Valleys, with reserves being of particularly high quality in the area of the Trent Valley between Long Eaton and Willington.

Deposits of sand and gravel also occur in the solid bedrock of the **Sherwood Sandstones**. These are much older than the river valley deposits, having been laid down around 230 million years ago in the Triassic period. Their thickness varies considerably from 100m to virtually nothing. The proportion of gravel to sand varies greatly but is usually much less than in the river valley deposits. It is a source of soft building sand and also sharp sand for concrete. There is currently only one operation in the county. This is located at Mercaston in an area between Derby and Ashbourne.

Derby City has only limited mineral resources. There is no hard rock and only a small amount of sand and gravel.

Secondary and Recycled Aggregates

Along with primary aggregate, described as being minerals which are extracted directly from the ground, there are also secondary and recycled aggregates, the use of which can help to reduce the need for primary aggregates. Recycled aggregates are those derived mainly from construction and demolition projects. Examples include the re-use of brick and concrete, being reprocessed to be used in new developments, rather than being disposed of in a landfill site. This often takes place using mobile plants on redevelopment sites. Secondary aggregates are created as a by-product of a construction or industrial process.

Examples include power station ash resulting from combustion, which can be used in the production of bricks and cement.

The benefits of maximising the use of both secondary and recycled aggregate are two-fold. Firstly, the use of these aggregates reduces the need to extract primary material in the first instance, leading to a reduction in the need for new quarries. Secondly, the re-use of material reduces the amount of waste that needs to be disposed of, thereby reducing the need for landfill sites. Such a reduction in the need for quarry and landfill sites has clear environmental and social benefits.

3. ASSESSMENT OF LOCAL RESOURCES, RESERVES AND PRODUCTION

Sand & Gravel

Resources and Reserves

Sand and gravel resources of glacio-fluvial origin are concentrated along the river valleys in the south of the county, the most important being the Trent Valley to the south of Derby, as well as the adjoining river valleys of the Lower Derwent and Dove. Currently, the mineral is only worked in the Trent Valley in Derbyshire. Deposits of sand and gravel also occur in the solid bedrock of the Sherwood Sandstones. There are no resources of sand and gravel in the Peak District National Park.

In 2018, there were four operational operations producing sand and gravel; three along the Trent Valley (Glacio-fluvial deposits) and one at Mercaston (Sherwood Sandstone). One site (Elvaston) remains non-operational. Returns from the mineral operators show that the landbank is spread fairly evenly amongst the sites. Table 1 below indicates that Swarkestone will run out of reserves in the next year. A planning application was approved in March 2019 for an extension to Swarkestone Quarry to maintain production for a further seven to eight years. It is clear from the information in Table 1 below that the current sites will not sustain production over the full course of the Plan period. Further sites have been identified through the emerging Local Plan and will be brought forward to sustain production over this time to meet the agreed annual requirement.

Table 1: Permitted Sand and Gravel Quarries in Derbyshire

Quarry	Operator	Status/End date
Swarkestone	Tarmac	Operational. Estimated lifespan 8 years to 2027
Shardlow	Hanson	Operational. Estimated lifespan is 10 years to 2029.
Willington	Cemex	Operational. Estimated lifespan, 4 years reserves to 2023)
Mercaston	Hanson	Operational. Estimated lifespan, over 20

		years
Elvaston	Tarmac	Not currently being worked. Permission granted in 2013 for extension.

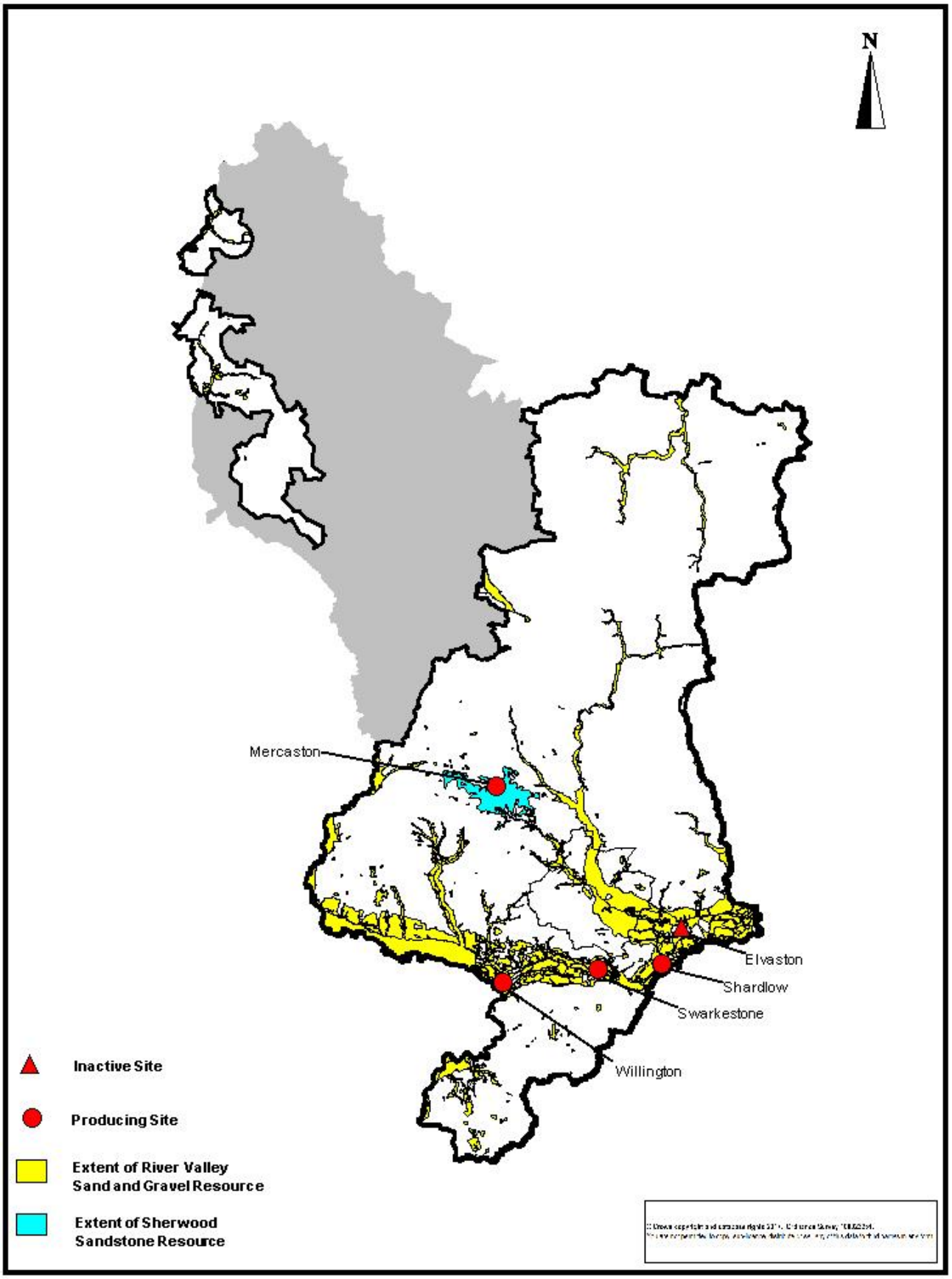

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Figure 2: Sand and Gravel Resources in Derbyshire with Sand and Gravel Sites

At the end of 2018, estimated permitted reserves of sand and gravel in Derby and Derbyshire from the above quarries amounted to around 8.85 million tonnes (2.5mt of reserves was approved at Swarkestone Quarry in March 2019, but this isn't included in the 2018 figures).

This stock of reserves with planning permission is known as the landbank. The landbank includes operational quarries and also non-operational quarries but only those which have valid conditions for working. Government policy requires landbanks to be maintained for all aggregate minerals, with the landbank for sand and gravel required to be at least 7 years. The length of the landbank for sand and gravel in Derbyshire at the end of 2018 (using the proposed provision figure) is calculated as follows:

Landbank of permissions	=	8.85 million tonnes
Annual Provision rate	=	1.09 million tonnes
Landbank period	=	8.1 years

Recent Production

Sales of primary sand and gravel originating from Derbyshire are shown in the table below.

2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Average
0.91	1.04	1.1	0.81	0.82	0.95	1.13	1.29	0.94	1.05	1.01

Table 2: Sales of Sand and Gravel in Derbyshire 2009-2018[3] (million tonnes)

Table 3 shows what the material was used for in 2018.

Table 3: Use of sand and gravel 2018 (figures in tonnes)

Building Sand	Sand for Concrete making	Gravel for Concrete making	Other undefined uses for sand	Other undefined uses for gravel
177,336	138,883	734,496	-	-

The figures in Table 2 show that production has averaged 1.01 million tonnes over the 10 year period 2009-2018. The figures indicate a gradual but intermittent recent recovery in

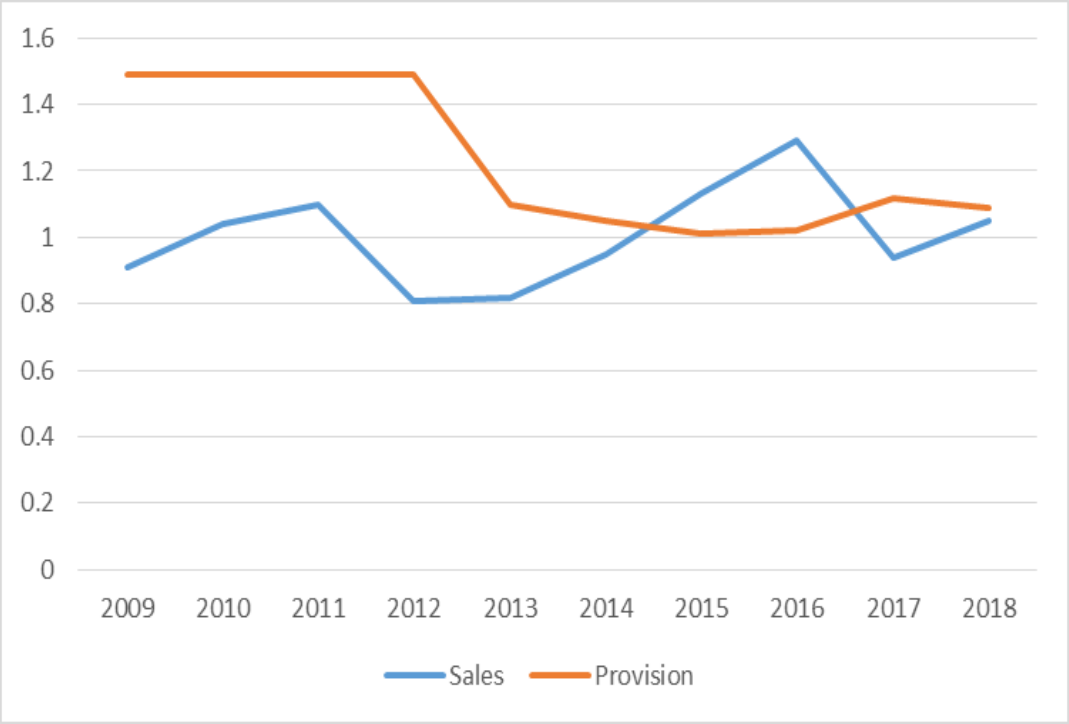
[3] Source: Annual Monitoring Surveys

production after the recession affected production levels particularly in the middle part of this period. This pattern mirrors broadly that of the whole East Midlands Region.

For the most recent 3 years (2016-2018), production has averaged 1.09 million tonnes in Derbyshire. This figure will be monitored on an annual basis to highlight recent changes in production and the MPAs will respond to any significant changes which come to light. Given that the 3 year average continues to be slightly higher than the 10 year average, it may be appropriate to revise the provision figure to take account of this. This will be explored in more detail later in this report.

The graph below shows sales of sand and gravel against the county's provision rate for the period. Throughout most of this period, it is worth noting that sand and gravel sales have not met the level of provision, generally being around 200,000 to 300,000 tonnes below the agreed provision rate. In 2015 and 2016, sales moved slightly higher than the provision rate, before dropping again slightly in 2017 and 2018.

Figure 3: Sales of Sand & Gravel 2009-2018 against past and current provision rate (figures in million tonnes)



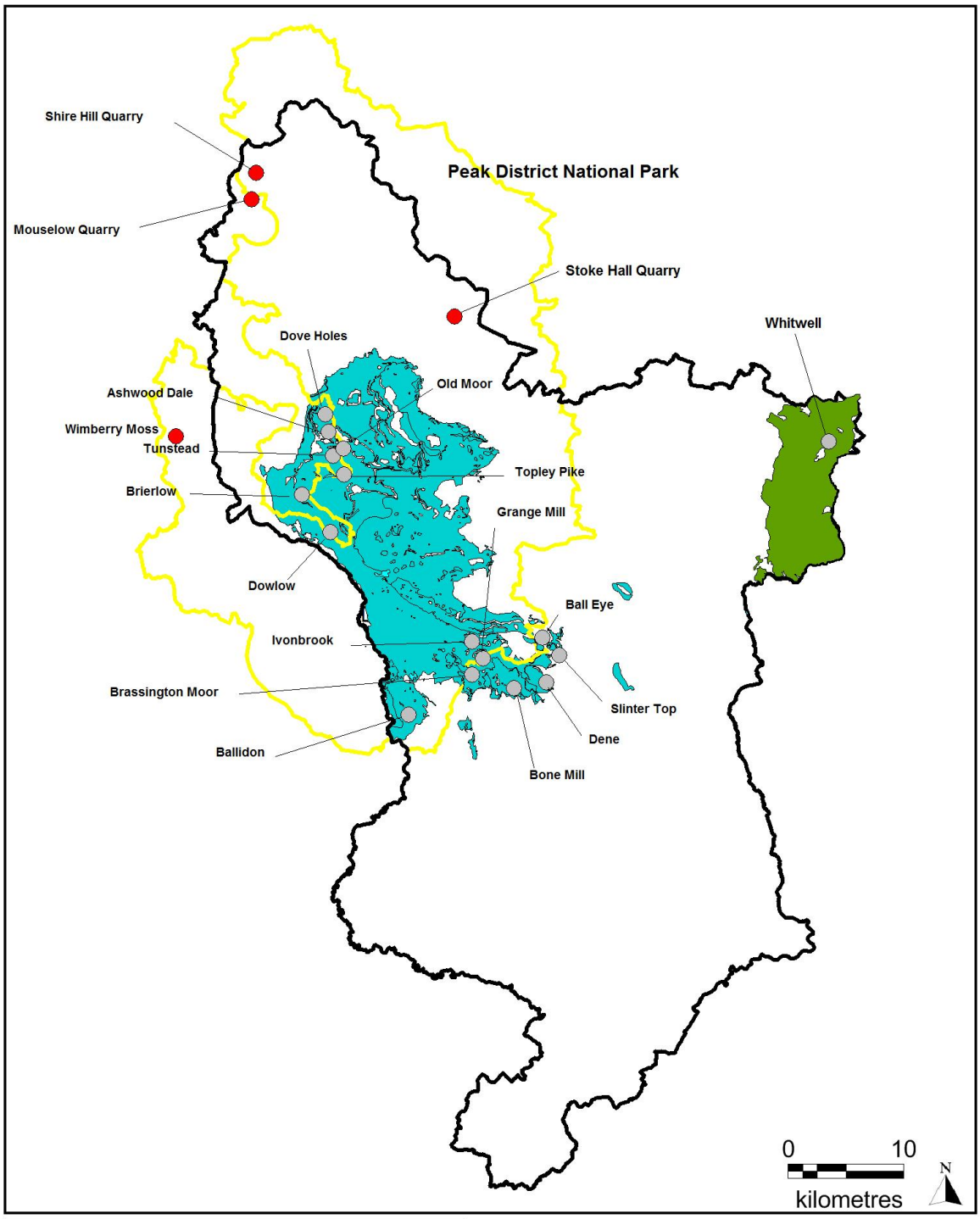
Crushed Rock

Resources & Reserves

Derbyshire and the PDNP is one of the largest producers of aggregate grade crushed rock in this country. Crushed rock for aggregate is supplied from Derbyshire and the PDNP, overwhelmingly from the Carboniferous limestone. Quarries within the area covered by the two authorities supplied 12.80 million tonnes of aggregate grade crushed rock in 2018.

Relatively small amounts of sandstone aggregate are quarried from Mouselow Quarry in the north west of Derbyshire (around 2-6,000 tonnes annually) and in the Peak District National Park at Shire Hill Quarry, near Glossop.

In 2018, there were a total of nineteen quarries producing crushed rock for aggregate in the area, fifteen of these exploiting the Carboniferous Limestone resource, one exploiting the Permian Limestone resource and three gritstone quarries. Those marked with a (i) in Table 4 below extract limestone for the industrial market as their principal product but also produce significant quantities of limestone for use as aggregate.



Title:
Hard Rock Resources and Active Hard Rock Quarries within the plan area producing Aggregate in Derbyshire. (Note the Plan area covers the geographical county of Derbyshire excluding the Peak District National Park.)

Key
- Limestone Producing site
- Sandstone Producing site
- Extent of Surface Carboniferous Limestone Resource
- Extent of Surface Permian Limestone Resource

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Figure 4: Hard Rock Resources and Active Hard Rock Quarries producing aggregate in Derbyshire and the Peak District National Park 2018

Table 4: Active Hard Rock Quarries currently producing Aggregate in Derbyshire and the Peak District

Quarry	Operator	Aggregate	End date
Derbyshire Quarries			
Ashwood Dale, Buxton (i)	Omya UK	Limestone	2042
Brierlow Quarry, Buxton (i)	Lhoist	Limestone	2042
*Dove Holes Quarry, Buxton (Beelow Quarry)	Cemex	Limestone	2042
Dowlow Quarry, Buxton (i)	Hope Construction Materials	Limestone	2042
Dene Quarry, Cromford	Tarmac	Limestone	2042
*Tunstead Quarry, Buxton (i) (Old Moor Quarry)	Tarmac	Limestone	2042
Ball Eye Quarry, Cromford	Deepwood Mining	Limestone	2042
Slinter Top Quarry, Cromford	Slinter Mining Co.	Limestone	2021
Bone Mill Quarry, Cromford	Longcliffe Quarries	Limestone	2042
Grange Mill Quarry, Cromford (i)	Ben Bennett Jnr.	Limestone	2042
Longcliffe Quarry, Longcliffe (i)	Longcliffe Quarries	Limestone	2042
Whitwell Quarry, Bolsover (i)	Tarmac	Limestone	2025
Glossop Quarry (Mouselow)	Wienerberger	Sandstone	2042
Stancliffe Quarry	Marshalls Stone	Sandstone	2042
Hall Dale Quarry	Marshalls Stone	Sandstone	
Peak District National Park Quarries			
Ballidon Quarry, Parwich	Tarmac	Limestone	31/12/2040
*Old Moor Quarry, Buxton (i)	Tarmac	Limestone	31/1/2040

(Tunstead Quarry)			
Topley Pike Quarry, Buxton	Aggregate Industries	Limestone	21/2/2042
Ivonbrook Quarry, Grangemill	Aggregate Industries	Limestone	31/12/2014
Stoke Hall Quarry, Grindleford	Marshalls	Gritstone	21/02/2042
Wimberry Moss Quarry, Rainow, Cheshire	AM & D Earl	Gritstone	21/02/2042
Shire Hill Quarry, Glossop	Marchington Stone	Gritstone	21/02/2042

The following sites have permitted reserves but currently are not working.

Table 5: Permitted Hard Rock Aggregate Quarries in Derbyshire and the Peak District National Park currently not in production

Quarry	Operator	Aggregate	End date
Derbyshire Quarries			
Bolehill Quarry, Wingerworth	Block Stone Ltd.	Sandstone	2042
Hayfield Quarry		Sandstone	2042
Birch Vale Quarry, New Mills		Sandstone	2042
Hindlow Quarry, Buxton	Tarmac	Limestone	2042
Middle Peak Quarry, Wirksworth	Tarmac	Limestone	2042
Hillhead Quarry, Buxton	Tarmac	Limestone	2042
Bolsover Moor, Bolsover	Tarmac	Limestone	2042
Peak District National Park Quarries			
*Beelow Quarry, Buxton (Dove Holes)	Cemex	Limestone	21/2/2042

** Cross boundary quarries (associated quarry in brackets)*

(i) extract limestone for the industrial market as their principal product but also produce quantities of limestone for use as aggregate.

These tables show that there is a good spread of sites amongst a number of operators and indicate that, although some of the sites have larger reserves than others, particularly in the Buxton area where the most significant resources are found, the landbank is not bound up in a small number of sites to an extent where it could stifle competition and disrupt supply. It also indicates that the majority of the sites are likely to continue to operate throughout the Plan period, therefore ensuring continuity of supply. The number of sites, reserves available and the operational capacity of the sites means that there is sufficient flexibility to meet upturns in demand for the resource.

The overall landbank of crushed rock in the area i.e. aggregate and industrial grade is around 1091 million tonnes. It has been estimated that of this, 346 million tonnes is of industrial (non-aggregate) grade. (179 million tonnes in Derbyshire and 167 million tonnes in The Peak District). As a result, there is an estimated reserve of rock for **aggregate** use at these active and inactive sites of around **745 million tonnes** (670mt limestone and 0.4mt of sandstone/gritstone in Derbyshire + 73mt limestone and 1.35mt of sandstone/gritstone in the Peak District National Park). This would be sufficient for around 60 years provision based on the proposed provision rate of 12.46mtpa. The required landbank for aggregate crushed rock is at least 10 years. (The landbank excludes dormant sites. These are where no minerals development may be carried out lawfully until such time as a new scheme of conditions has been submitted to, and approved by, the mineral planning authority.)

Recent Production

The average annual sales figure for the 10 year period 2009 to 2018 is 9.44 million tonnes. This figure comprises 6.89mt for Derbyshire and 2.55mt for the PDNP. For the most recent three years, production of crushed rock in Derbyshire and the Peak District has averaged 12.46 million tonnes. Production of aggregate in the 10 year period dropped significantly in the PDNP from 2009, from previous annual levels of around 4mt pre 2009 to around 1.7mt between 2009 and 2012, with a gradual recovery from 2013 to levels closer to 3-4mt. In Derbyshire, production of aggregate crushed rock dropped progressively from 2009 to 2014, with a significant drop in production in 2014 before recovering to some extent in 2015 and with a significant recovery from 2016 to 2018, as shown in Table 6 below.

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Average
DCC	7.36	6.62	6.35	6.24	5.70	4.17	5.77	8.62	8.86	9.25	6.89
PDNP	1.74	1.68	1.49	1.78	2.60	2.72	2.83	3.81	3.32	3.55	2.55
Joint	9.10	8.30	7.84	8.02	8.30	6.89	8.60	12.42	12.18	12.80	9.44

Table 6: Sales of Aggregate Crushed Rock 2009-2018 (million tonnes)

Table 7: How Aggregate Crushed Rock produced in the area is used, 2017 (Figures in tonnes)

(Breakdown figures were not collected in the 2018 survey)

Roadstone /Asphalt	Concrete Aggregate	Other screened graded aggregate	Construction fill	Railway Ballast	Total
3,410,198	2,122,580	5,080,459	1,133,048	6,994	12,284,750

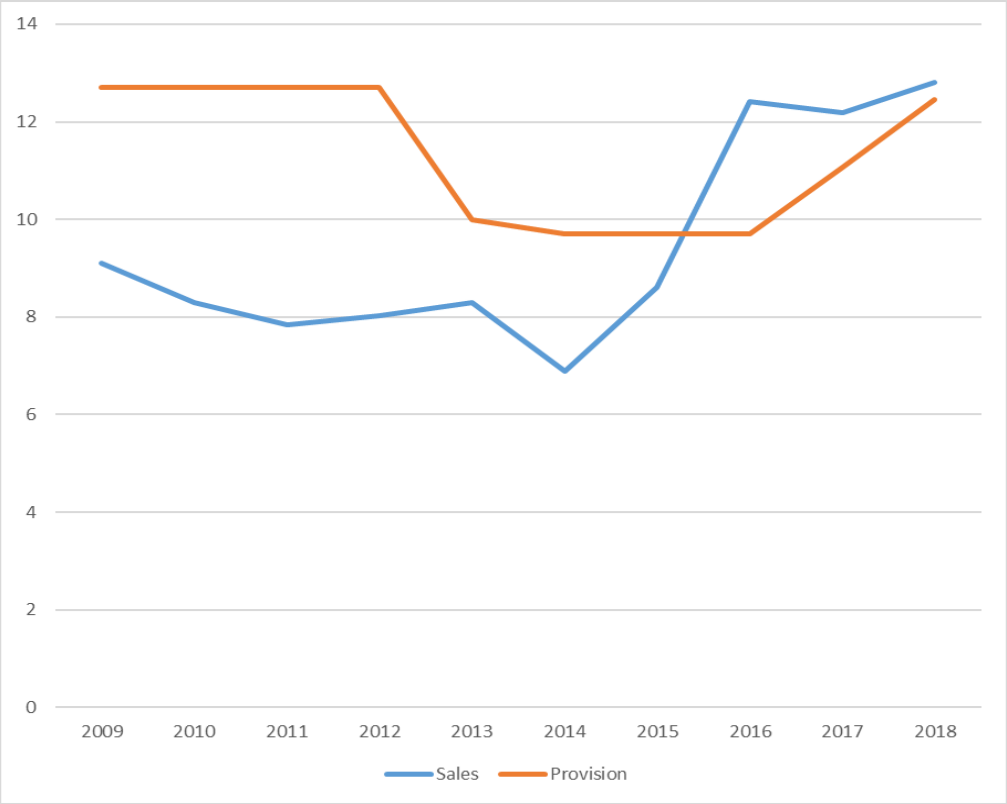


Figure 5: Sales of Aggregate Crushed Rock 2009-2018, against provision rate (figures in million tonnes)

Secondary and Recycled Aggregates

Information on secondary and recycled material that arises in Derby and Derbyshire is often inconsistent and unreliable. This is particularly true for secondary aggregates for which no throughput figures exist. Aggregates from secondary sources have diminished with the demise of heavy industry e.g. steel manufacturing and coal mining.

Recycling of construction and demolition waste (and hence the production of recycled aggregate) is often dealt with at temporary sites and sites exempt from permitting by the Environment Agency and hence good quality data on locations of production and amounts produced is not available. Additionally, a large and unknown proportion of this material is often re-used/recycled on site, and therefore does not enter the waste stream, making it difficult to record. Due to the rural setting and limited development taking place, no significant quantities of secondary and recycled material arise from the PDNP.

In order to attempt to estimate arisings for recycled aggregates, we have to use national and regional surveys that are carried out only periodically. This data then has to be extrapolated to the local level. Although information about this waste stream is relatively poor, some estimates do exist. Nationally, it is estimated that recycled aggregates currently make up around 25% of aggregate use.

The extensive and detailed work to produce the National and Sub National aggregate apportionment figures for the period 2005-2020 took account of the capacity of facilities to provide recycled and secondary aggregates. These propose that the East Midlands region should provide 110 million tonnes of alternative aggregate materials between 2005 and 2020, equating to 6.8 million tonnes per annum. This is equivalent to 14% of the region's total aggregate supply, so the re-use of recycled and secondary aggregate is expected to be a significant feature of mineral supply. There is, however, no provision of the 110mt figure to individual Mineral Planning Authorities in the region.

A study undertaken on behalf of the Government estimated (subject to a significant margin of error, estimated to be plus or minus 15%) that in 2008, there were 43.5 million tonnes of aggregates produced from recycled materials in England. By applying the growth rate from the East Midlands Regional Waste Strategy 2006, it is estimated that from 2012 to 2030,

Derby and Derbyshire will produce around 3 million tonnes of recycled aggregate on an annual basis.

The overall assumption regarding the provision of alternative aggregates meant that the previous regional apportionment figures for primary land won aggregates were set at a lower level than they otherwise would have been. The use of alternative aggregates manifests itself in the recent sales figures for primary aggregate, which will be used to determine future provision of primary aggregate. It is expected that use of alternative aggregates will continue around this current rate for the foreseeable future.

Further more detailed work will be undertaken on this issue to determine more precisely the production and use of recycled and secondary aggregates in Derby and Derbyshire. Future LAAs will update the position with this work and the potential implications, if any, for future supply patterns.

4. CALCULATING THE FUTURE PROVISION OF AGGREGATES

The Future Provision of Sand and Gravel

To determine the future provision of sand and gravel, the NPPF states that the previous 10 years' sales need to be taken into account, together with published National and Sub National Guidelines, as well as any other relevant information.

Recent Sales

As set out in the previous section, the average of the previous 10 years' sales of sand and gravel in Derby and Derbyshire is 1.01 million tonnes per year. The most recent 3 year average of 1.09 million tonnes gives an indication that production is recovering since the downturn in production as a result of the most recent economic recession.

Other local factors must also be considered in finalising the provision level for Derbyshire and Derby, as follows.

Imports and Exports

A national four-yearly monitoring survey is conducted by the DCLG and the British Geological Survey (BGS) which includes analysis of the movements (imports and exports) of aggregates for each MPA in England and Wales.

The 2009 was the most recent survey to be undertaken for which the results have been published fully. For the 2014 Survey, a summary of the percentage breakdown of aggregates consumed by each sub-region in 2014 is available, however the actual detailed sub regional figures are yet to be published in a national report. Both these surveys show that, as well as Derbyshire producing sand and gravel, some sand and gravel is imported into the Plan area from surrounding areas, particularly from Nottinghamshire.

Operators of sand and gravel quarries in Derbyshire, provided comprehensive details of exports for the 2018 survey (shown in Table 8 below).

All these surveys show that the main export markets for sand and gravel are relatively local to the area.

In 2018, 51% of sand and gravel (538,259 tonnes) produced in the county was sold in Derbyshire Derby and the Peak District National Park.

In 2018, 30% (320,374 tonnes) was exported to other MPAs within the East Midlands. Of the remaining 19% which was sold to areas outside the East Midlands, the majority, 136,233 tonnes (13%), was to the West Midlands. The 2018 survey shows that relatively small amounts were also sold in Cheshire, Cambridgeshire and North Yorkshire.

In terms of imports, 356,000 tonnes was imported into the area from other areas in 2014 (the most recent figure available for imports). As set out above, exports were around 512,546 tonnes in 2018. It can be seen, therefore, that Derbyshire is a net exporter of sand and gravel. This implies that Derbyshire is providing sufficient sand and gravel to meet its own needs and therefore able to supply other local needs.

Table 8: Exports of Derbyshire's Sand and Gravel 2018[4] (Tonnes)

DESTINATION	(% of total production in brackets)
Derbyshire, Derby and & The Peak District	538,259 (51%)
Nottinghamshire	100,048 (9.5%)
Lincolnshire	100 (0.01%)
Leicestershire & Rutland	118,260 (11%)
Northamptonshire	60
Unspecified in E Midlands	101,906 (10%)
Other Regions	
North West	635 (0.06%)
Yorkshire & Humber	143 (0.01%)
West Midlands	136,233 (13%)
East of England	645 (0.06%)
London	0

[4] Derbyshire, Derby and Peak District LAA 2018

South East	0
South West	0
North East	0
Wales	0
Scotland	0

Marine won Sand and Gravel

Being land-locked, Derbyshire, and indeed the whole of the East Midlands, does not produce any marine sand and gravel. The National and Regional Guidelines have in the past assumed a zero figure for production of this resource in this region. Transport costs also limit the import of this marine resource to this central area of the country. It is assumed, therefore, that marine sand and gravel is not a significant issue for Derbyshire and will not, therefore, form a part of this assessment.

Future Supply from Other Areas

There are significant sand and gravel operations in other parts of the Trent Valley in areas which adjoin Derbyshire, including Staffordshire, Nottinghamshire and Leicestershire. Operations in these areas supply similar markets as the ones which operate in the Derbyshire part of the Trent Valley. It will be important, therefore, to determine likely future trends in production in these areas so that we can assess the potential impact on production in Derbyshire.

The Nottinghamshire LAA concludes that additional reserves of sand and gravel will have to be identified through the emerging Nottinghamshire Minerals Local Plan to meet the apportionments set out for the Plan period to 2036. It appears likely that this will ensure there will be sufficient reserves but this cannot be verified until the Local Plan review has progressed further. This situation will continue to be monitored and reported in subsequent LAA reports.

The Leicestershire LAA indicates that, as at the end of 2017, there are permitted sand and gravel reserves to last just over 2.3 years, based on average sales over the most recent ten year rolling period and there was a shortfall of 13.57mt on the sand and gravel requirement figure. The 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 if approved. This still leaves a shortfall for the county, which is addressed through the provision of flexible policies to allow planning permission to be granted for sand and gravel extraction outside the allocated areas. However, supply can only continue to be sustained in Leicestershire if operators come forward with extensions to existing sites or look to bring forward new sites. This situation may increase the demand for sand and gravel resources from Derbyshire over the Plan period, although the proposed extension to Lockington may relieve this in the short term. This situation will be monitored by DCC and will be addressed as necessary in forthcoming LAAs. The Minerals and Waste Local Plan includes allocations for additional sand and gravel extraction.

With regards to Staffordshire, the Minerals Local Plan aims to maintain at least a 7 year landbank of permitted reserves of sand and gravel based on a production capacity of 5.0 million tonnes of sand and gravel per annum. The Staffordshire LAA (based on a 2018 survey) indicates that three sites within the Trent/Tame Valley within Staffordshire continue to produce sand and gravel and there is another operational site within the Dove Valley. Towards the end of the plan period, the construction of HS2 through the area is likely to increase output by around 1mt per annum. Five borrow pits are proposed to meet this additional demand.

It appears, therefore, that future production from quarries in adjoining MPAs, which serve similar markets to the Derbyshire sand and gravel quarries, is most likely to be sustained at similar levels for the foreseeable future. The overall balance of production from these areas supplying similar markets is, therefore, likely to remain similar. This situation will be kept under review and any significant changes which arise will be addressed.

Sales of sand and gravel from Lincolnshire to Derbyshire and the Peak District have increased significantly in recent years whilst sales in the opposite direction have reduced significantly over a similar period. If Lincolnshire begins to use a greater amount of its sand and gravel as its local economy recovers, there may be less available to supply markets elsewhere, including Derbyshire and the Peak District. This LAA does already include some flexibility in its future provision rate for sand and gravel by using the 3 year average figure which is slightly higher than the 10 year average and also current sales. Commercial decisions will ultimately dictate the specific markets for the product but this flexibility in

provision would currently allow for the sales from Lincolnshire to be replaced if those supplies became curtailed. This situation will continue be monitored and any changes will be addressed as necessary in future LAAs.

Future Economic Growth

The Government supports an agenda which promotes sustainable growth to stimulate economic recovery. There are a number of planned growth areas and potential major infrastructure projects in the area, which would help to achieve this aim. These projects would require significant amounts of sand and gravel, and it would be desirable for this to be sourced from the local area to limit the distance that it is transported.

House Building

There is a strong national and regional agenda to increase house building. Future house building over the Plan period is likely to be a significant element in the use of the County's aggregates, as it has been in the past.

Within the Plan period, the D2N2 Growth Area will result in significant new housing development to the south of Derby and also in the area around Nottingham; an area which is already a significant market for sand and gravel produced in Derbyshire. Planned house building for the Derby Housing Market Area (Amber Valley, Derby City and South Derbyshire) as set out in draft Local Plans, for the period 2011-2028 is currently 33,388 homes[5]. This averages 1,854 dwellings per year.

For Nottinghamshire, proposed housing growth for the Plan period is estimated at an annual rate of 4,574, somewhat higher than that achieved annually for the most recent 10 year period (3,008).[6] For the Greater Nottingham Housing Market Area, which is where most of Derbyshire's sand and gravel which travels to Nottinghamshire is used, the proposed housing provision figure to 2028, as set out in the District local plans, is 52,050.[7]

Growth is also proposed in other areas which are close to Derbyshire's sand and gravel resources and may therefore add to the demand. Significant housing is proposed in East

[5] Housing Delivery in the D2N2 Area, 2016
[6] Nottinghamshire Local Aggregate Assessment, 2016
[7] Housing Delivery in the D2N2 Area, 2016

Staffordshire Borough, the Local Plan proposing almost 6,500 new houses in the Burton area and around 1500 in the Uttoxeter area.[8]

There is some potential for increased demand for sand and gravel from Derbyshire as a result of future housing developments within North West Leicestershire District and the northern part of Charnwood Borough (Loughborough and Shepshed). Housing completions within North West Leicestershire between 2011 and September 2016 totalled 2690, an average of 448 per annum. The Plan makes provision for a minimum of 9620 dwellings over the period 2011-2031[9], an average rate of 481 dwellings per annum.

Housing completions within Charnwood Borough between 2011 and 2018 averaged 666 dwellings per annum[10]. The Borough's Local Plan proposes 13,940 new houses over the period 2011-2028, some 37% of which is proposed in Loughborough/Shepshed), an average rate of 820 per annum[11]. This represents an increase of 36% on recent completions.

There is some uncertainty, however, regarding the potential achievement of these planned future house building rates. Nevertheless, it seems reasonable to assume in overall terms that the demand for Derbyshire's sand and gravel as a result of new house building in the area will at least be maintained, and there are indications that there may be an increased demand for the mineral from the house building industry in future years.

Infrastructure Projects

Within the Plan period, major infrastructure projects are planned to take place in the area and in the surrounding areas which currently use sand and gravel quarried from Derbyshire within the Plan period. These include the proposed new high speed rail link (HS2), for which the development of Stage 2 between Birmingham and Leeds will begin in the mid to latter part of the Plan period. As part of the HS2 project, a new rail interchange hub is planned. This is likely to be at Toton in Nottinghamshire, close to the area of Derbyshire from which sand and gravel is produced. A new gas fired power station is proposed at Willington. A new regional freight depot built is also being built in the southern part of the

[8] East Staffordshire Borough Local Plan, Adopted 2015.
[9] North West Leicestershire Publication Local Plan, Adopted 2017.

[10] Charnwood Borough Council Housing Supply Report, 2018
[11] Charnwood Borough Council Local Plan, Adopted November 2015

area, adjacent to East Midlands Airport, off J23A of the M1 Motorway. Again, this is close to the area of Derbyshire where sand and gravel is produced.

Depending on contractual arrangements/market drivers, these projects may demand sand and gravel from quarries in Derbyshire – the quantity of which is currently unknown. Future assessments will monitor progress with these major development proposals and respond as necessary. (Indications are currently that most of the sand and gravel required for HS2 will come from borrow pits identified along the line of the route)

The consequences of all these factors are discussed below.

Conclusions

The East Midlands Aggregates Working Party (EMAWP) has agreed an approach whereby the future provision rate should be based primarily on the previous 10 year average figure. For Derbyshire, this figure is 1.01 million tonnes. Production of sand and gravel over the most recent 3 years (2016-2018), has averaged 1.09 million tonnes. Our projections indicate that the figure will increase slightly over the next few years, with the economy continuing to recover, but the production capacity of the existing processing plants at the quarries will dictate that it cannot increase significantly above the identified provision rate.

Having taken account of all relevant factors (as set out in national policy), outlined above, particularly the forecast house building in the area covered by this LAA and the surrounding area, as well as current and planned future infrastructure projects, (in the south of the Plan area in particular) which are likely to draw on Derbyshire's sand and gravel resources, it is considered that using the slightly higher most recent 3 year average figure of 1.09mt would be the most pragmatic and robust approach to take to determining future provision at the current time. This figure is still close to the 10 year average figure. This figure will continue to be reviewed on an annual basis to ensure that it takes account of any significant changes in sales and demand as well as any other new and emerging information, particularly relating to economic growth.

It should be noted that this proposed figure of 1.09mtpa is not a ceiling figure; there may be years when production is higher than this. It is intended, therefore, as an average figure to guide production over the Plan period.

Based on this proposed annual provision rate of 1.09 million tonnes, the proposed total apportionment for the 18 year period 2019-2036 that Derbyshire will provide is 19.62 million tonnes of sand and gravel (1.09 x 18). As set out above, there are already permitted reserves of 8.85 million tonnes. Additional provision will have to be made, therefore, for around 10.77 million tonnes of sand and gravel for the Plan period to 2036. (2.5 million tonnes of this was permitted as an extension to Swarkestone Quarry in March 2019 but is not included in the 2018 data, so, taking this into account, the remaining requirement is effectively 8.27mt).

This provision will be made in the emerging Minerals Local Plan through allocated sites. Sites have been put forward by mineral operators which are being assessed through the Local Plan process, and the sites which are allocated in the Plan will address the future requirement for sand and gravel to 2036. Annual monitoring will continue to ensure that a seven year landbank is maintained.

The Future Provision of Aggregate Crushed Rock

To determine the future provision of aggregate crushed rock in Derbyshire and the PDNP, the previous 10 years sales needs to be taken into account, as well as any other relevant information.

Recent Sales

In determining the level of future provision of crushed rock, the Assessment should first consider past sales for the previous 10 years. This includes limestone and gritstone/sandstone.

As set out above, the average annual sales figure for the area for the 10 year period 2009 to 2018 is 9.44mt. This figure comprises 6.89mt for Derbyshire and 2.55mt for the PDNP. The most recent 3 year average is 12.47 million tonnes (8.91mt for Derbyshire and 3.56mt for the PDNP).

Imports and Exports

The most recent 2018 survey collected information regarding destination of aggregate crushed rock in Derbyshire, although this was not the case for the Peak District National Park. This has helped to provide a recent picture of the supply situation for Derbyshire, as shown in the table below. The figures shown in the table for the PDNP are from 2009, but still give a general indication of the markets for its aggregate.

23% of the 9.25 million tonnes of aggregate grade crushed rock that was quarried from Derbyshire was used within this same area[12] and around 40% of the total production was consumed in the East Midlands (including Derbyshire and the PDNP). A significant proportion of Derbyshire's production goes to the Yorkshire/Humber Region (20%) and 17% went to the North West. The West Midlands and East of England together also take a significant amount (6% and 11% respectively) and the South East, London, Wales and the South West regions together take about 3% in total.

[12] Mainly within Derbyshire, as a result of the general restriction on development in the Peak District National Park.

Table 9: Exports of Crushed Rock from Derbyshire and Peak District Quarries (Tonnes)[13]

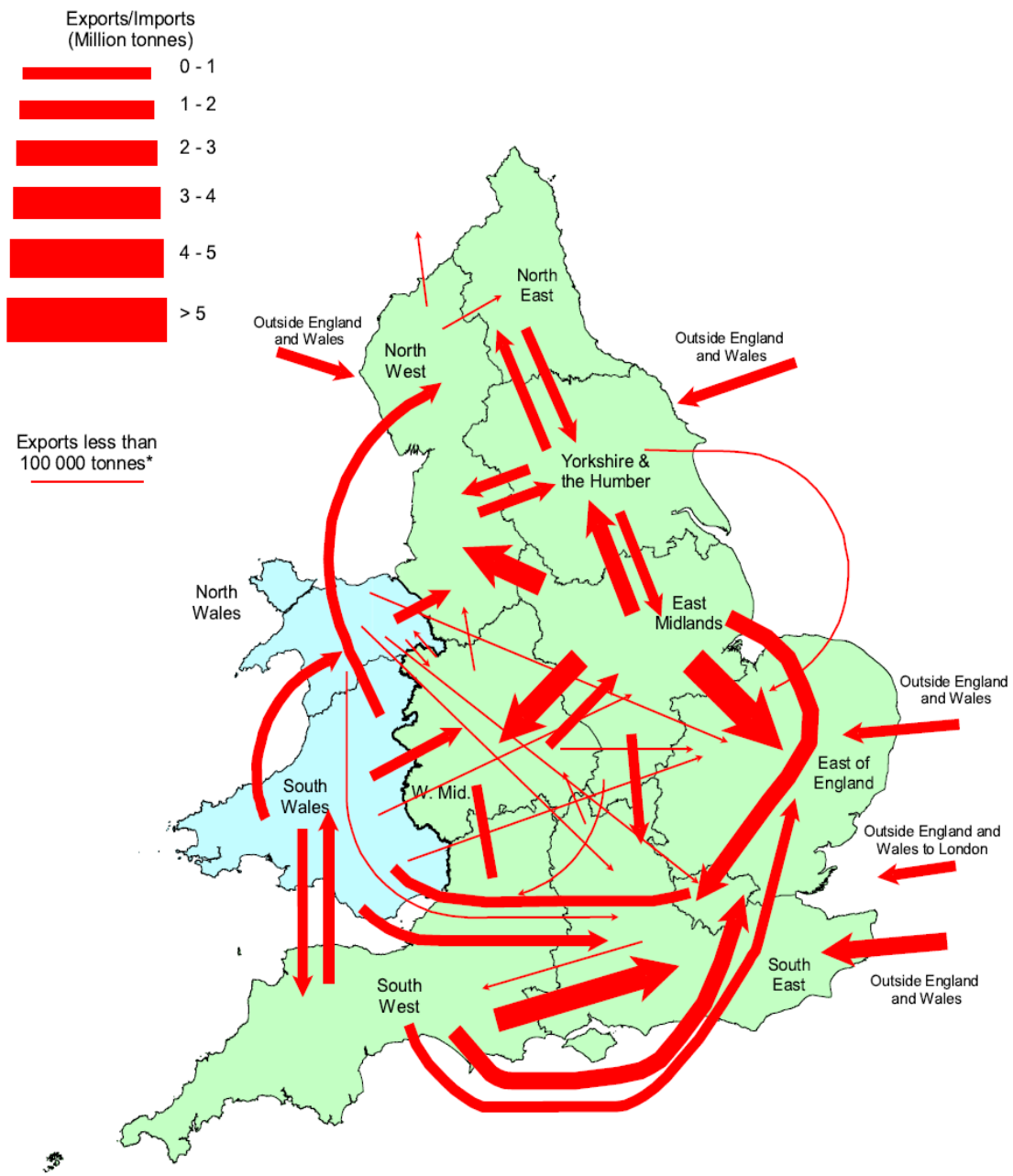
	Produced in Derbyshire 2018	**Produced in the Peak District 2009**
DESTINATION		
Derbyshire Derby & Peak District	2,144,425 (23%)	445,018 (25%)
Nottinghamshire	412,688 (4.5%)	81,124 (5%)
Lincolnshire	291,700 (3%)	39,863 (2.3%)
Leics & Rutland	50,420 (0.5%)	10,107 (0.6%)
Northants	131,545 (1.4%)	459 (0.02%)
Unspecified in East Midlands	705,643 (7.6%)	No data available
Other Regions		
North West	1,580,722 (17%)	572,440 (33%)
Yorkshire & Humber	1,850,845 (20%)	266,164 (15%)
West Midlands	568,145 (6%)	135,077 (7.7%)
East of England	990,544 (11%)	188,977 (11%)
London	1486 (0.01%)	No data available
South East	181,279 (2%)	No data available
South West	39 (0.0005%)	559 (0.03%)
North East	20 (0.0002%)	No data available
Wales	6324 (0.07%)	4668 (0.3%)
Scotland	No data	350 (0.02%)
Unspecified in UK	343,820 (3.7%)	No data available
Totals	**9,259,645**	**1,744,806**

It is clear from the size of Derbyshire and the PDNP's landbank of aggregate grade crushed rock that it will be able to continue to supply these markets as required at least over the timescales covered by the authorities Development Plans. The area is, and is likely to continue to be, an important supplier of aggregate grade crushed rock on a wide geographical scale.

[13] Aggregates Surveys 2009 and 2018

Although it can be seen that Derbyshire and the PDNP export a significant amount of aggregate grade crushed rock, some is also imported into the area. This is likely to be a result of market forces and commercial decisions, as well as the need to import any particular types of aggregate which cannot be supplied from within the sub-region as a result of geological or resource constraints. In 2014 (the most recent full survey for which data on exports and imports has been published), Derbyshire and the Peak District imported 541,000 tonnes of aggregate grade crushed rock, the majority of which (450,000 tonnes) was imported from Leicestershire/Rutland. Data shows that the majority of the remainder is imported from the North West, Yorkshire and Humber and the West Midlands regions.

Figure 6: Crushed rock inter-regional flows



It is apparent, therefore, that Derbyshire and the PDNP is a significant net exporter of aggregate grade crushed rock to other areas, currently amounting to around 12 million tonnes each year. Derbyshire has significant resources of hard rock compared to many

other areas in the country and it will be important, therefore, to maintain this level of supply in order to sustain and stimulate national economic growth.

Future Supply from Adjacent Areas

Leicestershire is the only adjoining authority which produces aggregate crushed rock to a significant extent. The Leicestershire LAA indicates also that there will be sufficient reserves in the foreseeable future to sustain production at recent levels. It is likely, therefore, that the overall balance of production from areas supplying similar markets to Derbyshire and the PDNPA is likely to remain similar over the timescales covered by the authorities' Development Plans.

Future Economic Growth

Limestone from Derbyshire and the Peak District is a resource of national importance, which does not exist to such an extent in most other areas of the country. As can be seen from Table 9 above, the markets for this product are, therefore, much wider than they are for sand and gravel.

Proposed sustainable economic growth in many areas which already draw on the resource is likely, therefore, to at least maintain the demand and may lead to an increase in demand for the mineral over the Plan period. There are a number of proposals which should be taken into account in this respect and could lead to an increase in demand for crushed rock (limestone) from this area.

The Government supports an agenda which promotes sustainable growth to stimulate economic recovery. There are a number of planned growth areas and potential major infrastructure projects in the area, which would help to achieve this aim. These projects would require significant amounts of crushed rock from Derbyshire.

There is a strong national and regional agenda to increase house building. Future house building over the Plan period will be a significant element in the use of the area's aggregates.

It is likely that proposed housing and economic development in the Three Cities Growth Area (an area proposed for economic growth centred on Nottingham, Leicester and Derby),

particularly in the area to the south of Derby and around Nottingham[14], will result in an increased demand for Derbyshire's mineral resources, as well as planned development in the Sheffield City Region and the Manchester City Region Growth Areas, which are important existing markets for aggregate crushed rock from Derbyshire. There may also be an increased demand as a result of development in the Milton Keynes and South Midlands Growth Zone. The proposed high speed rail link (HS2) Stage 2 between Birmingham and Leeds and the Regional Freight Depot near East Midlands Airport are also likely to increase the demand for crushed rock aggregate from this area within the Plan period.

It is not possible to assess precisely the demand for aggregates associated with these projects at this stage, but future assessments will monitor progress with these major development proposals and respond as necessary.

Progressive Reduction in Quarrying from the Peak District National Park

The PDNP has a policy in its Core Strategy (Policy MIN1) which does not allow for further new quarries or extensions to existing quarries other than in exceptional circumstances, in order to implement the continued gradual reduction of mineral that is quarried from within the National Park, in order to protect the nationally important landscape.

In this respect, the NPPF seeks, as far as is practical, to provide for the maintenance of landbanks for non-energy minerals outside areas such as National Parks. This should be considered in the context of the benefits of mineral extraction to the economy and ensuring that adequate supplies of minerals are provided, recognising that minerals can only be worked where they occur. Future contributions of aggregate from the Peak District National Park and the implications for mineral extraction in areas outside the National Park will need to be considered in light of these issues.

Conclusions

The East Midlands Aggregates Working Party (EMAWP) has agreed an approach whereby the future provision rate should be based primarily on the previous 10 year average figure. The average of the previous 10 years' sales figures is 9.44mt. As well as taking account of this 10 year average figure, other important local and wider matters must be taken into consideration in formulating the final provision rate, as set out above.

[14] See page 28 for details of proposed housing numbers

An increase in production of crushed rock for aggregate in the last few years has led to an increase in the three year average sales figure which is now significantly above the 10 year average figure. Taking account of all the issues discussed above, particularly current and future economic growth in areas that use crushed rock from the area, it would seem appropriate and pragmatic to use the most recent 3 year sales figure of 12.46mt to reflect the recent and continued increase in production of aggregate crushed rock in the area. To continue to reflect the initiative to help to reduce quarrying of crushed rock in the PDNP, the PDNP element of the provision figure will be reduced by 10% and this will be applied to the DCC provision figure. This works out as 12.46 million tonnes per annum (9.26mtpa for Derbyshire and 3.20mtpa for the PDNP). This proposed figure for Derbyshire allows for the continued compensation for the progressive loss of production from the PDNP. As the run down in production from the National Park continues over time, DCC's share of this figure will increase progressively. There are currently no indications to suggest that production will not continue around this rate for the foreseeable future. However, production of aggregate crushed rock will continue to be monitored on an annual basis and, along with other factors such as the NPPF requirement to maintain landbanks outside National Parks, will inform the review of provision rate figures in future LAAs.

As a result, from 2019 to 2036, Derbyshire and the PDNP will make provision for 224.28 million tonnes of aggregate grade crushed rock (12.46mt x 18 years). Assuming 12.46mt per annum is worked over 18 years, and that no further reserves are permitted in this time, there will still be a landbank of aggregate grade crushed rock of 521 million tonnes by 2036, sufficient to last around 42 years at current average production rates. There is sufficient supply, therefore, to meet future demand for aggregate grade crushed rock, which this area currently supplies.

This document has been the subject of a sustainability appraisal. This is available on our website at www.derbyshire.gov.uk

Produced by Derbyshire County Council, Derby City Council and the Peak District National Park Authority. If you have any queries regarding this document, please contact The Minerals Planning Team, Derbyshire County Council, County Hall, Matlock, DE4 3AG, or email ETEWastemin@derbyshire.gov.uk