

Joint Local Aggregates Assessment for County Durham, Northumberland and Tyne and Wear



December 2018

(updated with 2017 sales and reserves data)

Prepared jointly by

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Executive Summary

This Local Aggregates Assessment (LAA) has been jointly prepared by the eight mineral planning authorities in County Durham, Northumberland and Tyne and Wear. It is updated on an annual basis and this version has been updated using sales and reserve data from 2017.

The LAA monitors the provision of aggregates and likely future demands and provides supporting evidence for the preparation and review of Local Plans. It contains three main elements:

- A forecast of demand for aggregates;
- An analysis of supply options; and
- An Assessment of the balance between supply and demand.

Aggregates in the Joint LAA area

Within the Joint LAA area, the geology gives rise to the following aggregate resources:

- **Carboniferous limestone** – Found in the west of County Durham along the sides of Weardale and to the south of Barnard Castle. In Northumberland it is extracted from the Great Limestone resource and is also found alongside the Whin Sill.
- **Permian magnesian limestone** – This resource underlies the majority of the east of County Durham and also occurs in South Tyneside and Sunderland in Tyne and Wear.
- **Igneous rock** – In Northumberland the Whin Sill is an important resource that outcrops in the south and west of the county and in the north of the county around Longhoughton and Belford. In County Durham this resource outcrops in Upper Teesdale.
- **Sand and gravel (superficial deposits)** – Fluvial, glacial and beach and blown sand deposits are found in the Joint LAA area, including the major river valleys such as Breamish, Coquet and Till in Northumberland, the River Tyne in Gateshead and Northumberland and the River Wear and River Tees in County Durham.
- **Sand (bedrock deposits)** – Basal Permian sand is found in County Durham and Sunderland and outcrops intermittently along the magnesian limestone escarpment.

Aggregates are also supplied from the following sources with the Joint LAA area:

- **Marine dredged sand and gravel** – Landed at the Port of Blyth in Northumberland, at sites on the River Tyne and at the Port of Sunderland.
- **Imports of rock by sea** – Landed Port of Blyth in Northumberland, at sites on the River Tyne and at the Port of Sunderland. This is sourced from Scotland and Norway.
- **Recycled and secondary aggregates** – Main sources of recycled and secondary aggregates within the Joint LAA area are construction and demolition waste and ash from Lynemouth Power Station in Northumberland.

Demand indicators

In line with the NPPF and the approach outlined in Planning Practice Guidance our starting point to calculating future demand has been to use the rolling ten year sales average and other relevant local information. In terms of other relevant information we have sought to consider demand from future house building, major infrastructure projects, population growth and general economic growth. We have also had regard to the published National and Regional Aggregate Supply Guidelines which were published in June 2009. We have also considered peak sales over the last ten years and pre-recession average sales figures. Finally, we have also looked at average sales over the last 3 years in particular to identify the general trend of demand as part of the consideration of whether it might be appropriate to increase supply.

In terms of major infrastructure projects, a large number of construction and infrastructure projects have also been identified but as these types of schemes have also been delivered during the period of the 10 year sales average it is not anticipated that this will place an increase in demand for aggregates over and above that captured by the sales average figure.

Balance between supply and demand

A quantitative assessment of the balance between supply and demand is set out below. Demand has been calculated using the provision set out in this LAA and this annual figure has been extrapolated forward for a period of 16 years (2018 to 2033).

Table 1.1 Balance between supply and demand (tonnes)

Sub-area	Resource	Permitted Reserve	Annual demand Requirement	Demand 2018 to 2033	Balance Between Demand and Supply 2018 to 2033
County Durham	Crushed rock	130,744,734	2,799,000	44,784,000	+85,961,000
	Sand and gravel	7,112,971	303,000	4,848,000	+2,265,000
Northumberland	Crushed rock	81,015,832	1,650,000	26,400,000	+54,615,000
	Sand and gravel	5,410,000	420,000	6,720,000	-1,310,000
Tyne and Wear	Crushed rock	7,000,000 e	375,000	6,000,000	+1,000,000
	Sand and gravel	6,200,000 e	225,000	3,600,000	+2,600,000

e - Sand and gravel and crushed rock permitted reserve figure for Tyne and Wear are Mineral Planning Authority estimates.

The table above shows that:

- County Durham** has in quantitative terms, sufficient permitted reserves of both crushed rock and sand and gravel to meet the calculated demand from quarries in this sub-area in the long term. However, consideration of the composition of the crushed rock landbank has led to a need being identified for additional carboniferous limestone working. This identified need has to be reflected in the emerging Local Plan (which reached its Preferred Options stage in June 2018) and planning decisions and given appropriate weight when assessing individual planning applications. Several crushed rock quarry's and one sand and gravel quarry have been inactive for a number of years, and two crushed rock and two sand and gravel quarries have end dates before 2033. Planning decisions will need to ensure that proposals to reopen inactive sites and extend the period of working at existing active sites, if permitted reserves still remain at the quarry end date of working, are considered positively.
- Northumberland** has sufficient permitted reserves of crushed rock to meet the calculated demand but there is an identified shortfall in permitted reserves of sand and gravel in the medium- to long-term. This therefore indicates that additional provision for sand and gravel from Northumberland needs to be made in the Northumberland Local Plan⁽ⁱ⁾, which covers the area outside of Northumberland outside of the Northumberland National Park, and given appropriate weight when assessing individual planning applications. In addition, while the figures indicate sufficient permitted reserves of crushed rock in quantitative terms, the local plan and any planning decisions need to give consideration to a large part of the permitted reserves being contained within a single site, five quarries having end dates before 2033 and some sites are projected to have their permitted reserves exhausted by 2033.

i A draft Northumberland Local Plan was published for consultation in July 2018. A Publication Draft is to be published in January 2019

- **Tyne and Wear** has sufficient permitted reserves of crushed rock and sand and gravel to meet the calculated demand from quarries in this sub-area. Notwithstanding this it is noted that sand and gravel production is limited to one quarry and crushed rock production is currently limited to two quarries. The permitted reserves of crushed rock at one of these quarries would be exhausted by the mid-2020s and the remaining quarry would not have sufficient productive capacity to meet the demand forecast. Local Plans and decisions on planning applications should therefore support additional areas for extraction where environmentally acceptable.

Inter mineral planning authority issues

Information on movements of aggregate minerals from quarries and wharves to destination sub-regions is provided by the national aggregate minerals survey, which was last undertaken in 2014 by the British Geological Survey on behalf of the Department for Communities and Local Government and the Welsh Assembly. From the survey the most significant cross boundary movements involving the Joint LAA area have been identified as:

- Supply of crushed rock and sand and gravel from quarries in County Durham and Northumberland to Tyne and Wear;
- Supply of crushed rock and sand and gravel from County Durham to Tees Valley;
- Supply of crushed rock from County Durham to North Yorkshire; and
- Supply of crushed rock and sand and gravel from quarries in North Yorkshire to County Durham.

These are the key cross boundary issues that the MPAs should give consideration to in the preparation of Local Plans.

Dashboard

Table 1.2 Dashboard for County Durham sub-region

	Sales in 2017 (tonnes)	Ten year sales average (tonnes)	Three year sales average (tonnes)	Trend	Annual Demand Derived from LAA	Permitted Reserve (tonnes)	Landbank (Years)	Comments
Sand and Gravel	330,000	238,000	303,000	↗	303,000	7,112,971	23.5	Sales in 2017 were above the annual demand requirement showing productive capacity at sites in County Durham.
Crushed rock	2,636,000	2,396,000	2,799,000	↗	2,799,000	130,744,734	46.7	Sales in 2017 were below the annual demand requirement.
Recycled and secondary aggregates	61,300	-	-	-	N/A	N/A	N/A	Slight increase in sales in 2017 compared to 2016.
Marine sand and gravel	0	0	0	N/a	0	N/A	N/A	No current wharf sites in County Durham so no landings.
Rock imports by sea	0	0	0	N/a	0	N/A	N/A	No current wharf sites in County Durham so no landings.
General comments	County Durham continues to make a good contribution to the steady and adequate supply of aggregates, supplying more aggregates than it consumes. Existing permitted reserves of both crushed rock and sand and gravel are extensive and are distributed across a number of sites which are well related to the market in the North East. Permitted reserves have been replenished by a number of new permissions in recent years. Existing sites contain significant unrealised productive capacity and in recent years have been able to successfully respond to increases in demand by increasing sales as the economy continues to recover from the economic recession. The potential for a number of inactive and dormant permissions to recommence working in future years is good.							

Table 1.3 Dashboard for Northumberland sub-region (Northumberland County and Northumberland National Park)

	Sales in 2017 (tonnes)	Ten year sales average (tonnes)	Three year sales average (tonnes)	Trend	Annual demand requirement derived from LAA (tonnes)	Reserve (tonnes)	Landbank (years)	Comments
Sand and gravel	405,435	408,000	420,000	↗	420,000	5,409,638	12.9	No issues with short-term supply but a shortfall in the medium to long-term has been identified as a number of existing sites have end dates prior to 2036 or are predicted to have been worked out.
Crushed rock	1,767,857	1,365,000	1,650,000	↗	1,650,000	81,015,832	49.1	Substantial permitted reserves available but significant proportion contained in one site and five other quarries have end dates prior to 2036.
Recycled and secondary aggregates	125,000	-	-	↘	N/A	N/A	N/A	No sales of ash from Lynemouth Power Station in 2016 due to biomass conversion work. Material stored on site can be extracted and used in future.
Marine sand and gravel	30,000	-	-	↔	N/A	N/A	N/A	Crown Estate published data on landings from licenced dredging sites in the Humber area. Landings at Port of Blyth.
Rock imports by sea	0	Not available	Not calculated	↘	N/A	N/A	N/A	No landings from outside England and Wales at Port of Blyth in 2017. Capacity remains.
General comments	Northumberland continues to make an important contribution to the steady and adequate supply of aggregate to meet both local and wider needs. Permitted reserves of crushed rock and sand and gravel are available to maintain supply but permitted reserves of sand and gravel are reducing as there have been no recent planning permissions that would assist in replenishing reserves meaning there is an identified shortfall for sand and gravel in the medium- to long-term. There is currently only one active aggregate producing quarry in the Northumberland National Park with the remainder of supply from Northumberland County.							

Table 1.4 Dashboard for Tyne and Wear sub-region (Gateshead, Newcastle, North Tyneside, South Tyneside and Sunderland)

	Sales (tonnes)	Ten year sales average (tonnes)	Three year sales average (tonnes)	Trend	Annual demand requirement derived from LAA (tonnes)	Reserve (tonnes)	Landbank (years)	Comments
Sand and gravel	220,000 +	190,000	225,000	↗	225,000	6,200,000+	27.6	Supply from a single quarry, Three year sales above ten year sales showing increasing demand for sand and gravel.
Crushed rock	350,000 +	288,000	375,000	↗	375,000	7,000,000+	18.7	Supply from two quarries. Three year sales average above the ten year sales average showing increasing demand.
Recycled and secondary aggregates	328,000	-	-	N/A	-	-	-	-
Marine sand and gravel	Confidential	-	-	N/A	-	-	-	In 2017 sand and gravel was landed at Jarrow Wharf in South Tyneside.
Rock imports by sea	Confidential	-	-	N/A	-	-	-	In 2017 crushed rock landed at Hayhole Road Wharf in North Tyneside.
General comments	Tyne and Wear continues to make a contribution to the steady and adequate supply of aggregates from two quarries but demand is from this area is significantly more than current supply. It is anticipated that the permitted reserves of crushed rock at Marsden Quarry will be exhausted in the medium term and supply could be limited to Eppleton Quarry which now has planning permission to 2040. Without additional permissions, the ability of sub-region to make an contribution to meeting its own needs will be limited to the productive capacity of Eppleton Quarry.							

+ Mineral Planning Authority best estimate.

1 Introduction

1.1 To plan for a steady and adequate supply of aggregates the National Planning Policy Framework (NPPF) (July 2018) states, amongst other things, that mineral planning authorities should prepare a Local Aggregate Assessment (LAA). The LAA provides a forecast of demand for aggregates, an analysis of supply options and assesses the balance between supply and demand. It therefore provides a key evidence base on which to base decisions on the scale, and geographical distribution of future aggregates supply in minerals plans.

1.2 This LAA covers County Durham, Northumberland and Tyne and Wear and has been jointly prepared by the following eight minerals planning authorities as part of their ongoing commitment to work collaboratively on cross boundary minerals planning issues:

- Durham County Council;
- Gateshead Council;
- Newcastle City Council;
- North Tyneside Council;
- Northumberland County Council;
- Northumberland National Park Authority;
- South Tyneside Council; and
- Sunderland City Council.

1.3 **Chapter 2** of this document provides further background information on LAAs, the Managed Aggregates Supply System and how this LAA was prepared. **Chapter 3** provides details of the aggregate resources in the joint LAA area, existing extraction sites and infrastructure for the supply and transportation of aggregates, including marine aggregates, recycled aggregates and secondary aggregates and **Chapter 4** provides information of aggregate sales and reserves with planning permission. **Chapter 5** provides a sets out a forecast of demand. **Chapter 6** assesses supply options, including marine derived materials, recycled and secondary materials and imports and **Chapter 7** sets out the key conclusions and recommendations of this LAA.

2 Background/context

2.1 This section provides background information on the purpose of the LAA, the Managed Aggregates Supply System and how the document has been prepared.

What are aggregates?

2.2 Aggregates are defined as being hard, granular materials which are suitable for use either on their own or with the addition of cement, lime or a bituminous binder in construction. The most important applications for aggregates include concrete, mortar, roadstone, asphalt, railway ballast, drainage courses and bulk fill.

2.3 A distinction is often made between primary aggregates and aggregates from alternative sources (i.e. secondary aggregates and recycled aggregates):

- **Primary aggregates** are produced from naturally occurring mineral deposits and are also extracted specifically for use as aggregates and are used for the first time. Most primary aggregates are produced from hard, strong rock formations by crushing to produce crushed rock aggregate or from naturally occurring particulate deposits such as sand and gravel.
- **Secondary aggregates** are usually defined as aggregates obtained as a by-product of other mining or quarrying operations or aggregates obtained as a by-product of other industrial processes.
- **Recycled aggregates** arise from various sources including the demolition or construction of buildings and structures or from asphalt planings as a result of work to resurface roads and from railway track ballast. Recycling involves the processing of the waste material so that it can be made into new materials for aggregate uses.

What is a Local Aggregate Assessment?

2.4 The principal purpose of an LAA is to set out the current and future aggregate supply situation in a particular area with respect to all aspects of aggregates supply including:

- Land won resources including landbanks and allocations;
- Secondary aggregates, whose sources come from industrial wastes such as glass, ash, railway ballast, fine ceramic waste and scrap tyres; and industrial and minerals by-products, notably waste from china clay, coal and slate extraction and spent foundry sand;
- Marine sources, from areas licensed by the Marine Management Organisation (MMO) for marine sand and gravel dredging. Over the next few years, the MMO will prepare Marine Plans around England to guide the licensing process; and
- Imports into, and exports out of, the MPA area. The MPA must capture the amount of aggregate that it is importing and exporting as part of its Assessment.

2.5 In particular an LAA is expected to include:

- A forecast of the demand for aggregates based on the average of 10 years sales data and other relevant local information, including for example, the National Infrastructure Plan. MPAs should also 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 supply;
- An analysis of all aggregate supply options, as indicated by landbanks, development plan allocations and capacity data e.g. marine licences for marine aggregate extraction and the

potential throughput's from wharves. This analysis should be informed by planning information, the aggregate industry and other bodies such as Local Enterprise Partnerships; and

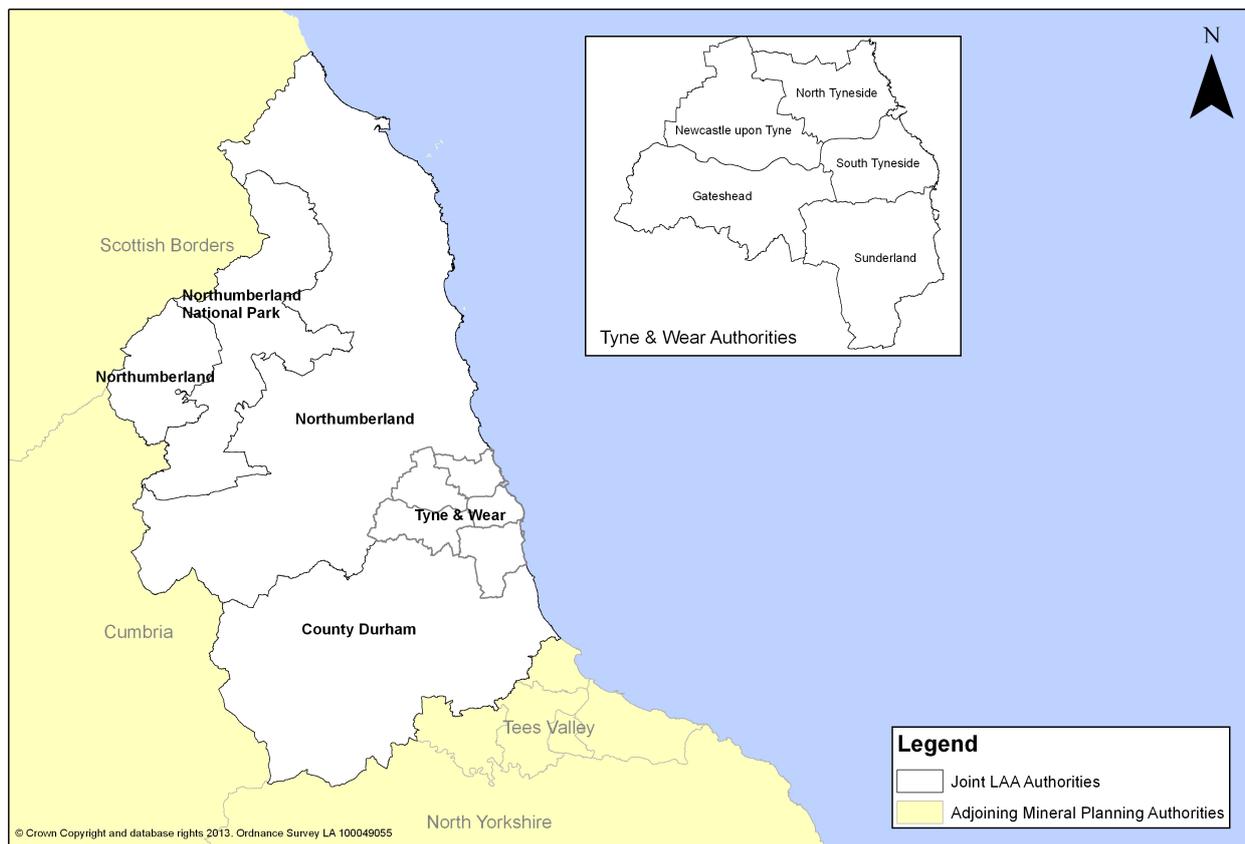
- An assessment of the balance between demand and supply, and the economic and environmental opportunities and constraints that might influence the situation. It should conclude if there is a shortage or a surplus of supply and, if the former, how this is being addressed.

2.6 It is intended that LAA will provide the evidence base on which decisions could be taken on the scale, and geographical distribution of future aggregates production.

Joint approach to the Local Aggregate Assessment

2.7 The NPPF advises that an annual LAA can be prepared by either individual or jointly by agreement with another or other mineral planning authorities. This LAA has been jointly prepared by Durham County Council, Northumberland County Council, Northumberland National Park Authority and the Tyne and Wear authorities of Gateshead Council, Newcastle City Council, North Tyneside Council, South Tyneside Council and Sunderland City Council.

Map 1 Joint Local Aggregate Assessment Area - County Durham, Northumberland and Tyne and Wear



2.8 The mineral planning authorities have sought to work together in the preparation of this joint LAA as part of their ongoing commitment to work collaboratively on cross boundary minerals planning issues and in order to satisfy the 'Duty to Cooperate'⁽ⁱⁱ⁾ as set out in Section 110 of the Localism Act.

ii Section 110 of the Localism Act sets out a 'duty to co-operate'. This applies to all local planning authorities, national park authorities and county councils in England – and to a number of other public bodies. The duty: relates to sustainable development or use of land that would have a significant impact on at least two local planning areas or on a planning matter that falls within the remit of a county council; requires that councils set out planning policies to address such issues; requires that councils and public bodies 'engage constructively, actively and on an ongoing basis' to develop strategic policies; and requires councils to consider joint approaches to plan making.

Managed Aggregates Supply System

2.9 The Managed Aggregates Supply System (MASS) exists to ensure a steady and adequate supply of aggregate minerals is available to meet the needs of the construction industry. It seeks to ensure that the geographical imbalances between supply (i.e. the locations where the mineral resources are found and can be extracted) and demand (i.e. the locations where the mineral resources are required) are appropriately addressed at the local level. MASS has operated since the 1970s and involved the Government providing guidelines for the provision of aggregates at both a national and regional level, based on forecasts of demand, and then apportioning these guidelines to individual MPAs based on the advice of the AWP.

2.10 In line with the Government's principles of a more local approach to planning matters, the approach to the MASS has been amended. These reforms maintain the main principles of MASS but each MPA is now required to prepare an LAA. The LAA is required to assess the demand for aggregates and the supply of aggregates to determine the appropriate level of aggregate extraction in their area.

2.11 The national and sub-national guidelines, published by Government, provide an indication of the total amount of aggregate the MPAs within each AWP cluster should collectively seek to provide as well as providing the MPAs with some context and understanding of the overall demand. The guidelines are based on forecasts of demand for aggregates. The most recent 'National and Regional Guidelines for the provision of aggregate minerals in England' were published in June 2009 and cover the 16 year period from 2005 to 2020 (see Table 2.1). These guidelines are considered in Chapter 5 of this Joint LAA.

Table 2.1 National and sub-national guidelines for aggregates provision in England, 2005 to 2020 (all figures are million tonnes)

	Guidelines for land-won production		Assumptions		
	Sand and gravel	Crushed rock	Marine sand and gravel	Alternative materials	Net imports to England
South East England	195	25	121	130	31
London	18	0	72	95	12
East of England	236	8	14	117	7
East Midlands	174	500	0	110	0
West Midlands	165	82	0	100	23
South West England	85	412	12	142	5
North West England	52	154	15	117	55
Yorkshire Humber	78	212	5	133	3
North East England	24	99	20	50	0
England	1,028	1,492	259	993	136

Source: DCLG (2009). National and regional guidelines for aggregates provision in England 2005-2020. Department for Communities and Local Government, June 2009. Available at: <https://www.gov.uk/government/publications/national-and-regional-guidelines-for-aggregates-provision-in-england-2005-to-2020>.

Timescale for the Local Aggregate Assessment

2.12 Given the long-term nature of aggregate mineral working and the need to ensure that a steady and adequate supply of aggregates is maintained in the long term, this LAA looks forward over a time horizon that allows an understanding of aggregate supply requirements that Local Plans should make provision for. A default period of sixteen years, from 2018 to the end of 2033, has been used in line with the time horizon that the national and sub national guidelines for aggregates provision cover. For County Durham the LAA looks forward to 2035 in line with time period of the emerging local plan for County Durham and for Northumberland the LAA looks forward to 2036 in line with the time period for the Northumberland Local Plan⁽ⁱⁱⁱ⁾

Overview of the data used

2.13 In accordance with the guidance on the preparation of LAAs, a wide range of data has been used to inform the preparation of this report, including:

- The Aggregate Minerals Survey for England and Wales on sales, movement, consumption and permitted reserves of aggregate minerals normally undertaken every four years^(iv);
- North East Aggregates Working Party Annual Aggregates Monitoring Reports and survey results^(v);
- Report for the North East Aggregates Working Party Apportionment of North East Region Guidelines for Aggregates Provision Environmental Report (Entec, May 2010)^(vi);
- Relevant information from planning application documentation;
- Information on permitted reserves and sales provided to the MPAs in response to conditions attached to planning permissions (where applicable) and non-confidential survey information returned by operators to individual MPAs (where available) or where such information is not available best estimates have been used;
- Data and information on mineral resources held by the British Geological Survey and the Crown Estate; and
- Environment Agency and other local data on the arisings of and recovery/disposal routes of construction and demolition waste, including inert waste to restore mineral sites.

iii The Northumberland Local Plan covers the area of Northumberland outside of the Northumberland National Park. The end date of the emerging Northumberland National Park Local Plan is 2037.

iv The Collation of the results of the 2014 Aggregate Minerals Survey for England and Wales can be downloaded here: <https://www.gov.uk/government/publications/aggregate-minerals-survey-for-england-and-wales-2014>

v North East Aggregates Working Party Annual Monitoring Reports can be downloaded here: <http://www.northumberland.gov.uk/Planning/Planning-policy/Reports.aspx#mineralswastestudies>

vi The Report for the North East Aggregates Working Party Apportionment of North East Region Guidelines for Aggregates Provision Environmental Report can be downloaded here: <http://www.northumberland.gov.uk/Planning/Planning-policy/Reports.aspx#mineralswastestudies>

3 Aggregate resources, consents and allocations

3.1 For each of the mineral planning authorities in County Durham, Northumberland and Tyne and Wear this section identifies the:

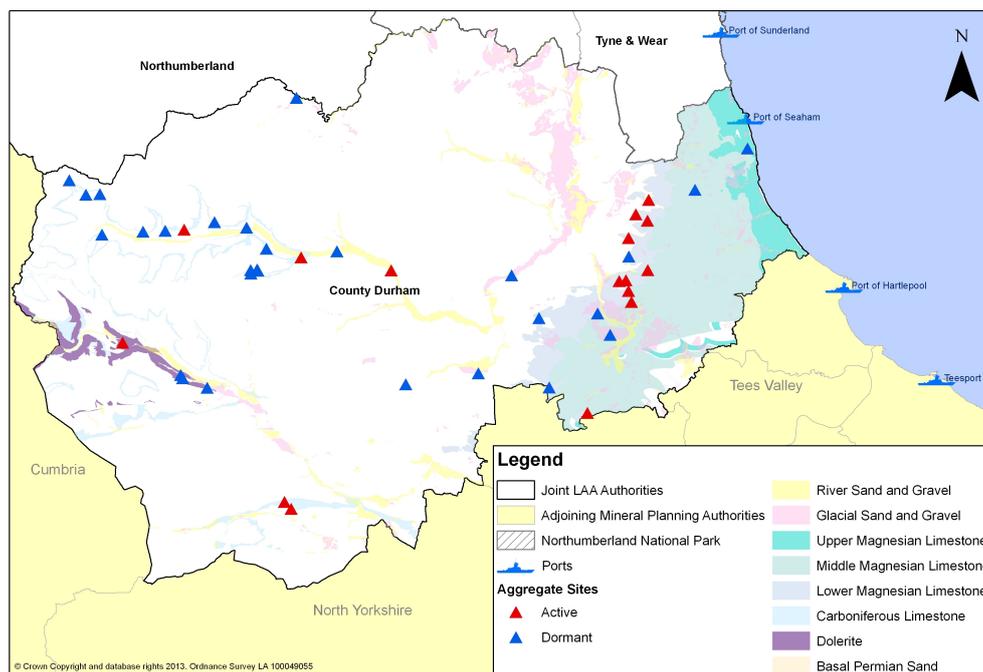
- Range and distribution of aggregate resources;
- Location of existing active and dormant aggregate sites;
- Location of wharfs for the importation of aggregate minerals;
- Location of secondary and recycled aggregate processing infrastructure; and
- Location of existing mineral site allocations within existing mineral local plans.

County Durham

3.2 County Durham is a geologically complex County. A wide range of rocks and more recent sedimentary deposits are found throughout the County. The extent of potential mineral resources which are potentially available for extraction is defined by this complex geology. County Durham's geology gives rise to the following aggregate resources:

- Permian magnesian limestone;
- Carboniferous limestone;
- Igneous rock; and
- Sand and gravel (fluvial, glacial and basal Permian sand).

Map 2 Aggregate resources and mineral permissions in County Durham



Hard rock

Limestone

3.3 Two types of limestone are extracted in County Durham, magnesian limestone and carboniferous limestone. Although both are limestones, the two types are different in terms of their physical properties and make up. This is related to the environment in which they were formed, as well as the types of materials that formed them.

Permian magnesian limestone

3.4 The magnesian limestone resource in County Durham is of both local and national importance and it is the most important mineral resource currently worked in County Durham.

3.5 Magnesian limestone underlies the majority of east Durham and at its eastern edge forms a bold escarpment running in a north-south direction between Pittington and Ferryhill and then south-westwards, with the escarpment gradually disappearing to the south of Shildon. To the north of Pittington, the escarpment gradually disappears towards the adjoining MPA area of Sunderland in Tyne and Wear.

3.6 The magnesian limestone resource is understood to be highly variable, both regionally and locally. Within County Durham the lower magnesian limestone (also known as the Raisby formation), which only outcrops extensively along the escarpment between Pittington and Shildon in County Durham, is the most important formation of the magnesian limestone succession due to its chemical qualities, purity and range of applicable uses. In the past most quarrying for aggregate uses has been from the lower magnesian limestone, with the overlying limestones of the Middle Magnesian Limestone (Ford formation) generally not being suitable for aggregate use, apart from granular sub-base of fill applications. Similarly, the Upper Magnesian Limestone has not been extensively quarried as generally (although with some exceptions) it is only suitable for low grade aggregate uses, such as granular sub-base roadstone and fill. On 31 December 2017 there were ten^(vii) quarries with planning permission to work magnesian limestone in County Durham (see Table 3.1). A number of these quarries have not been active in recent years and were not active in 2017. However, the Council has now been approached by mineral operators who have begun to progress preparing new schemes of working at several inactive quarries i.e Witch Hill Quarry^(viii) and at both Cornforth West Quarry and Cornforth East Quarry. In addition, at the end of 2017 two planning applications were pending approval subject to legal agreement. These were the planning applications to extend the period of working at both Thrislington West Quarry and at Coxhoe (Raisby) Quarry beyond their current end dates^(ix).

3.7 Within County Durham there are also a further five sites which are identified as dormant or which are Interim Development Orders (see Appendix A tables A2 and A3). Of these five sites, the Council has been approached to reactivate two sites, Hawthorn Quarry^(x) and at Tuthill Quarry^(xi). Neither the ROMP at Hawthorn Quarry nor the planning application at Tuthill Quarry have yet been determined. It should be noted that the Council is not relying on any of these five sites to meet future need.

3.8 Following previous calls for sites associated with the County Durham Plan interest has been expressed in securing allocations for further working via extensions at Crime Rigg Quarry and Witch Hill Quarry. These site allocations proposals will be considered through the County Durham Plan in due course.

vii Aycliffe Quarry East ceased mineral extraction 2014. (Please note for clarity that Thrislington Quarry will now be treated as two permissions, reflecting the two planning permissions west and east of the A1(M).

viii An Environment Act 1995 - Periodic Review of Mining Sites was submitted for Witch Hill Quarry in December 2015.

ix At the meeting of the County Planning Committee on 3 October 2017 members resolved to grant planning permission at Thrislington West Quarry for the continued extraction of the remaining limestone reserves and revised working area for the extraction of Basal Permian sand for 15 years until 2030. Similarly, at the meeting of the County Planning Committee on the 6th February 2018 members resolved to grant planning permission for an extension of time to complete quarrying operations at Coxhoe (Raisby) Quarry until 2042 with restoration by 2044.

x In December 2017, Tarmac submitted an Environment Act 1995: Periodic Review application for Hawthorn Quarry. The planning application advised that it is likely that 10.5 million tonnes of mineral is likely to be extracted over the life of the quarry. In total it is understood that Hawthorn Quarry contains 12,659,000 of magnesian limestone of which 9,537,000 is claimed as high grade.

xi In February 2017, Owen Pugh submitted a planning application to extract 2.77million m³ (approximately 5 million tonnes) of magnesian limestone at Tuthill Quarry with the restoration of the existing and proposed void through the importation of clays and soils.

Table 3.1 Sites with planning permission for magnesian limestone extraction in County Durham

Quarry	Location and Grid Reference	Operator	Planning status at 31 December 2017	Expiry date for extraction
Thrislington Quarry West	Cornforth NZ 317 322	Tarmac	Active	18/01/2015 ⁽¹⁾
Thrislington Quarry East	Cornforth NZ 317 322	Tarmac	Active	01/07/2045
Crime Rigg Quarry	Sherburn NZ 346 416	Breedon ⁽²⁾	Active	31/12/2022
Witch Hill Quarry	Sherburn NZ 345 397	Breedon	Inactive	21/02/2042 ⁽³⁾
Running Waters Quarry	Bowburn NZ 334 403	Breedon	Inactive	21/02/2042
Aycliffe Quarry East and extension	Aycliffe NZ 290 222	Stonegrave Aggregates	Mineral extraction now ceased. Quarry now being restored.	12/05/2014
Old Quarrington Quarry and Cold Knuckles	Bowburn NZ 330 380	Tarmac	Active	21/02/2042
Cornforth West (IDO/7/5/1)	West Cornforth NZ 325 344	Tarmac	Inactive	21/02/2042 ⁽⁴⁾
Cornforth East (MRA/7/2)	West Cornforth NZ 325 344	Tarmac	Inactive	21/02/2042
Coxhoe (Raisby) Quarry	Coxhoe NZ 347 352	Breedon ⁽⁵⁾	Active	01/09/2018 ⁽⁶⁾
Bishop Middleham Quarry	Ferryhill NZ 328 326	W & M Thompson Quarries	Active	30/06/2029 ⁽⁷⁾

- At the meeting of the County Planning Committee on 3 October 2017 members resolved to grant planning permission at Thrislington West Quarry for the continued extraction of the remaining limestone reserves and revised working area for the extraction of Basal Permian sand for 15 years until 2030, subject to a completion of a planning obligation under Section 106 of the Town and Country Planning Act 1990 (as amended).
- In November 2016 Breedon acquired Hope Construction Materials.
- In December 2015 Sherburn Stone submitted a periodic review of the mineral planning permissions at Witch Hill Quarry. The environmental statement which accompanied the ROMP advised that the quarry will work until 2042 and operations will commence in 5 years. It also advised that the 3.125 million tonnes of reserves within the site would be extracted at a rate of 150-200,000 tonnes per annum of which approximately 100,000 tonnes will comprise agricultural lime which will be exported to continental Europe via Seaham or Hartlepool docks.
- In 2017 Tarmac initiated the process to progress the ROMP submission via a Scoping Opinion in respect of Cornforth East Quarry and Cornforth West Quarry.
- In August 2016 Breedon acquired Hope Construction Materials.
- On 13 April 2016 Hope Construction Materials submitted a planning application which proposed a vertical extension to recover 1.4 million tonnes of basal permian sand and a extension of time until 31 December 2042 for quarrying activities; operation of Ready Mixed plant; operation of concrete block manufacturing plant and secondary aggregate recycling facility with restoration by 31st December 2044. This planning application was withdrawn and Breedon, the new owners of the quarry submitted a new application in April 2017 to extend quarry operations until 2042 with restoration by 2044.
- On 10 June 2015 the Council granted Planning Permission No. CMA/7/102 for the proposed western extension for the extraction of 5.5 million tonnes of magnesian limestone over a 14 year period with restoration to agriculture through tipping.

Carboniferous limestone

3.9 The carboniferous limestone resource in County Durham outcrops in West Durham fairly continuously along the sides of Weardale above Frosterley and to the south of Barnard Castle along the A66. Although similar in some respects to magnesian limestone, carboniferous limestone often

differs in some of its physical properties. In particular, it tends to be harder and more durable than magnesian limestone. It resists weathering and can be used in situations where it is frequently exposed to precipitation and freezing. Accordingly, it is used predominantly for such things as road building and maintenance, concrete manufacture and sea defence works.

3.10 There are only four quarries with planning permission to work carboniferous limestone (see table 3.2). The two largest, Heights Quarry and Hulands Quarry both having asphalt/coating plants. In addition there are also eleven other carboniferous limestone quarry's where working could theoretically resume, subject to permitted reserves remaining and the agreement of new modern working and restoration conditions by the Council under provisions of the Environment Act 1995 (see appendix A tables A5 and A6). In this respect, with the exception of Harrow Bank and Ashy Bank Quarry^(xii) there is no information currently available on the extent of remaining reserves in any of these sites and no known interest by any operator in progressing proposals to resume working.

3.11 Following previous calls for sites associated with the County Durham Plan interest has been expressed in securing allocations for further working via extensions at Kilmondwood Quarry, Heights Quarry and Hulands Quarry and working at a former site called Washpool Craggs on Bollihope Common between Stanhope and Middleton in Teesdale. To date, two of the proposed allocations have been subject to planning applications and planning permission was subsequently granted for a five million tonne extension to Kilmond Wood Quarry near Bowes in December 2016. A planning application for a north-western extension to Heights Quarry for the winning and working of 6.97 million tonnes of carboniferous limestone was submitted in August 2018 and is currently pending determination.

Table 3.2 Sites with planning permission for Carboniferous limestone extraction

Quarry	Location and Grid Reference	Operator	Planning status at 31 December 2017	Expiry date for extraction
Heights Quarry	Westgate NY 925 388	Aggregate Industries UK	Active	21/02/2042 ⁽¹⁾
Hulands Quarry	Bowes NZ 016 140	Aggregate Industries UK	Active	14/09/2024
Kilmondwood Quarry	Bowes NZ 024 134	Kearton Farms	Active	21/02/2042 ⁽²⁾
Broadwood Quarry	Frosterley NZ 035 365	Breedon.	Active	21/02/2042

1. On 16th August 2018 Aggregate Industries submitted a planning application for a north-western extension to Heights Quarry for the winning and working of 6.97 million tonnes of carboniferous limestone. This planning application is currently pending determination.
2. On 13 June 2016 Kearton Farms Limited submitted a planning application for the winning and working of 5 million tonnes of Carboniferous limestone and the importation of 192,000 cubic metres of inert materials, with restoration to broad leaved woodland, low nutrient grassland, calcareous grassland, hedgerow and natural regeneration on exposed limestone over 26 years and 6 months. This planning application was determined in December 2016.

Dolerite

3.12 The dolerite resource in County Durham is found as intrusions in the carboniferous limestone series in the west of the County. It is considered an important source of crushed rock aggregate. The most important of these is the series of intrusions collectively known as the Whin Sill, from which the

xii In May 2007 Tarmac Northern Ltd (now known as Tarmac) submitted an Environmental Statement and a revised schedule of working and restoration conditions to the Council, proposing to work part of this site in order to extract 3,750,000 tonnes of carboniferous limestone from 30 ha of the 76.4 ha permission area over a 15 year period. No further progress has been made with the reopening of the quarry since this date.

term whinstone is derived. The Whin Sill is a sheet intrusion of dolerite and is up to 70 metres thick where it outcrops in Upper Teesdale (within the North Pennines). Coupled to the sill are a number of dykes which run through the country rock to the eastern side of County Durham.

3.13 Dolerite is an igneous rock it is exceptionally hard and durable and has a high polished stone value (PSV). These qualities make it an important source of high specification roadstone for the top wearing course of roads which have to withstand heavy volumes of traffic. It is also used as a concrete aggregate and in the construction of sea defences.

3.14 Currently there is only one quarry producing dolerite in the County, Force Garth Quarry in Teesdale, (see Table 3.3). This quarry is viewed as an important component of the County's aggregate supply network. The majority of the Force Garth permission is designated as part of the Moor House-Upper Teesdale Special Area of Conservation (SAC) and North Pennines Moors Special Protection Area (SPA) under the EU Habitats and EU Wild Birds Directive. The periodic review under the Environment Act 1995 has been submitted but determination had been delayed due to the need to first undertake a separate assessment, as required by Regulation 63 of the Conservation of the Habitats and Species Regulations 2010 (as amended) and the EU Habitats Directive (Directive 92/43/EEC) as well as the need for further information in respect of the review permission itself. The County Council has now concluded the Regulation 63 Review and is of the view that the proposed working will have some affect but no likely significant effect on the integrity of European designated sites either alone or in combination with other mineral consents adverse effect, on the integrity of European Designated Sites in combination with other mineral consents. In addition there are also a number of small dormant dolerite quarries where working could theoretically resume, subject to permitted reserves remaining and the agreement of new modern working and restoration conditions by the Council under provisions of the Environment Act 1995. In this respect there is no information currently available on the extent of remaining reserves and no known interest by any operator in progressing proposals to resume working, (See Appendix A table A8).

3.15 The entirety of the Dolerite resource lies within the North Pennines AONB and large areas of the resource being designated as part of the Moor House-Upper Teesdale SAC and North Pennines Moors SPA. In locational terms, therefore options for identifying new areas of working for this mineral within County Durham are extremely limited.

Table 3.3 Sites with planning permission for dolerite extraction in County Durham

Quarry	Location and Grid Reference	Operator	Planning status at 31 December 2017	Expiry date for extraction
Force Garth Quarry	Middleton-in-Teesdale NY 872 282	CEMEX	Active	21/02/2042

Sand and gravel

3.16 County Durham contains two main categories of sand and gravel:

- Superficial deposits which include sand and gravel which was deposited by fluvial, fluvio-glacial or fluvial processes and beach and blown sand deposits; and
- Bedrock deposits and these are only represented by basal permian sand as it is understood that the working of beach sand deposits is not a prospect.

3.17 Information on the known or suspected location of sand and gravel resources in the County are set out in two principal sources. The British Geological Society (BGS) report 'Durham and the Tees Valley Mineral Resources and Constraints' and an independent study carried out by Engineering

Geology Ltd for the Department of the Environment in 1989 using existing borehole and geological information, 'Assessment of the potentially workable sand and gravel resources of County Durham'. Both reports draw upon a series of sand and gravel Mineral Assessment Reports produced by the Institute of Geological Sciences in the period between 1979 and 1982. While the information which is available is recognised as the best available it is important to note that there is no definitive information on the precise extent and occurrence of sand and gravel in the County. As the BGS report notes, "The variability of sand and gravel together with their possible concealment within or beneath glacial till (boulder clay), means that, compared to other bulk minerals, it is more difficult to infer the location and likely extent of potentially workable resources from geological maps."

3.18 Glacial sand and gravel deposits are found in all parts of the County although they are more common in the central and eastern parts including around Chester-le-Street and Durham. In certain areas they have been assessed as being up to 30 metres thick, but this assessment is problematic, given their origin they can disappear within a short distances. In addition in certain areas such as the Durham Coalfield area they can contain a significant proportion of organic material, particularly coal. Fluvial sand and gravel deposits include post-glacial river terrace deposits, alluvial deposits and fluvio-glacial deposits. Alluvial deposits are developed along the major river valleys. They are widespread and are well developed on both the River Tees and River Wear and some of the major tributaries. Fluvio-glacial deposits also occur in the area. These are the material left by the melt waters of glaciers. They give rise to more uniform deposits of sand and gravel than glacial deposits, although the quality is generally not up to that of river terrace deposits, particularly those of the River Tees. Fluvial sand and gravel deposits are currently worked in County Durham at Low Harperley near Wolsingham. In addition in November 2011 a new scheme of working and restoration conditions were issued at a previously dormant site at Hummerbeck near West Auckland, enabling the recovery of 670,000 tonnes of sand and gravel over a 8 year period, (in addition planning permission for a concrete batching plant was also given). To date working has not commenced at Hummerbeck.

3.19 Basal Permian Sand is a bedrock deposit of sand, laid down under desert conditions. It consists of weakly cemented, yellow, fine to medium grained well sorted sands of wind blown origin, with only a small proportion of fines or coarse sand and gravel. It occurs in County Durham in four linear deposits, or ridges (southwest of Hetton, Haswell, Thornley and West Cornforth) which outcrop intermittently along the base of the Magnesian Limestone Escarpment and continue for some distance and dip to the east under the Magnesian Limestone. It is understood that that these ridges are between one and two kilometres wide with sand thicknesses of up to 35 metres in depth. Due to the eastward dip of the resource and due to the presence of the overlying deepening magnesian limestone, the economically accessible resources does not occur very far beyond the outcrop unless the resource is worked following the extraction of the overlying magnesian limestone.

3.20 Basal Permian Sand is currently worked at three quarries on the East Durham Limestone Plateau at Thrislington West Quarry, Old Quarrington and Cold Knuckles Quarry and at Crime Rigg Quarry. Generally, this sand is linked with the working of the economically important overlying magnesian limestone. While the deposit is a uniformly graded fine aggregate and has traditionally been mainly worked as a source of building sand and asphaltting sand, it is understood that quarries in County Durham are also producing quantities of concreting sand from these deposits^(xiii).

3.21 In addition there are are also a small number of dormant/Interim Development Order sand and gravel quarries where working could theoretically resume, subject to permitted reserves remaining and the agreement of new modern working and restoration conditions by the Council under provisions of the Environment Act 1995. In this respect there is no information currently available on the extent of remaining reserves and no known interest by any operator in progressing proposals to resume working at any of these sites, (see Appendix A table A10 and A11).

xiii At Thrislington Quarry basal permian sand is blended with limestone fines to produce concreting sand.

3.22 Following previous calls for sites associated with the County Durham Plan interest has been expressed in securing allocations for further working via extensions at Thrislington Quarry and at Crime Rigg Quarry. It is expected that these site allocations proposals will be considered through the County Durham Plan in due course.

Table 3.4 Sites with planning permission for sand and gravel extraction in County Durham

Quarry	Location and Grid Reference	Operator	Planning status at 31 December 2017	Expiry date for extraction
Thrislington Quarry	Ferryhill NZ 317 322	Tarmac	Active	18/01/2015 ⁽¹⁾ .
Crime Rigg Quarry	Sherburn NZ 346 416	Breedon	Active	31/12/2022
Old Quarrington and Cold Knuckles Quarry	Bowburn NZ 330 380	Tarmac	Active	21/02/2042
Hummerbeck	West Auckland	Hall Construction	Inactive ⁽²⁾	21/02/2042
Low Harperley	Wolsingham	Breedon	Active ⁽³⁾	08/08/2032

1. At the meeting of the County Planning Committee on 3 October 2017 members resolved to grant planning permission at Thrislington West Quarry for the continued extraction of the remaining limestone reserves and revised working area for the extraction of Basal Permian sand for 15 years until 2030.
2. Planning permission was issued on 25 November 2011. Period of working would be 8 years. However, the site actually has permission to 2042.
3. Planning permission was issued on 19 August 2013. The development commenced on 8 August 2016.

Existing Development Plan allocations

3.23 The County Durham Minerals Local Plan (December 2000) identified a number of aggregate related allocations to meet identified need in the period to 2006^(xiv). These allocations included:

- Five sand and gravel Areas of Search under Policy M6 including:
 - Hummerbeck (80 ha in size and lies to the south of the existing industrial estates at West Auckland);
 - Nunstainton (40 ha in size and lies within the open countryside south of Ferryhill);
 - Embelton (250 ha in size and lies in the open countryside east of Sedgefield close to the County boundary);
 - Hutton Magna (55 ha in size and lies in open countryside south-east of Barnard Castle, immediately north of the A66); and
 - Lea Hall (60 ha in size and lies in the open countryside to the east of Newton Aycliffe).

These allocations were made in order to meet an identified shortfall of some 4 million tonnes of concreting sand in the period to 2006. To date none of these allocations have been subject to a planning application for working. Although one site was subject to pre-application discussions and a second area, Hummerbeck was resubmitted as a site allocation following the Council's

xiv Maps of these sites can be seen in the County Durham Minerals Local Plan: <http://www.durham.gov.uk/article/3274/Minerals-Local-Plan>

call for new minerals and waste site in 2008/2009 (but has not been submitted to subsequent calls for sites), given their age it is not considered that these sites can be relied upon to make a contribution to meeting future need for sand and gravel.

- One Preferred Area for carboniferous limestone working for cement manufacture was made under Policy M10. This 160 ha allocation was allocated as an extension to Eastgate Quarry which served the nearby cement works. It was made in order to ensure that a 15 year landbank remained at the end of the Plan period in 2006. Given the purpose of the allocation, the closure of Eastgate Quarry and its cement works, and its location within the North Pennines AONB and its relationship with both internationally and nationally important nature conservation designations it is no longer considered a suitable site for minerals extraction.
- Two Preferred Areas of magnesian limestone working were allocated at Thrislington Quarrington under Policy M10. One preferred area lay to the east of the A1(M) and the second lay to the west of the A1(M) to the south of the existing quarry. Both allocations were made in order to provide supplies of high grade dolomite for a range of uses including in the steel industry. In July 2011 planning permission was issued for the working of the allocation east of the A1(M). Given the issue of planning permission for the allocation east of the A1(M) which has met the need for high grade dolomitic limestone it is not considered that there will be a need for the working of the southern allocation west of the A1(M). In addition Lafarge Tarmac (the operator of the site in 2011) also agreed not to pursue working of the southern allocation.

3.24 Unless allocated within the emerging County Durham Local Plan as a strategic site or as a non-strategic allocation in the forthcoming Minerals and Waste Policies and Allocations document all of the above allocations will lapse upon adoption of the Council's new planning documents.

Secondary and recycled aggregates facilities in County Durham

3.25 County Durham contains seven fixed recycled and secondary aggregate sites. Details of these sites are shown in Appendix B, see Table B1. In addition it should be noted that it is understood that within the North East mobile facilities make a significant potential to the production of recycled aggregates at brown field redevelopment sites.

Wharfs for the importation and exportation of aggregate minerals in County Durham

3.26 In County Durham there is one port at Seaham which is capable of handling the importation and exportation of aggregates. It is understood that while the Port of Seaham has been used in the past to export limited quantities of coal, no minerals including aggregates are either imported or exported.

Railheads for the transportation of aggregate minerals in County Durham

3.27 Thrislington Quarry West is the only quarry in County Durham served by a railhead. In addition Policy M39 of the County Durham Minerals Local Plan (December 2000) sought to protect rail routes and alignments which were considered to have the potential to transport minerals by rail. An updated list of rail routes and alignments which could potentially be used to transport minerals by rail are listed in Appendix C, Table C1.

Mineral Processing Infrastructure in County Durham

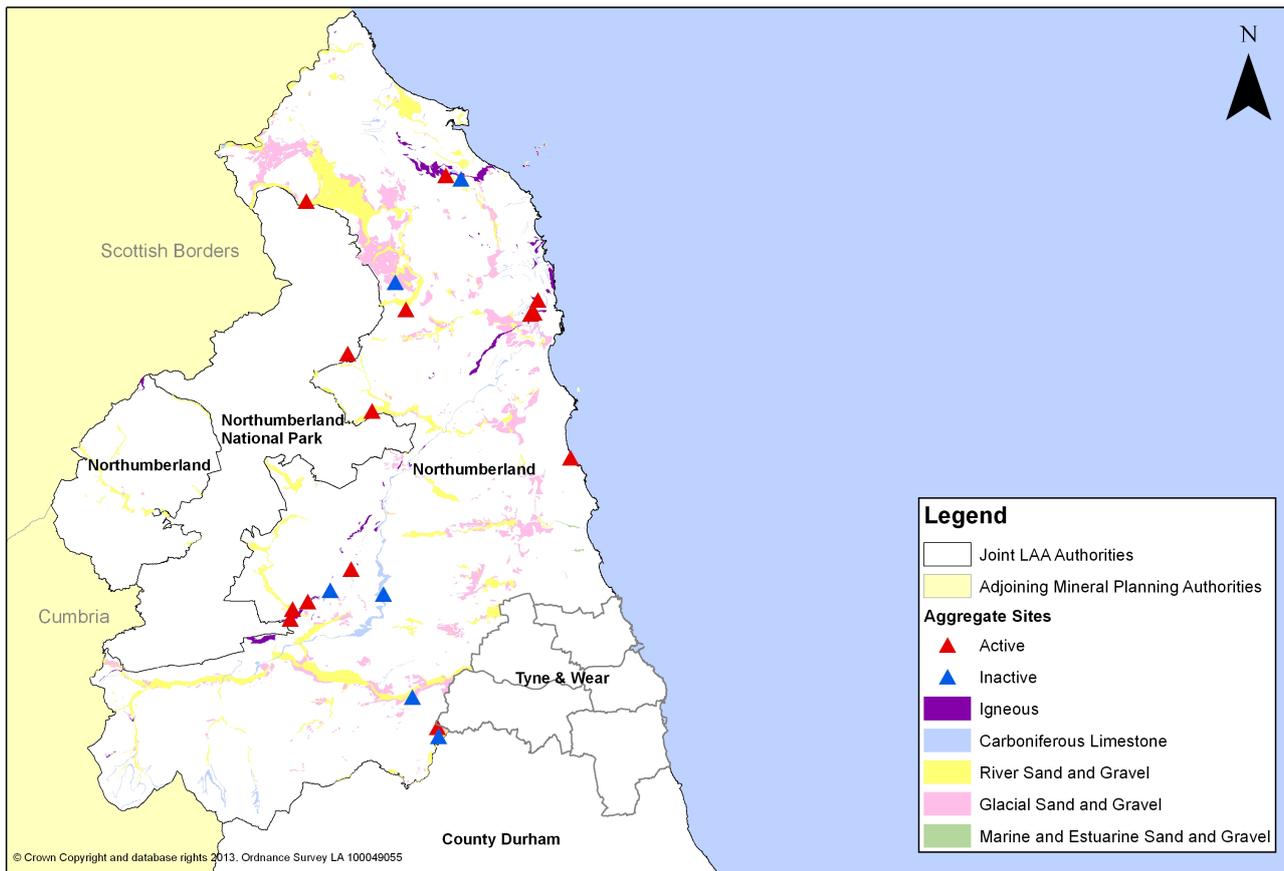
3.28 Details of all known mineral processing infrastructure relating to aggregate minerals and mineral extracted at aggregate quarries including sites for concrete batching and the manufacture of concrete products and coated materials are listed in Appendix C, Table C2 and C3.

Northumberland

3.29 A wide range of rocks and more recent sedimentary deposits are found throughout Northumberland. The geology of Northumberland gives rise to the following aggregate resources:

- Carboniferous limestone;
- Igneous rock; and
- Sand and gravel (fluvial, glacial, marine and estuarine, beach and blown deposits).

Map 3 Aggregate resources and mineral permissions in Northumberland



The geology of the Northumberland National Park area can be seen on the Mineral Resource Map for Northumberland and Tyne and Wear which was produced by the British Geological Survey which can be downloaded here: <http://www.bgs.ac.uk/downloads/start.cfm?id=2578>

Hard rock

3.30 In Northumberland, the Whin Sill is an important resource of igneous rock for crushed rock aggregate. The Whin Sill is a tabular, sheet-like intrusive body of quartz dolerite and is known locally as 'whinstone'. The Whin Sill has an average thickness of 25 to 30 metres and may be up to 70 metres thick. It underlies most of the Carboniferous rocks in northern Northumberland. Within the Northumberland National Park the Whin Sill is drift-free and gives rise to an escarpment along or to the north of Hadrian's Wall. Due to its properties this resource is particularly valued for roadstone. There are active planning permissions for the extraction of the resource at Barrasford Quarry, Belford (Easington) Quarry, Cragmill Quarry, Divethill Quarry, Howick Quarry, Keepersshield Quarry, Longhoughton (Ratcleugh) Quarry and Swinburne Quarry.

3.31 Within the northern part of the Northumberland National Park intrusive and extrusive rocks are associated with the Cheviot Igneous Complex, which is of Devonian age. The core of the Cheviot Hills is formed of the Cheviot Granite, the surface outcrop of which occupies an area of some 70 kilometres square. The granite is surrounded by volcanic rocks consisting of mainly andesitic and rhyolitic lavas. The igneous complex is deeply weathered and altered and forms a remote, upland, massif characterised by rounded features. The potential of both the granite and the volcanic rock as a source of aggregate is thought to be low. However, a small intrusion of felsite in the complex is worked at Harden Quarry on the edge of the Northumberland National Park. Harden Quarry produces a range of aggregate products and the material is valued for its red colour. This resource is known as the 'red whin'.

3.32 The Carboniferous limestones in Northumberland occur in a cyclical sequence of limestone, mudstone and sandstone beds. The limestones are less than 10 metres thick and, therefore, are too thin to support a modern quarrying operation and are excluded from the British Geological Survey mineral resources map. However, there is potential to extract this resource where it is closely associated with the Whin Sill and it is currently extracted at Barrasford and Keepersshield quarries. The main exception is the 'Great Limestone' which is sufficiently thick (up to 20 metres), extensive and consistent in quality to form a workable resource. The Great Limestone is a basal limestone of Upper Carboniferous sediments. It produces a relatively strong and durable crushed rock aggregate. Current sites in Northumberland with planning permission to extract this resource are Mootlaw Quarry and Cocklaw Quarry. Extraction at Cocklaw Quarry has yet to commence following the approval of consent to reactivate a dormant planning permission and Mootlaw Quarry is currently mothballed^(xv).

Table 3.5 Quarries with planning permission for hard rock extraction for aggregate use in Northumberland

Quarry	Mineral Planning Authority	Mineral	Planning status at 31 December 2017	Expiry date for extraction
Barrasford Quarry	Northumberland County Council	Igneous rock and Carboniferous limestone	Active	31/12/2038
Belford (Easington) Quarry	Northumberland County Council	Igneous rock	Inactive	31/12/2031
Cocklaw Quarry	Northumberland County Council	Igneous rock	Inactive (yet to commence)	21/02/2042
Cragmill Quarry	Northumberland County Council	Igneous rock	Active	21/02/2042
Divethill Quarry	Northumberland County Council	Igneous rock	Active	31/12/2018
Harden Quarry	Northumberland National Park Authority	Igneous rock	Active	31/10/2029
Howick Quarry	Northumberland County Council	Igneous rock	Active	21/12/2020
Keepersshield Quarry	Northumberland County Council	Igneous rock and Carboniferous limestone	Active	21/02/2042

xv A recent planning application, granted permission on 11 February 2015, has allowed further time for extraction of the permitted reserve at this site and the completion of the restoration

Quarry	Mineral Planning Authority	Mineral	Planning status at 31 December 2017	Expiry date for extraction
Longhoughton (Ratcheugh) Quarry	Northumberland County Council	Igneous rock	Active	21/02/2042
Mootlaw Quarry	Northumberland County Council	Igneous rock	Inactive	31/12/2025
Swinburne Quarry	Northumberland County Council	Igneous rock	Inactive	31/12/2036

Sand and gravel

3.33 The sand and gravel resources in Northumberland are superficial deposits. These resources are divided into four categories:

- Fluvial sand and gravel
- Glacial sand and gravel
- Marine and estuarine sand and gravel
- Beach and blown sand deposits

3.34 Post glacial river terrace and alluvial deposits are developed along the major river valleys in Northumberland such as the Breamish, Coquet, Till and Tyne. Fluvioglacial deposits may also occur beneath these deposits. River gravels are generally well-sorted, well-rounded and of a high commercial quality. Terrace deposits are generally well- to fairly well-graded with moderate fines content. Narrow belts of floodplain gravel are also common in valleys. Fluvioglacial sands and gravels, generally thicker deposits than river alluvium, have been partially, but imperfectly, sorted by streams issuing from the melting glaciers. The largest spread of such deposits is near Wooler where extensive terraces of sand and gravel are up to 9 metres thick. Terraces are also present along the River Tyne and its tributaries.

3.35 The glacial sand and gravel deposits typically occur as lenses within or beneath the till (boulder clay). The composition and thickness of these deposits is highly variable, although characteristically sandy, except in the Tyne Valley where gravels predominate. They may also grade into till as fines content increases. Impersistent glacial beds may reach up to 30 metres in the Tyne Valley. British Geological Survey have assessed part of the area for sand and gravel and within these areas the extent of sand and gravel including the possible extent of sand and gravel beneath the till is shown on the British Geological Survey mineral resource maps. Outside the areas assessed only the glacial sand and gravel at the outcrop is shown.

3.36 Marine and estuarine sand and gravel resources are found in the estuaries of the Blyth and Wansbeck rivers, where they consist of silt, pebbly clay and sand and gravel. The deposits are up to 11 metres thick in the Wansbeck estuary but are not currently worked.

3.37 Beach deposits are found along the length of the Northumberland coast. They are generally clean fine- and medium-grained sands of uniform quality and are suitable for use as concreting and building sand. A planning permission to extract sand from an area of Druridge Bay is still active and is worked on an intermittent basis. Blown or dune sand deposits are of variable thickness and consist of uncemented fine- to medium-grained sands. Sand dunes often back the beach deposits along the Northumberland Coast. Blown deposits are not currently extracted in Northumberland as these areas often have nature conservation designations.

Table 3.6 Quarries with planning permission for sand and gravel extraction for aggregate use in Northumberland

Quarry	Mineral Planning Authority	Planning status at 31 December 2017	Expiry date for extraction
Ebchester (Broadoak) Quarry ⁽¹⁾	Northumberland County Council	Active	31/12/2023
Houghton Strother Quarry	Northumberland County Council	Active	31/08/2022
Hedgeley Quarry	Northumberland County Council	Active	31/12/2018
Hemscott Hill Beach	Northumberland County Council	Active	31/12/2020
Lanton (Cheviot) Quarry	Northumberland County Council	Active	31/12/2020
Merryshields Quarry	Northumberland County Council	Inactive	21/02/2042
Wooperton Quarry	Northumberland County Council	Inactive	31/12/2032

1. Ebchester Quarry is a combination of two sites, Broadoak and Hollings Hill, which have separate planning permissions but have been operated as a single unit by the operator. Extraction at Hollings Hill was completed in 2013.

Existing development plan allocations for aggregates extraction

3.38 The Northumberland Minerals Local Plan (March 2000) identified a number of allocations for the extraction of primary aggregates to meet the need identified in the period to 2006. Three areas were allocated for crushed rock provision under Policy A6 and five areas were allocated for sand and gravel provision under Policy A4. These allocations are summarised in the table below.

Table 3.7 Summary of sites allocated for aggregates extraction in the Northumberland Minerals Local Plan (adopted March 2000)

Allocation	Mineral resource	Estimated reserve	Status
Cragmill (extension)	Igneous rock	8 to 10 million tonnes	Planning permission granted on 1 December 2015 for the extraction of 6.3 million tonnes with an average annual output of 150,000 tonnes per annum (maximum 200,000 tonnes per annum and low of 75,000 tonnes per annum).
Divethill (extension)	Igneous rock	1.6 million tonnes	Site has planning permission and is included in the current landbank.
Swinburne (extension)	Igneous rock	5 million tonnes	Not developed. No planning application received.
Marley Knowe	Sand and gravel	2.75 million tonnes	Not developed. No planning application received.
Farnley Haugh (extension)	Sand and gravel	400,000 tonnes	Planning application granted. Extraction now complete and site restored.
Houghton Strother	Sand and gravel	1.9 million tonnes	Planning application granted. Site is active.
Merryshields	Sand and gravel	500,000 tonnes	Not developed. No planning application received.

Allocation	Mineral resource	Estimated reserve	Status
Plenmeller (extension)	Sand and gravel	1.5 million tonnes	Not developed. No planning application received.

Secondary and recycled aggregates facilities in Northumberland

3.39 Northumberland contains five fixed recycled and secondary aggregate sites. Details of these sites are shown in Appendix B. Materials produced include construction and demolition wastes, road planings and power station ash from Lynemouth Power Station. In addition it is understood that within Northumberland mobile facilities make a significant potential to the production of recycled aggregates at construction and demolition sites.

Wharves for the importation of aggregate minerals in Northumberland

3.40 In Northumberland aggregate minerals are currently imported via the Port of Blyth. Sand and gravel is imported by Breedon to predominantly supply a concrete batching facility at Battleship Wharf and crushed rock is imported by Aggregate Industries from the Glensanda 'super' quarry on the west coast of Scotland to predominantly supply a concrete products manufacturing facility near West Sleekburn.

3.41 The Port of Blyth has also recently been used to transport crushed rock aggregate from Divethill Quarry to a wharf at Ipswich in Suffolk (although it is understood that these movements have not happened since around at least 2012) and for the export of crushed rock aggregate from Harden Quarry. The port at Berwick-upon-Tweed is also capable of handling the importation and exportation of aggregate minerals but this activity is not currently being carried out there.

Railheads for the transportation of aggregate minerals in Northumberland

3.42 Belford (Easington) Quarry is the only quarry in Northumberland served by a railhead. This quarry is currently inactive and the associated railhead is not currently in use.

Concrete and coated material facilities in Northumberland

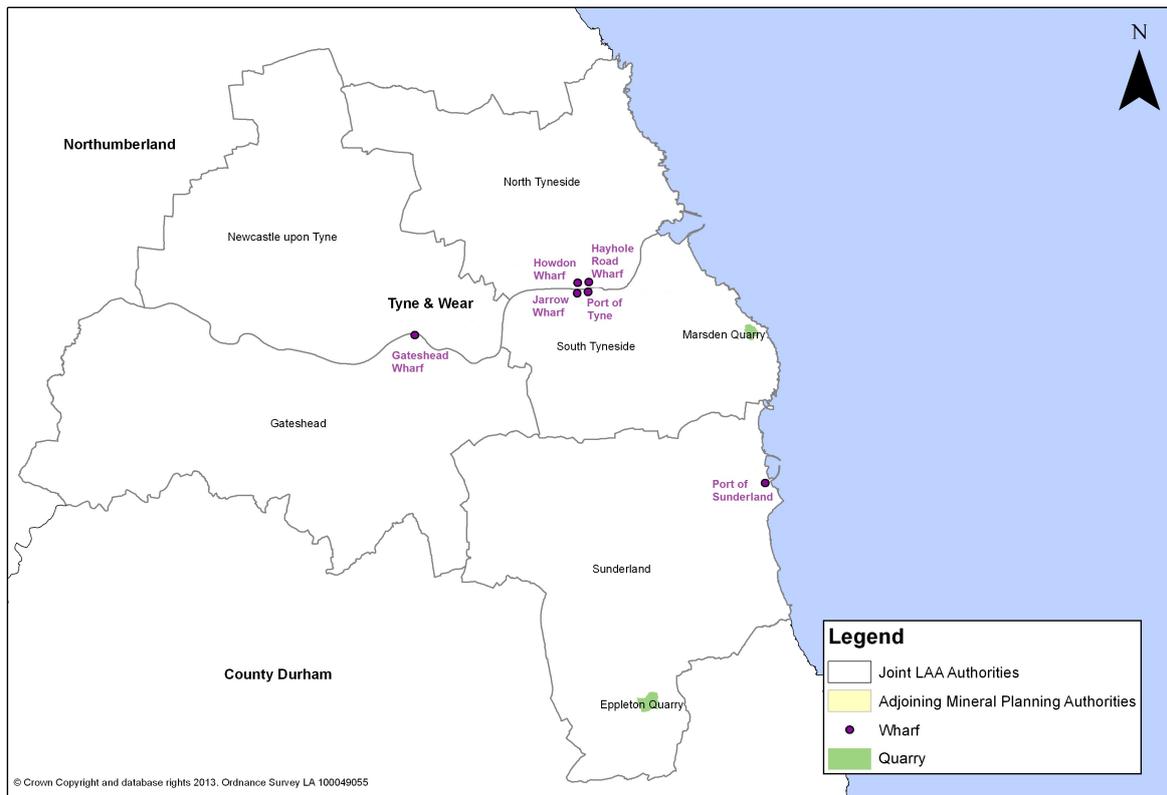
3.43 Details of concrete making facilities and coated roadstone facilities in Northumberland are detailed in Appendix C. The coating plants in Northumberland are located at quarry sites while the concrete facilities are typically located as standalone facilities on industrial estates or in locations that are accessible from the main transport network.

Tyne and Wear

3.44 Tyne and Wear is geologically similar to the adjoining areas of County Durham. The geology of Tyne and Wear gives rise to the following aggregate resources:

- Permian magnesian limestone; and
- Sand and gravel (fluvial, glacial and basal Permian sand).

Map 4 Quarries and wharves in Tyne and Wear



The geology of Tyne and Wear can be seen on the Mineral Resource Map for Northumberland and Tyne and Wear which was produced by the British Geological Survey which can be downloaded here: <http://www.bgs.ac.uk/downloads/start.cfm?id=2578>

Hard rock

3.45 Dolomites, dolomitic limestones and limestones of Permian age (the magnesian limestone) naturally occur in Sunderland and South Tyneside with a small area within North Tyneside. These rocks which have a complex geology, mineralogy and chemistry form the northernmost narrow part of a narrow, easterly dipping outcrop which extends from South Tyneside to Nottingham.

3.46 The magnesian limestone is traditionally divided into three formations (Upper, Middle and Lower). It is highly variable in its physical, chemical and mechanical properties and thus its suitability for particular uses. In South Tyneside all formations from the magnesian limestone are capable of producing aggregates suitable for sub-base roadstone and fill. In Sunderland Eppleton Quarry works the lower magnesian limestone (Raisby formation) and underlying Permian basal sands. Towards the top of the sequence, the better quality Upper Magnesian Limestone (concretionary limestone) is worked at Marsden Quarry in South Tyneside. This is a relatively hard, crystalline limestone and is capable of producing higher grades of aggregate materials suitable for roadbase usage or even concreting aggregates.

Sand and gravel

3.47 Tyne and Wear contains deposits of fluvial, glacial sand and gravel laid down in the last two million years and bedrock deposits in the form of the Basal Permian Sands. The variability of the fluvial and glacial deposits together with their potential concealment within or beneath glacial till means that it is difficult to infer the location and likely extent of potentially workable deposits. However, within Tyne and Wear, the majority of the fluvial deposits lie on the River Tyne within Gateshead.

Similarly, the majority of glacial deposits also lie within Gateshead, with lesser areas in both South Tyneside and in Newcastle. Reflecting the overall distribution of fluvial and glacial sand and gravel deposits, past working within Tyne and Wear has been concentrated within Gateshead Borough.

3.48 The basal Permian sands outcrop intermittently along the base of the magnesian limestone escarpment and dip to the east beneath the limestone and is worked with overlying magnesian limestone aggregate at Eppleton Quarry.

Table 3.8 Sites with planning permission for aggregates extraction in Tyne and Wear

Quarry	Mineral Planning Authority	Mineral	Planning status at 31 December 2017	Expiry date for extraction
Eppleton Quarry	Sunderland City Council	Magnesian limestone and basal Permian sand	Active	15 October 2040 ⁽¹⁾
Marsden Quarry	South Tyneside Council	Magnesian limestone	Active	2027

1. Following the grant of planning permission for an extension quarrying commenced in the extension areas in 2015. The original Eppleton Quarry is now being restored.

Existing Development Plan allocations

3.49 There are no saved allocations for minerals working in any of the existing Development Plan documents of the Tyne and Wear authorities.

Secondary and recycled aggregates facilities in Tyne and Wear

3.50 Tyne and Wear contains seven fixed recycled and secondary aggregate sites. Details of these sites are shown in Appendix B.

Wharves for the importation of aggregate minerals in Tyne and Wear

3.51 Within Tyne and Wear there are currently six wharves that are used, or have been used, for the importation of marine sand and gravel and crushed rock. Five of these sites are located on the River Tyne at Gateshead, Hayhole Road (North Tyneside), Howdon (North Tyneside) and Jarrow (South Tyneside) with a sixth located at Greenwells Quay at the Port of Sunderland. Further details are provided in Appendix C.

Mineral processing infrastructure in Tyne and Wear

3.52 Details of all known mineral processing infrastructure including sites for concrete batching and the manufacture of concrete products are shown in Appendix C.

4 Aggregate sales and permitted reserves

4.1 Section 4 sets out known information on sales and permitted reserves of both sand and gravel and crushed rock in the Joint LAA area. It includes some estimates of sales and reserves where figures are not otherwise available. Due to the use of estimates there may be some minor discrepancies between the figures quoted here and those provided in the annual monitoring reports published by the North East Aggregates Working Party.

Sand and gravel (from quarries in the Joint LAA area)

Sand and gravel sales

4.2 Information on sales of land won sand and gravel for aggregate use from quarries in County Durham, Northumberland, Tyne and Wear in 2017 and over the ten year period between 2008 and 2017 is provided in Table 4.1 below. Sales from the Joint LAA area were 0.96 million tonnes in 2017 with 35% of sales from quarries in County Durham, 42% of sales from quarries in Northumberland and 23% from quarries in Tyne and Wear.

Table 4.1 Sales of land won sand and gravel from County Durham, Northumberland and Tyne and Wear, 2008 to 2017 (thousand tonnes)

	County Durham	Northumberland	Tyne and Wear	Total for Joint LAA area
2008	183	515	208	906
2009	199	425	113	737
2010	164	402	171	737
2011	237	450	162	849
2012	199	349	165	713
2013	218	320	177	715
2014	276	361	236	873
2015	256	420	240	916
2016	322	436	214	972
2017	330	405	220	955
Ten year sales average (2008 to 2017)	238	408	191	837
Three year sales average (2015 to 2017)	303	420	225	948

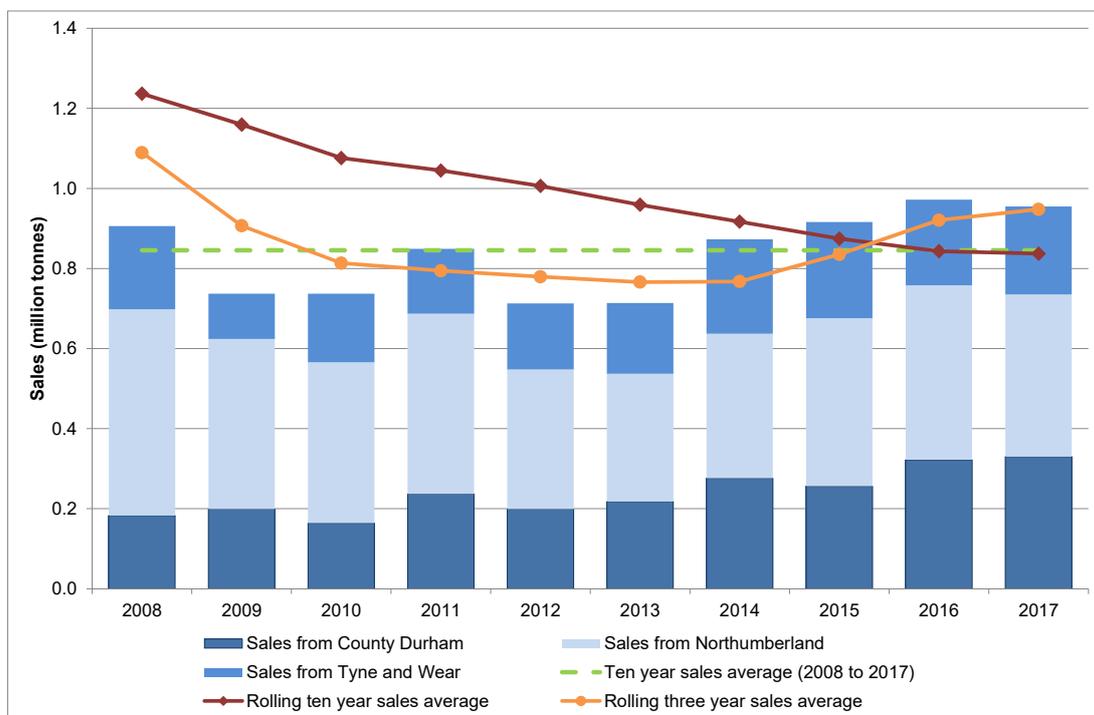
4.3 Table 4.1 highlights that the ten year sales averages for sand and gravel in the Joint LAA are as follows:

- County Durham - 238,000 tonnes
- Northumberland - 408,000 tonnes
- Tyne and Wear - 191,000 tonnes
- Joint LAA area - 837,000 tonnes.

4.4 A comparison between actual sales and the ten year sales average is provided in Figure 1. Also shown are the rolling three years sales averages, which help to illustrate how demand has changed over the ten year period from 2008 to 2017.

4.5 The ten year sales average has decreased over the period from 2008 to 2017 due to this including a period of depressed sales post 2008. The rolling three year sales averages also show the significant nature of the decrease in sales post 2008. For 2017 the three year sales average is above the ten year sales average indicating that demand for sand and gravel from quarries in the Joint LAA area for aggregate uses has increased in comparison to previous years.

Figure 1 Comparison of actual land won sand and gravel sales from the Joint LAA area and the sales averages



Sand and gravel reserves

4.6 Table 4.2 identifies the extent of permitted reserves in County Durham, Northumberland and Tyne and Wear on the 31 December 2017.

Table 4.2 Permitted reserves of sand and gravel reserves for aggregate use in County Durham, Northumberland and Tyne and Wear at the end of each calendar year, 2008 to 2017 (thousand tonnes)

	County Durham	Northumberland	Tyne and Wear
2008	2,093	8,551	#
2009	3,715	8,051	#
2010	3,483	9,538	1,007+

	County Durham	Northumberland	Tyne and Wear
2011	4,606	8,969	118+
2012	6,679	8,331	1,200+
2013	8,923	7,727	1,022+
2014	8,650	7,414	853+
2015	8,354	7,337	6,600+
2016	7,610	6,045	6,400+
2017	7,113	5,410	6,200+
Percentage of permitted reserves in Joint LAA area at 31 December 2017	38%	29%	33%

Notes: # The reserves for Tees Valley and Tyne and Wear are included in the regional figure in the relevant AWP report for the year concerned. + Mineral Planning Authority estimates.

County Durham

4.7 Permitted reserves of sand and gravel in County Durham were 7,112,971 tonnes at 31 December 2017. These permitted reserves were located in five sites:

- Thrislington Quarry;
- Crime Rigg Quarry;
- Old Quarrington and Cold Knuckles Quarry;
- Low Harperley; and
- Hummerbeck.

4.8 Durham County Council has sought to understand the extent of permitted reserves within sites, the spatial distribution of the reserves and the potential productive capacity of sites. This has been achieved through the Council's own annual survey of mineral operators and through the consideration of information submitted as part of planning applications. This work gives an indication that a significant proportion of the permitted sand and gravel reserves in County Durham are not simply found in a limited number of the sites and that sites are distributed in three broad areas (upon the magnesian limestone escarpment, east of Wolsingham in Weardale and south of West Auckland in Teasdale), all of which are well related to the market in the North East.

4.9 It should be noted that none of the existing sites which have been in production in recent years (Thrislington Quarry, Old Quarrington and Cold Knuckles Quarry and Crime Rigg Quarry) has ever achieved the scale of sales identified in table 4.3. below. The maximum level of sales achieved by these sites is estimated at 411,000 in 2005. Accordingly the figures should be treated with a degree of caution. Nevertheless, the implications of this information, in particular the historic maximum sales figure is that when in full production County Durham's sand and gravel sites have a significant production capacity well in excess of recent sales historic sales levels.

Table 4.3 Distribution of permitted reserves of sand and gravel permitted in County Durham in 2017.

Quarry	Permitted reserves at 31 December 2017 (tonnes)	Estimate of productive capacity (tonnes per annum)
Thrislington Quarry	1,709,000 ³	300,000 ¹
Crime Rigg Quarry	504,000 ¹	75,000 ³
Old Quarrington and Cold Knuckles Quarry	1,740,000 ³	140,000 ¹
Hummerbeck	670,000 ²	80,000 ²
Low Harperley	2,490,000 ³	156,000 ²
Durham County Council best estimate	7,113,000	751,000 tonnes

Notes: 1 Information provided by mineral operators in response to Durham County Council mineral survey. 2 Information sourced from planning committee reports. 3 DCC estimate informed by previous sales.

Northumberland

4.10 Permitted reserves of sand and gravel in Northumberland were 5,410,000 tonnes at 31 December 2017. These reserves were contained within six quarries listed in the table below. Sand is also extracted from a beach site at Hemscott Hill in the Druridge Bay area but the reserve for this site is not quantified. All of the sites are located outside of the Northumberland National Park.

4.11 Since 31 December 2017, planning permission for an extension of Wooperton Quarry involving an additional 500,000 tonnes of reserves was granted planning permission. No further planning applications have been granted planning permission or are pending determination by either Northumberland County Council or Northumberland National Park Authority at the time of writing.

4.12 Northumberland County Council has sought to understand the extent of reserves within sites and the spatial distribution of the reserves. The remaining permitted reserves in sites have been estimated based on the information on reserves and the anticipated level of production provided in planning applications. As these figures are estimates they will need to be treated with a degree of caution. The comparison with the figure for Northumberland set out in the North East Aggregates Working Party Annual Monitoring Report indicates that the level of reserves is slightly overestimated using this method. Nonetheless this information provides a reasonable estimate of reserves. It also provides an indication of the split in the total reserves between different sites and an indication of the level of reserves within individual sites.

4.13 This work gives an indication that a significant proportion of the permitted sand and gravel reserves in Northumberland are not simply found in a limited number of the sites. It is also estimated that around 40% of sand and gravel reserves in Northumberland are found in the Tyne Valley catchment in the south and west of Northumberland and around 60% are found in the North Northumberland area.

Table 4.4 Estimated permitted reserves of sand and gravel in Northumberland at 31 December 2017 (tonnes) and the productive capacity of the quarries (tonnes per annum)

Quarry	Mineral Planning Authority	Estimate of permitted reserves at 31 December 2017 (tonnes)	Estimate of productive capacity (tonnes per annum)
Ebchester (Broadoak) Quarry	Northumberland County Council	2,200,000	150,000
Houghton Strother Quarry	Northumberland County Council	500,000	150,000
Hedgeley Quarry	Northumberland County Council	10,000	200,000

Quarry	Mineral Planning Authority	Estimate of permitted reserves at 31 December 2017 (tonnes)	Estimate of productive capacity (tonnes per annum)
Hemscott Hill Beach	Northumberland County Council	Unquantified	10,000
Lanton (Cheviot) Quarry	Northumberland County Council	1,350,000	150,000
Merryshields Quarry	Northumberland County Council	100,000	30,000
Wooperton Quarry	Northumberland County Council	1,200,000	100,000

Notes: The reserve information presented in this table are Mineral Planning Authority best estimates based on reserve and output information provided in planning applications. The estimates have been made on a site-by-site basis and therefore do not necessarily sum to the actual total permitted reserves for Northumberland.

Tyne and Wear

4.14 The North East AWP Annual Monitoring Reports do not provide permitted reserves information for Tyne and Wear at the 31 December 2017. Information on permitted reserves for Tyne and Wear in these reports has been combined into the figure for North East England in order to avoid disclosing individual site information which is treated confidentially by the North East AWP. An estimate of the reserves has, therefore, been made and is provided below.

4.15 The reserves in this area are contained with one site, Eppleton Quarry in Sunderland. Sand and gravel extraction at Crawcrook Quarry in Gateshead is understood to have now ceased and is therefore not included in the reserve figures.

Table 4.5 Estimated permitted reserves of sand and gravel in Tyne and Wear at 31 December 2017 (tonnes)

Quarry	Mineral Planning Authority	Estimate of permitted reserves at 31 December 2017 (tonnes)	Estimate of productive capacity (tonnes per annum)
Eppleton Quarry	Sunderland City Council	6,200,000+	250,000

Notes: + Mineral Planning Authority estimate.

Crushed rock (from quarries in Joint LAA area)

Crushed rock sales

4.16 Information of sales of crushed rock from quarries in County Durham, Northumberland and Tyne and Wear in the period 2008 to 2017 is provided in Table 4.7 below. Sales from the Joint LAA area in 2017 were 5.3 million tonnes with 55% of sales were from quarries in County Durham, 37% were from quarries in Northumberland and the remaining 7% was estimated from sites in Tyne and Wear.

Table 4.6 Sales of crushed rock for aggregate uses from quarries in County Durham, Northumberland and Tyne and Wear, 2008 to 2017 (thousand tonnes)

	County Durham	Northumberland	Tyne and Wear	Total for Joint LAA area
2008	3,036	1,664	300+	5,000
2009	1,920	1,153	282+	3,355
2010	2,056	1,188	194+	3,438

	County Durham	Northumberland	Tyne and Wear	Total for Joint LAA area
2011	1,955	1,230	224+	3,409
2012	1,696	1,233	212+	3,141
2013	2,245	1,060	236+	3,541
2014	2,655	1,171	309+	4,134
2015	2,770	1,473	225+	4,468
2016	2,990	1,708	550+	5,248
2017	2,636	1,768	350+	4,754
Ten year sales average (2008 to 2017)	2,396	1,365	288	4,049
Three year sales average (2015 to 2017)	2,799	1,650	375	4,823

Notes: + Mineral Planning Authority estimate.

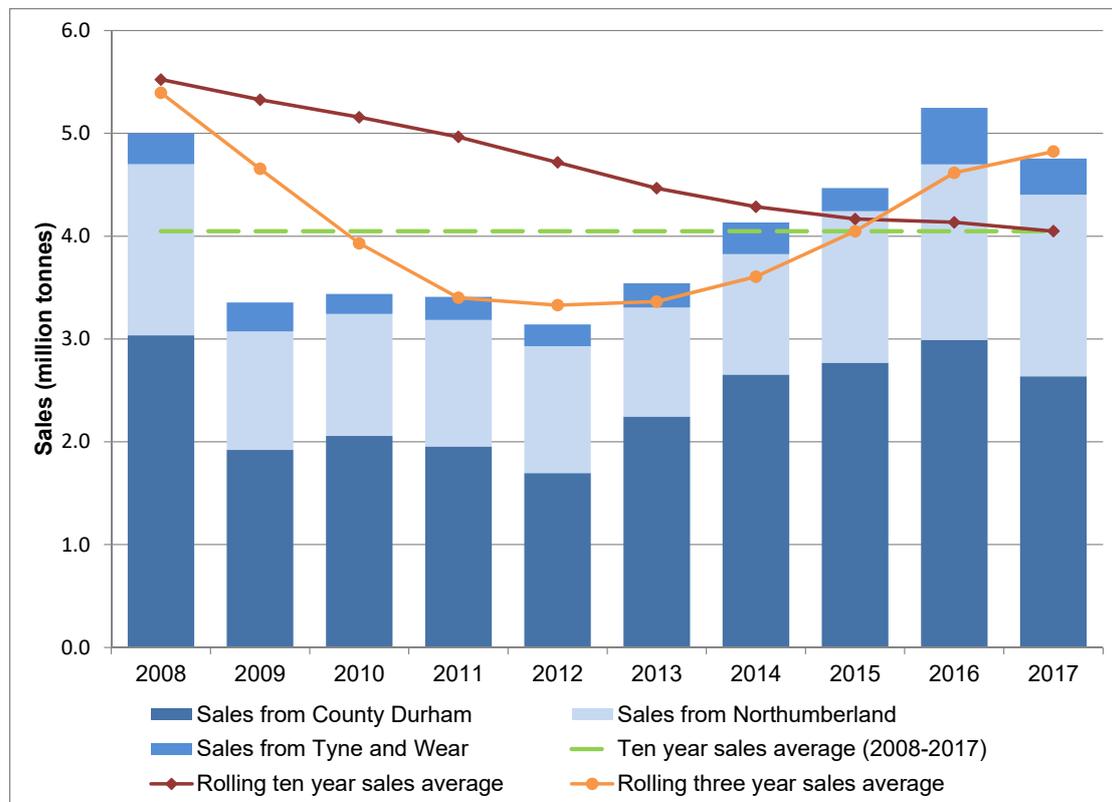
4.17 Table 4.7 highlights that the ten sales averages for crushed rock in the Joint LAA are as follows:

- County Durham - 2.40 million tonnes
- Northumberland - 1.37 million tonnes
- Tyne and Wear - 0.29 million tonnes
- Joint LAA area - 4.05 million tonnes.

4.18 A comparison between actual sales and the ten year sales average is provided in Figure 2. Also shown are the rolling three years sales averages, which help to illustrate how demand has changed over the ten year period from 2007 to 2016.

4.19 The ten year sales average has decreased over the period from 2008 to 2017 due to this including a period of depressed sales between 2008 and 2013 in particular. For 2017 the three year sales average is above the ten year sales average indicating that demand for crushed rock for aggregate uses has increased over the last three years in comparison to previous years reflecting some growth in construction activity.

Figure 2 Comparison of actual crushed rock sales from the Joint LAA area and the sales averages



Crushed rock reserves

4.20 Table 4.9 below identifies the extent of permitted reserves in County Durham, Northumberland and Tyne and Wear at the 31 December 2017 and also provides a comparison of permitted reserves over the last ten years since 2008 within County Durham, Northumberland and Tyne and Wear.

Table 4.7 Permitted reserves of crushed rock for aggregate use in County Durham, Northumberland and Tyne and Wear at the end of each calendar year, 2008 to 2017 (thousand tonnes)

	County Durham	Northumberland	Tyne and Wear
2008	136,326	78,422	#
2009	137,893	76,433	#
2010	135,205	79,098	1,400+
2011	136,734	78,003	1,176+
2012	134,065	77,264	964+
2013	140,731	76,642	728+
2014	138,345	77,972	560+
2015	138,326	83,991	6,700+
2016	131,389	82,917	6,600+

	County Durham	Northumberland	Tyne and Wear
2017	130,745	81,016	7,000+
Percentage of permitted reserves in Joint LAA area at 31 December 2017	59.5%	37.5%	3%

Notes: # The reserves for Tyne & Wear are included in the regional figure in the relevant AWP Annual Monitoring Report. + Mineral Planning Authority best estimates.

County Durham

4.21 Through work to prepare the County Durham Local Plan and this Joint LAA the County Council has sought to understand the extent of permitted reserves within each of County Durham's crushed rock quarries, the spatial distribution of permitted reserves and the split of permitted reserves by resource type. This has been achieved through the Council's own annual survey of mineral operators and through the consideration of information submitted as part of planning applications. The results of this work are set out in Table 4.8. It should be noted the overall sum of the Council's figures is slightly lower than the overall crushed rock permitted reserve figure for County Durham, as set out in Table 4.7 above. Nonetheless, despite this slight discrepancy, this information provides a robust and credible indication of split in the total reserves between different sites and an indication of the level of reserves within individual sites.

4.22 This work gives an indication that in 2017 a significant proportion of the permitted crushed rock reserves in County Durham were contained within eight sites. Of these sites seven are magnesian limestone sites (Old Quarrington and Cold Knuckles Quarry, Thrislington Quarry East, Thrislington Quarry West, Cornforth West Quarry, Cornforth East Quarry, Coxhoe Quarry and Bishop Middleham Quarry) and one a dolerite site (Force Garth Quarry). It can also be seen that the majority of crushed rock permitted reserves in County Durham were magnesian limestone. In 2017 it is estimated that approximately 77% of permitted reserves were magnesian limestone, 9% carboniferous limestone and 14% were dolerite.

Table 4.8 Estimated permitted reserves of crushed rock in County Durham at 31 December 2017 (tonnes).

Quarry	Estimated/Actual Permitted reserves remaining at 31 December 2017
Heights Quarry	3,270,000 ¹
Hulands Quarry	1,770,000 ¹
Kilmondwood Quarry	6,000,000 ¹
Broadwood Quarry	355,000 ¹
Total Carboniferous limestone permitted reserves	11,395,000²
Aycliffe Quarry	0
Witch Hill Quarry	1,532,500 ^{2 5}
Running Waters Quarry	350,000 ^{1 5}
Crime Rigg Quarry	1,033,000 ¹
Bishop Middleham Quarry	3,808,000 ^{2 5}
Old Quarrington and Cold Knuckles Quarry	12,865,000 ¹
Thrislington Quarry West Thrislington Quarry East	16,168,000 ^{2 4}

Quarry	Estimated/Actual Permitted reserves remaining at 31 December 2017
Cornforth East Quarry Cornforth West Quarry	37,719,000 ¹
Coxhoe (Raisby) Quarry	26,472,000 ¹⁶
Total magnesian limestone permitted reserves	99,947,500²
Force Garth Quarry	18,166,000 ¹
Total extent of all crushed rock permitted reserve best estimates	129,508,500³

Source: Durham County Council, 2017. Notes: 1 Operator returns to Council survey 2 Mineral Planning Authority best estimates. 3 Note this figure is slightly lower than the figure set out within the North East Aggregates Working Party Annual Monitoring Report for 20176, however, it is within 1% of the AWP figure. 4 Excludes permitted reserves of industrial dolomite. 5 Excludes permitted reserves suitable for agricultural lime. 6 Includes permitted reserves suitable for agricultural lime.

4.23 No information is provided in Table 4.8 to detail production capacity for individual sites, however, information obtained by Durham County Council from both operators and planning applications indicate that when in full production County Durham's crushed rock sites could have a significant productive capacity well in excess of recent sales levels. Using available information the Council estimates that County Durham's crushed rock sites (excluding sites which are currently dormant) could, at full production could produce approximately 4.7 million tonnes per annum.

Northumberland

4.24 Permitted reserves of crushed rock for aggregate use in Northumberland were 81 million tonnes at 31 December 2017. These reserves were contained within the eleven quarries listed in the table below, one of which, Harden Quarry, is located within the Northumberland National Park. Belford (Easington) Quarry, Mootlaw Quarry and Swinburne Quarry have been worked in the past but were inactive in 2017. The activation of a dormant planning consent at Cocklaw Quarry was permitted in 2010 but extraction has yet to commence and this site is also inactive.

4.25 Northumberland County Council and the Northumberland National Park Authority have sought to understand the extent of reserves within sites, the spatial distribution of the reserves and the split of reserves by resource type. The remaining permitted reserves in sites have been estimated based on the information on planning reserves and the anticipated level of production provided in planning applications. As these figures are estimates they will need to be treated with a degree of caution. The comparison with the figure for Northumberland set out in the North East Aggregates Working Party Annual Monitoring Report indicates that the level of reserves is underestimated. Nonetheless this information provides an indication of split in the total reserves between different sites and an indication of the level of reserves within individual sites.

4.26 This work gives an indication that a significant proportion, in the region of 60 to 65%, of the permitted crushed rock reserves in Northumberland are estimated to be contained within a single site (Barrasford Quarry). It is also estimated that around 90% of crushed rock reserves in Northumberland are igneous rock and 10% are Carboniferous limestone, which broadly reflects the current split in sales between these resources.

Table 4.9 Estimated permitted reserves of crushed rock in Northumberland by site at 31 December 2017 (tonnes) and the productive capacity of the quarries (tonnes per annum)

Quarry	Mineral Planning Authority	Estimate of permitted reserves at 31 December 2017 (tonnes)	Productive capacity (tonnes per annum)
Barrasford Quarry	Northumberland County Council	47,000,000	750,000 to 1,500,000
Belford (Easington) Quarry	Northumberland County Council	3,800,000	180,000
Cocklaw Quarry	Northumberland County Council	700,000	150,000
Cragmill Quarry	Northumberland County Council	7,450,000	200,000 (average 150,000)
Divethill Quarry	Northumberland County Council	600,000	200,000
Harden Quarry	Northumberland National Park Authority	1,100,000	150,000
Howick Quarry	Northumberland County Council	2,300,000	180,000
Keepersshield Quarry	Northumberland County Council	6,600,000	200,000
Longhoughton (Ratcleugh) Quarry	Northumberland County Council	500,000	120,000
Mootlaw Quarry	Northumberland County Council	4,185,000	750,000
Swinburne Quarry	Northumberland County Council	5,250,000	150,000

Notes: The reserve information presented in this table are Mineral Planning Authority best estimates based on reserve and output information provided in planning applications. The estimates have been made on a site-by-site basis and do not sum to the actual total permitted reserves for Northumberland.

Tyne and Wear

4.27 The permitted reserves of crushed rock for aggregate uses within Tyne and Wear are contained within two magnesian limestone quarries:

- Marsden Quarry in South Tyneside; and
- Eppleton Quarry in Sunderland.

4.28 No published reserve figure is available for Tyne and Wear to avoid disclosing confidential individual site information. The MPAs have, therefore, sought to estimate the reserves to help understand if there are any supply issues. The reserves are estimated to have increased in 2017 due to a reassessment of the reserves at Marsden Quarry following the sale of the quarry to a new operator.

Table 4.10 Estimated permitted reserves in Tyne and Wear by site at 31 December 2017 (tonnes) and the estimated productive capacity of the quarries (tonnes per annum)

Quarry	Mineral Planning Authority	Estimated permitted reserves at 31 December 2017 (tonnes)	Productive capacity (tonnes per annum)
Eppleton Quarry	Sunderland City Council	5,250,000+	250,000
Marsden Quarry	South Tyneside Council	1,750,000+	200,000
Tyne and Wear		7,000,000+	

Notes: + Mineral Planning Authority best estimates.

Marine sand and gravel

4.29 Within the Joint LAA area there are a number of wharves where marine dredged sand and gravel is landed and sold for aggregate uses. This includes the Port of Blyth in Northumberland, wharves on the River Tyne and the Port of Sunderland.

4.30 The sales figures in Table 4.11 are for North East England and include sales from both the Joint LAA area and from Tees Valley. Table 4.11 shows that in 2017 sales were 538,000 tonnes. Based on previous trends it is estimated that in 2017 around 300,000 tonnes of the sales were from Tyne and Wear and 30,000 tonnes from Northumberland.

4.31 In recent years sales of marine sand and gravel have not increased to the same extent as sales from quarries in the Joint LAA area and a significant factor in this is that a number of the wharves have not been active. For example, the Gateshead and Howdon wharves on the River Tyne are currently inactive and have not imported marine sand and gravel since 2010 and 2014 respectively.

4.32 Notwithstanding the above, marine sand and gravel makes an important contribution to the supply of sand and gravel from the Joint LAA area, supplying an estimated 25% of sand and gravel from quarries and wharves in the Joint LAA area.

Table 4.11 Sales of marine sand and gravel from wharves in North East England, 2008 to 2017 (thousand tonnes)

Year	Sales
2008	998
2009	563
2010	678
2011	509
2012	491
2013	343
2014	536
2015	595
2016	499
2017	535
Ten year sales average (2008 to 2017)	586

Year	Sales
Three year sales average (2015 to 2017)	543

Imports of crushed rock by sea

4.33 In addition to the supply from quarries within the Joint LAA area, crushed rock for aggregate uses is landed at a number of wharves. This includes Port of Blyth in Northumberland, Hayhole Road Wharf (North Tyneside) and Port of Tyne (South Tyneside) on the River Tyne and the Port of Sunderland. It is understood that the material is sourced from Norway and Glensanda Quarry in Scotland.

4.34 Information on sales of crushed rock imported by sea is presented below. Sales in 2017 were 98,000 tonnes and this represents an decrease from previous years. As there are only a small number of sites in the Joint LAA area, an increase or decrease in sales at one site can have a significant effect on overall sales.

4.35 The supply of crushed rock from the wharves supplements the supply from quarries in the Joint LAA with the wharves supplying 3% of crushed rock from the Joint LAA area in 2017.

Table 4.12 Sales of crushed rock from wharves for aggregate use from North East England, 2012 to 2017 (thousand tonnes)

Year	County Durham	Northumberland	Tyne and Wear	North East England
2012	0	0	73	73
2013	0	#	#	160
2014	0	#	#	148
2015	0	#	#	145
2016	0	0	246	246
2017	0	0	98	98
Three year sales average (2015-2017)	0	#	#	163

Notes: # Confidential figure included in the total figure for the Joint LAA area.

Imports and exports

4.36 The most up-to-date information on imports and exports of primary aggregate minerals is provided from the results of the 2014 national aggregate minerals survey undertaken by British Geological Survey on behalf of the Department of Communities and Local Government and the Welsh Government.

Destination of sales from quarries and wharves in the Joint LAA area

4.37 Table 4.13 shows the sales of primary aggregates from the quarries and wharves in each sub-region within the Joint LAA area and the principal destinations of these sales. For both crushed rock and land-won sand and gravel it highlights that for both County Durham and Northumberland there are significant levels of sales to other parts of North East England. For County Durham and for Northumberland, but to a lesser extent, it also highlights that there are significant levels of sales which are recorded as to 'elsewhere'. The majority of these sales were to the adjoining regions in England,

in particular to the Yorkshire and Humber region (namely North Yorkshire). The destination of the majority of sales from the sites within Tyne and Wear were recorded as being within Tyne and Wear rather than to other areas.

Table 4.13 Sales of primary aggregates by sub-region and principal destination sub-region, 2014 (thousand tonnes)

Source sub-region	Destination	Land won sand and gravel	MPA %	Marine sand and gravel	MPA %	Crushed rock	MPA %
County Durham	County Durham	39	14%	-	-	1,102	41%
	Northumberland	3	1%	-		129	5%
	Tees Valley	84	30%	-		506	19%
	Tyne and Wear	125	45%	-		470	18%
	Unknown North East	0	0%	-		31	1%
	Elsewhere	25	9%	-	-	417	16%
Total for County Durham sub-region		276		-	-	2,655	
Northumberland	County Durham	21	6%	1	6%	90	8%
	Northumberland	84	23%	0	0%	678	58%
	Tees Valley	0	0%	1	6%	2	<1%
	Tyne and Wear	96	27%	17	87%	255	22%
	Unknown North East	157	43%	0	0%	60	5%
	Elsewhere	3	1%	0	0%	88	7%
Total for Northumberland sub-region		361		20	-	1,174	
Tyne and Wear	County Durham	Confidential figure	21%	139	45%	8	3%
	Northumberland	Confidential figure	<1%	9	3%	8	3%
	Tees Valley	Confidential figure	8%	0	0%	0	0%
	Tyne and Wear	Confidential figure	16%	109	35%	257	94%
	Unknown North East	Confidential figure	13%	42	14%	0	0%
	Elsewhere	Confidential figure	42%	9	3%	0	0%
Total for Tyne and Wear sub-region		Confidential figure		308		274	

Source: Table 9i Sales of primary aggregates by MPA and principal destination sub-region in 2014: North East. Collation of the results of the 2014 Aggregate Minerals Survey for England and Wales.

Imports and exports of aggregate minerals

4.38 The imports of primary aggregates by sub-region and for North East England (includes the Joint LAA area and Tees Valley) in 2014 are shown in Table 4.14. It includes not only imports from other regions (inter-regional flows) but also flows from sub-region to sub-region within North East England. In the case of sales of marine sand and gravel and crushed rock, imports are only shown where material has been moved outside the home sub-region where the wharf is located. Table 4.14 below does not however show exports from North East England to other regions. In total in 2014, 128,000 tonnes of land won sand and gravel, 9,000 tonnes of marine sand and gravel and 507,000 tonnes of crushed rock were exported from the North East of England.

Table 4.14 Imports of primary aggregates by sub-region in 2014 (thousand tonnes)

Sub-region	Land-won sand and gravel	Marine sand and gravel	Total sand and gravel	Crushed rock	Total primary aggregates
County Durham	248	141	389	399	787
Northumberland	16	9	26	218	243
Tees Valley	175	1	176	668	844
Tyne and Wear	251	31	282	964	1,246
Unknown North East	247	42	289	159	448
Total	937	225	1,162	2,407	3,569

4.39 The consumption of crushed rock in County Durham, Northumberland and Tyne and Wear is shown in Tables 4.15. The table categorises for each destination sub-region the percentage of overall consumption that is received from source MPAs. The main points for each of the sub-regions in the Joint LAA area are summarised as follows:

- County Durham - A large proportion of consumption (70% to 80%) is supplied from quarries within County Durham itself. There are also some notable movements from the adjoining areas of North Yorkshire (10 to 20% of consumption), Cumbria and Northumberland (each 1% to 10% of consumption).
- Northumberland - A large proportion of consumption (60% to 70%) is supplied from quarries within Northumberland itself. There are also some notable movements from the adjoining areas of County Durham and Cumbria (each 1% to 10% of consumption).
- Tyne and Wear - A significant level of supply is recorded from the adjoining areas of County Durham (30% to 40% of consumption) and Northumberland (20% to 30% of consumption). Notwithstanding this, supply from South Tyneside and Sunderland (including crushed rock landed at the Port of Sunderland) make an important contribution to supply.

Table 4.15 Consumption of crushed rock for aggregate use in 2014 identifying for each sub-region the principal supplying MPAs

Source region	Source MPA	Destination sub-region		
		County Durham	Northumberland	Tyne and Wear
North East England	Durham County Council	70 - 80%	10 - 20%	30 - 40%
	Northumberland County Council	1 - 10 %	60 - 70%	20 - 30%
	Northumberland National Park Authority	<1%	1 - 10%	<1%
	South Tyneside Council	<1%	<1%	10 - 20%
	Sunderland City Council	-	-	1 - 10%
	Hartlepool Borough Council	<1%	<1%	<1%
Yorkshire and the Humber	North Yorkshire County Council	10 - 20%	<1%	<1%
	Yorkshire Dales National Park	<1%	<1%	<1%
North West England	Cumbria County Council	1 - 10%	1 - 10%	<1%
East Midlands	Derbyshire County Council	<1%	-	-
	Leicestershire County Council	<1%	<1%	<1%
	Peak District National Park Authority	<1%	<1%	<1%
East of England	Cambridgeshire County Council	-	<1%	-
South West England	South Gloucestershire Council	-	<1%	-
Wales	Ceredigion	<1%	-	-
	Rhondda Cynon Taf	-	<1%	-
	Powys	-	<1%	-
	Outside England and Wales	<1%	1 - 10%	1 - 10%
Total consumption		1,500	898	1,221

4.40 Consumption of sand and gravel for aggregate uses from quarries and wharfs in County Durham, Northumberland and Tyne and Wear is shown in Table 4.16. The table categorises for each destination sub-region the percentage of overall consumption that is received from source MPAs. The main points for each of the sub-regions in the Joint LAA area are summarised as follows:

- County Durham - A significant level of supply is recorded from quarries in North Yorkshire (40 to 50% of consumption), a quarry in Sunderland (10 to 20% of consumption) and marine dredged material landed at a wharf in South Tyneside (30 to 40% of consumption)^(xvi).
- Northumberland - A significant level of sand and gravel consumption is supplied from quarries and the wharfs located within Northumberland (70 to 80% of consumption). There are some notable cross boundary movements from the neighbouring MPA areas of County Durham and

xvi It should be noted that Durham County Council considers that the given figure for the supply of sand and gravel from North Yorkshire is to high and that a proportion of this is likely to have been destined for the Tees Valley and not in fact County Durham.

Cumbria and from South Tyneside and Sunderland with each recorded as supplying between 1% and 10% of consumption.

- Tyne and Wear - Marine dredged material landed in South Tyneside (20% to 30% of consumption) and both marine-dredged and quarried material from Sunderland (10% to 20% of consumption) make a significant contribution to supply. However, a significant level of supply is also recorded from the adjoining areas of County Durham and Northumberland (each accounting for 20% to 30% of consumption).

Table 4.16 Consumption of sand and gravel for aggregate use in 2014 identifying for each sub-region the principal supplying MPAs

Source region	Source MPA	Destination sub-region		
		County Durham	Northumberland	Tyne and Wear
North East England	Durham County Council	1 - 10%	1 - 10%	20 - 30%
	Northumberland County Council	1 - 10%	70 - 80%	20 - 30%
	South Tyneside Council	30 - 40%	1 - 10%	20 - 30%
	Sunderland City Council	10 - 20%	1 - 10%	10 - 20%
	Middlesbrough Borough Council	<1%	<1%	1 - 10%
Yorkshire and the Humber	North Yorkshire County Council	40 - 50%	<1%	1 - 10%
	Yorkshire Dales National Park	-	-	-
North West England	Cumbria County Council	-	1 - 10%	<1%
West Midlands	Staffordshire County Council	<1%	<1%	-
East Midlands	Nottinghamshire County Council	<1%	-	-
	Lincolnshire County Council	-	<1%	-
East of England	Cambridgeshire County Council	-	-	<1%
	Essex County Council	-	<1%	-
Total consumption		428	109	429

Comparison between sales, imports and consumption

4.41 A comparison between sales, imports and consumption of primary by sub-region in 2014 is shown in Table 4.17. This table usefully shows that while some sub-regions import a significant proportion of their consumption (see Table 4.13 and Table 4.14), a significant portion of sales from quarries and wharves in their areas is exported to other sub regions (see Table 4.17). In respect to sand and gravel consumption in County Durham, for example, it shows while imports account for 90% of sand and gravel consumption this sub-region actually produces 60% of its consumption with a significant proportion being exported to other sub-regions in North East England.

Table 4.17 Comparison between sales and consumption in 2014 (thousand tonnes)

Sub-area	Crushed rock			Sand and gravel (land won and marine)		
	Sales	Imports	Consumption	Sales	Imports	Consumption
County Durham	2,770	399	1,500	257	389	428
Northumberland	1,473	218	898	440	218	109

Sub-area	Crushed rock			Sand and gravel (land won and marine)		
	Sales	Imports	Consumption	Sales	Imports	Consumption
Tyne and Wear	226*	964	1,221	566*	964	429

Analysis

4.42 Flows of aggregate minerals between MPA areas are complex but it has been possible to identify those movements that are considered to be of significance. Movements generally occur between those areas where suitable resources are found and those areas where there is demand but suitable resources are less abundant. This can be seen within the Joint LAA where County Durham and Northumberland supply significant amounts of material to the Tyne and Wear sub-region and from County Durham to the Tees Valley sub-region. These movements are significant and ongoing discussions between the Joint LAA authorities, particularly through the preparation of this document, are essential.

4.43 The complexity of the movements is also illustrated through some areas that are apparent significant importers of primary aggregates from other sub-regions also being significant exporters from quarries and wharves in these areas.

4.44 The figures also recognise the relationship between North Yorkshire and North East England, which reflects the proximity of the resource areas in North Yorkshire to North East England and historic patterns of supply. Previous and ongoing discussions and liaison with North Yorkshire County Council during the preparation of the Joint LAA have indicated that this pattern of supply is expected to continue. It has, however, also been highlighted that there has been some reduction in the tonnages supplied northwards over the last 10 years or so. A declining level of permitted reserves in the northern part of North Yorkshire may also have an impact on supply in the medium to long-term and the implications of this will be kept under review through the LAA process.

4.45 A less significant relationship with Cumbria is also identified from the figures. Again this is likely to be where sites are located in close proximity to parts of Northumberland and Cumbria. Movements to and from Scotland into North East England are not significant. Sites in the adjoining Scottish Borders, for example, tend to supply minerals north to the Edinburgh city region and central Scotland rather than south to the Joint LAA area.

4.46 Movements from and to other regions of England and Wales, other than Yorkshire and Humber (namely North Yorkshire) and North West England (namely Cumbria) that are discussed separately above, are very small and are considered to be of little significance in terms of supply patterns to the Joint LAA area.

Recycled and secondary aggregates

4.47 Recycled and secondary aggregates play an important role in the total supply of aggregates from County Durham, Northumberland and Tyne and Wear. Various types of recycled and secondary aggregate materials suitable for aggregate use are produced from the Joint LAA area. Recycled aggregates are those derived from construction, demolition and excavation work that have been reprocessed to provide materials or a product suitable for aggregate uses. It includes materials such as stone, concrete, brick or asphalt for re-use. A significant amount of recycled aggregates is produced on development and construction sites, but a large amount is also processed at dedicated freestanding sites or at facilities located within existing minerals and waste sites such as active quarries, waste transfer sites and landfill sites (see Appendix B). Secondary aggregates are different to recycled aggregates and are usually by-products of other construction or industrial processes, for example

the production of furnace bottom ash. The use of recycled and secondary aggregates has both environmental and economic benefits, driving the more sustainable use of resources by maximising the re-use of materials, minimising new extraction of mineral and diverting waste from landfill.

4.48 Within the Joint LAA area, recycled aggregates are produced principally from construction and demolition projects and secondary aggregates are principally produced from pulverised fuel ash and furnace bottom ash from the Lynemouth Power Station in Northumberland (although there were no sales of ash for aggregate use from Lynemouth Power Station in 2016 and 2017 due to work taking place to convert the power station to 100% biomass firing). Materials derived from spent railway ballast and recovered asphalt planings also make a significant contribution to supply.

4.49 Information on the arisings of secondary and recycled aggregates is not as comprehensive or robust as the information available on the production of primary aggregates. The most up-to-date information on the sales of recycled and materials for aggregate use is provided through an annual survey of surveyed operators of fixed construction and demolition recycling sites and recycling producers in North East England by the North East AWP and the MPAs. The information provided through this should be treated with some degree of caution as not all producers in North East England responded to the survey and have thus not been included in the figures. In addition, the survey does not include mobile crushers and screens which are known to make an important contribution in terms of the quantities of construction and demolition waste recycled for aggregate uses.

4.50 Details of the quantities of materials produced is provided in Table 4.18. Due to the limitations of the survey, information for each Mineral Planning Authority is not available and is presented at a sub-regional level. In addition, and as stated above, the information provided through this survey should be treated with some degree of caution as not all producers in these areas have responded to the survey and the survey does not include mobile crushers and screens which are known to make an important contribution to overall supply.

Table 4.18 Sales of recycled and secondary aggregates in County Durham, Northumberland and Tyne and Wear, 2017 (thousand tonnes)

	County Durham	Northumberland	Tyne and Wear
Construction and demolition waste	19.3	119.0	270.8
Road planings	42.0	5.0	16.1
Spent railway ballast	0	0	20.0
Furnace Bottom Ash (Power stations)	0	0	0
Pulverised Fuel Ash (Power stations)	0	0	0
Incinerator Bottom Ash (Energy from Waste)	0	0	0
Waste glass	0	0	0
Colliery spoil	0	0	0
Mineral waste	0	0	0
Other	0	0	0
Total recycled and secondary aggregates	61.3	124.0	328.2

Source: North East Aggregates Working Party.

5 Forecasting demand

5.1 The National Planning Policy Framework (NPPF) states that mineral planning authorities should plan for a steady and adequate supply of aggregates by preparing a LAA based on a rolling average of 10 years sales data plus other relevant local information^(xvii). Relevant local information that could influence future aggregates provision includes demand from future house building rates and demand from large construction and infrastructure projects. There is also a need to consider resource availability and other supply options in identifying the relevant level of provision.

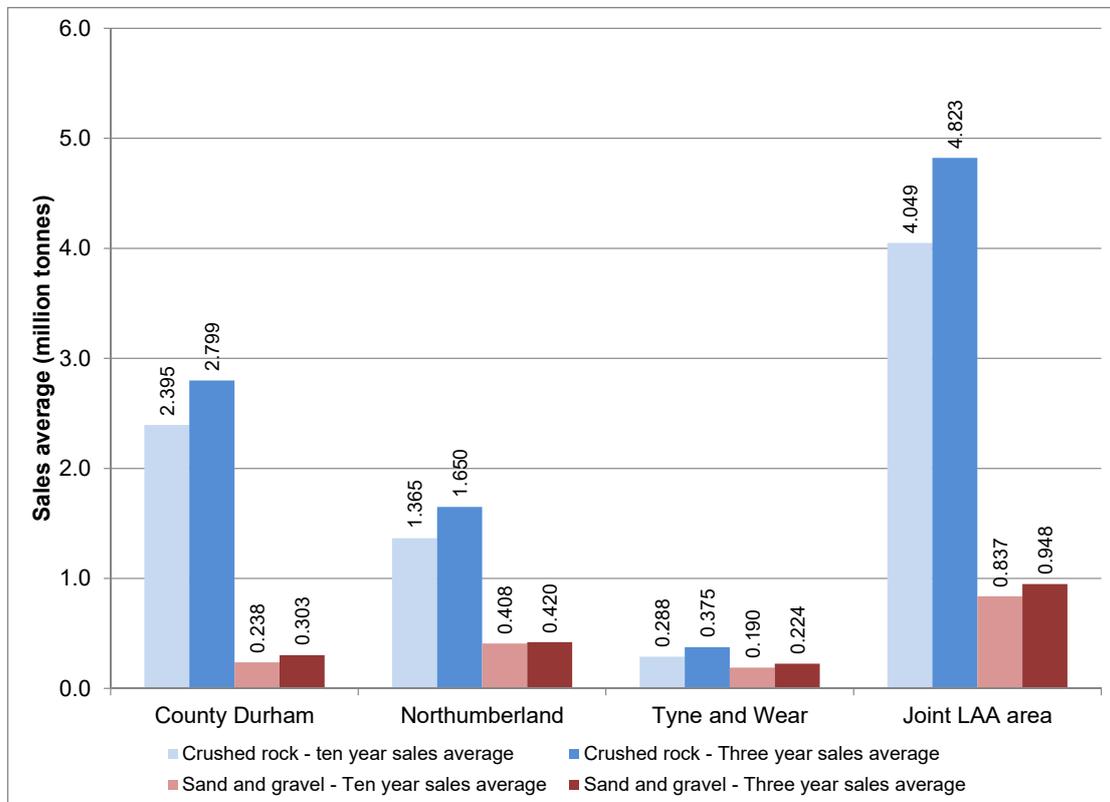
5.2 This section sets out the calculation of the ten year sales average, an analysis of the local information that could influence demand and a forecast of demand.

A comparison of sales averages

5.3 A comparison of both the ten year sales averages and the most recent three years sales averages are shown in Figure 3 below. It shows that for both sand and gravel and crushed rock the three years sales average is higher than the ten years sales average. This reflects that the ten year period includes a number of years of depressed sales (particularly 2009 to 2013) as a result of the economic downturn and three year sales average includes a period (2015 to 2017) where sales have increased as a result of increased demand thus indicating a trend of increased sales in recent years over and above those levels experienced during the economic downturn.

xvii Paragraph 064 of National Planning Practice Guide (ID: 27-064-20140306) states, "Local Aggregate Assessments must also consider other relevant local information in addition to the ten year rolling supply, which seeks to look ahead at possible future demand, rather than rely solely on past sales. Such information may include, for example, levels of planned construction and housebuilding in their area and throughout the country. Mineral Planning Authorities should also look at average sales over the last three years in particular to identify the general trend of demand as part of the consideration of whether it might be appropriate to increase supply".

Figure 3 Comparison of ten year and three year sales averages for County Durham, Northumberland and Tyne and Wear (million tonnes)



Notes: e - Figures for the Tyne and Wear sub-area are based on Mineral Planning Authority estimates of sales.

5.4 It is considered that the three year sales average would provide a more appropriate means of identifying demand compared to the ten year sales average. This is because the ten year period includes a period of depressed sales as a result of the economic downturn whereas the three year period reflects a period of increased construction activity. The three year average also would reflect current and recent trends in the economy.

5.5 In comparing the 10 year sales average and the three year sales average, it should also be noted that for the Joint LAA area as a whole that the crushed rock three years sales average is 19.1% higher than the 10 years sales average and that the sand and gravel three year sales average is 13.26% higher than the ten year sales average. Accordingly, use of the three year sales average as a the basis for identifying demand would in effect represent an uplift over and above the ten year sales average.

Recent sales and pre-recession sales

5.6 In order to understand how sales have changed over time and how current sales levels relate to past sales, it is considered useful to consider current sales levels against the following in addition to ten and three year sales averages:

- The peak sales figures over the last ten years;

- Pre recession average sales figures specifically the ten year sales average prior to the recession (1997-2006); and
- The National and Regional Aggregate Supply Guidelines (2005 to 2020).

Peak sales over the last ten years

5.7 Information relating to historic sales over the last ten years and recent sales of both crushed rock and sand and gravel are shown in Chapter 4. This information shows that peak sales for both crushed rock and sand and gravel over the last ten years were in 2016 at 5,248,000 tonnes of crushed rock and 972,000 tonnes of sand and gravel. However, as is shown in chapter 4 during 2017 both crushed rock and sand and gravel sales fell. Other than for sales in 2016, sales of both current crushed rock and sand and gravel last exceeded current sales levels in 2007 when 1,036,000 tonnes of sand and gravel and 5,610,000 tonnes of crushed rock were sold from the Joint LAA area. Comparison of 2017 sales levels with sales over the last ten years and peak sales is relevant and of interest because it shows that sales have not reached pre-recession levels of sales.

Pre-recession average sales figures

5.8 Information relating to pre-recession sales and the ten year average sales figures for both crushed rock and sand and gravel are shown below. The tables can be compared with those in chapter 4 and clearly show that sales in the ten year period before 2007 were of a different magnitude to sales after 2007, reflecting the buoyancy and growth in the economy in the early 2000s prior to 2007. In this regard the differences in the economy before and after 2007 can also be seen by other recognised economic factors including GVA. On this basis it is considered that pre-recession sales would not provide a sound basis for future for calculating the annual demand requirement.

Table 5.1 Crushed rock sales and ten year sales average 1997 to 2006 (thousand tonnes)

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Ten year sales average (1997 to 2006)
County Durham	5,568	3,659	3,317	3,414	3,570	3,375	3,877	3,733	3,777	3,384	3,767
Northumberland	1,882	1,768	1,782	1,167	1,473	1,957	2,381	2,281	1,696	1,796	1,818
Tyne and Wear	366	241	209	144	276	288	288	390	184	393	278
Total for Joint LAA area	7,816	5,806	5,446	4,725	5,457	5,758	6,691	6,514	5,657	5,573	5,864

Sources: North East Aggregate Working Party Reports published 1997 to 2008 and Report for the North East Region Aggregates Working Party, Apportionment of North East Region Guidelines for Aggregates Provision Environmental Report, May 2010. Please note some figures are best estimates and others have been amended to take into account that for some years previously published sales of crushed rock and sand and gravel for Tyne and Wear and Tees Valley have been combined with that of County Durham.

Table 5.2 Land won sand and gravel sales and ten year sales average 1997 to 2006 (thousand tonnes)

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Ten year sales average (1997 to 2006)
County Durham	461	429	788	489	441	302	283	375	431	371	437
Northumberland	859	882	879	953	556	582	610	638	576	505	704

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Ten year sales average (1997 to 2006)
Tyne and Wear	376	226	187	217	162	215	320	282	353	409	275
Total for Joint LAA area	1,716	1,557	1,874	1,679	1,179	1,119	1,233	1,315	1,380	1,305	1416

Sources: North East Aggregate Working Party Reports published 1997 to 2008 and Report for the North East Region Aggregates Working Party, Apportionment of North East Region Guidelines for Aggregates Provision Environmental Report, May 2010. Please note some figures are best estimates and others have been amended to take into account that for some years previously published sales of crushed rock and sand and gravel for Tyne and Wear and Tees Valley have been combined with that of County Durham.

National and sub-national guidelines for the provision of aggregates

5.9 In accordance with Paragraph 207 (d) of the NPPF (July 2018), the published National and Sub National Guidelines for provision have been taken into account. The latest published guidelines date from June 2009 and cover the period 2005 to 2020 (these guidelines are reproduced in Chapter 2). The guidelines were partly informed by the findings of the 2005 Aggregate Minerals Survey. Given the base date of the information used to inform these guidelines, which do not necessarily reflect more recent economic conditions and demand, and given that these guidelines only look towards 2020 it is considered that they do not provide a reliable basis for calculating the annual demand requirement into the 2030's.

Local factors influencing demand

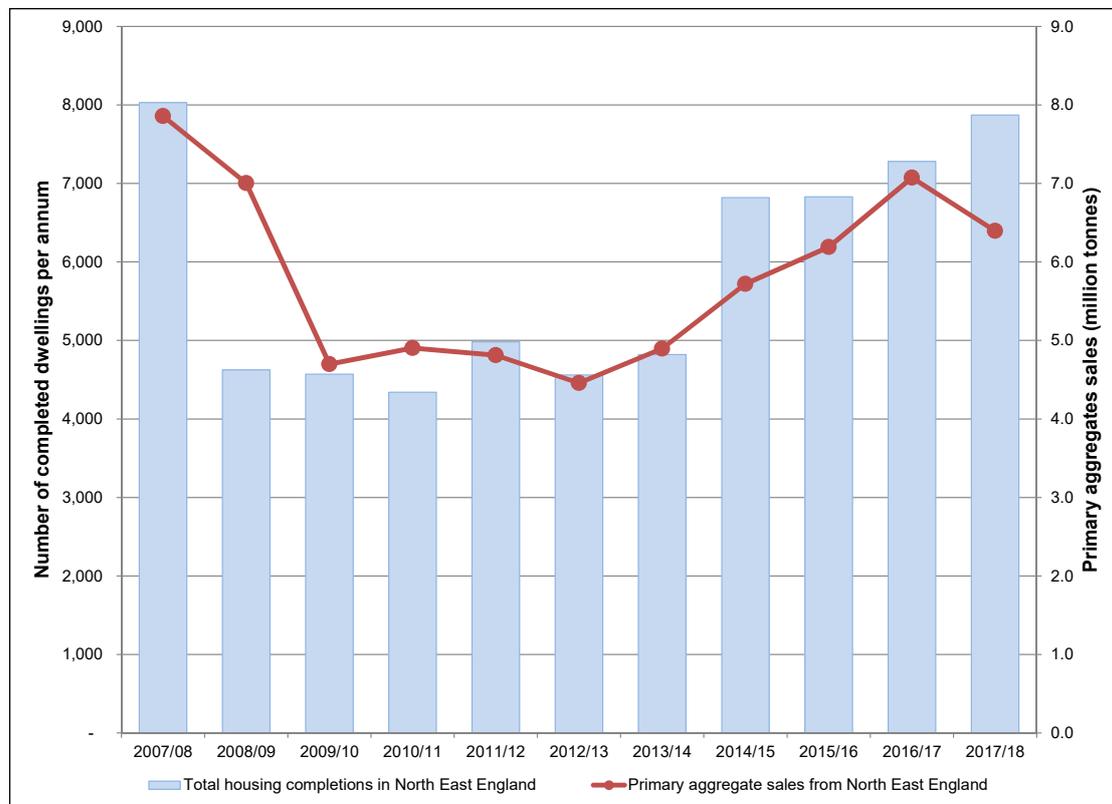
5.10 The following factors that could influence demand have been identified through the preparation of this LAA:

- House building
- Major infrastructure projects
- Population growth
- General economic growth

House building

5.11 House building and the construction of associated infrastructure creates demand for construction aggregates. A comparison between housing completions in North East England and sales of primary aggregates from quarries and wharves in North East England is shown in Figure 4. This illustrates that there is a strong relationship between housing completions and primary aggregate sales in both the Joint LAA area and North East England.

Figure 4 Comparison between housing completions and primary aggregate sales in North East England



5.12 Table 5.3 below provides a summary of current figures on estimated future housing need. It includes figures derived from the DCLG consultation on a standard method for calculating local housing need (see together "Planning for the Right Homes in the Right Places", September 2017) and the accompanying housing need data table, which sets out the housing need for each local planning authority using the proposed standard methodology. The table also details local assessment of housing need in including more recent iterations of emerging local plan documents and those recently adopted.

Table 5.3 Comparison between the proposed CLG Objectively Assessed Need figure and CLG current assessment of housing need and the sub-regional proposed completions figure

Sub-region	Local Planning Authority	Proposed Objectively Assessed Need (CLG Housing Need Consultation Data Table, September 2017)	Current local assessment of housing need (CLG Housing Need Consultation Data Table, September 2017 unless otherwise stated)	Average annual completions (2015/16 to 2017/18)
County Durham	Durham County Council	1,368	1,368 ⁽¹⁾	1,373
Northumberland	Northumberland County Council	707	885 ⁽²⁾	1,207

Sub-region	Local Planning Authority	Proposed Objectively Assessed Need (CLG Housing Need Consultation Data Table, September 2017)	Current local assessment of housing need (CLG Housing Need Consultation Data Table, September 2017 unless otherwise stated)	Average annual completions (2015/16 to 2017/18)
Tyne and Wear	Gateshead	470	475	-
	Newcastle	1,073	980 ⁽³⁾	-
	North Tyneside	824	790 ⁽⁴⁾	-
	South Tyneside	365	318	-
	Sunderland	593	745 ⁽⁵⁾	-
	Total for Tyne and Wear	3,325	3,308	2,663
Tees Valley	Darlington	177	446	-
	Hartlepool	213	290	-
	Middlesbrough	267	422	-
	Redcar and Cleveland	142	132	-
	Stockton on Tees	533	600	-
	Total for Tees Valley	1,332	1,890	2,083

1. Durham County Council housing figure - Source County Durham Plan Preferred Options (June 2018)
2. Northumberland County Council housing figure - Source Northumberland Local Plan Regulation 18 Draft Plan (July 2018)
3. Newcastle housing figure - This figure is different to the figure in the CLG consultation document, as Newcastle City Council consider the figure in the consultation document to be incorrect
4. North Tyneside housing figure - Source North Tyneside Local Plan - Adopted July 2017
5. Sunderland housing figure - Source Sunderland Core Strategy and Development Plan, Publication Draft (June 2018)

5.13 Taking into account housing completions over the three year period from 2015/16 to 2017/18 the CLG figures would result in a fall in the housing completions for County Durham, Northumberland and the Tees Valley but a rise in Tyne and Wear. This is also reflected in the local figures for future housing need. Given that the CLG housing requirement methodology will be subject to further review as a result of changes to the standard methodology^(xviii) and also given that the figures differ from figures in emerging and recently adopted Local Plans, it is considered that they do not provide a robust basis for a growth factor to apply against the ten year sales average. Given the level of current housing completions in the Joint LAA area it is felt that the three year sales average captures the level of demand for future housing as a whole. This will be kept under review in future annual updates of this LAA. In considering housing growth as an uplift factor in the future, the Council will also have regard to the POS/MPA^(xix) guidance on the production and use of Local Aggregate Assessments which advises that, that housebuilding can only be used as a partial guide to future demand as aggregate sales reflect much wider demands including refurbishment of the housing stock and infrastructure maintenance.

xviii In October 2018 MHCLG undertook a technical consultation on updates to national planning policy and guidance which sought further views on the standard method for assessing local housing need and also explained their intention to review the formula and establish a new method by the time that the next household projections are issued.

xix Planning Officers Society and Mineral Products Association, Practice Guidance on the Production and Use of Local Aggregate Assessments, Living Document, May 2017.

Population change

5.14 Population forecasts for County Durham, Northumberland and Tyne and Wear are shown in Table 5.4 below.

Table 5.4 Population forecasts, 2016 to 2036 (figures in thousands to one decimal place)

Year	County Durham	Northumberland	Tyne and Wear
2016	521.8	317.4	1,126.4
2017	523.5	317.4	1,129.6
2018	525.2	317.5	1,133.0
2019	526.9	317.7	1,136.1
2020	528.5	317.9	1,138.8
2021	529.9	318.1	1,141.0
2022	531.4	318.3	1,143.1
2023	532.9	318.4	1,145.1
2024	534.3	318.5	1,147.3
2025	535.9	318.5	1,149.7
2026	537.3	318.6	1,152.1
2027	538.8	318.5	1,154.5
2028	540.1	318.5	1,156.7
2029	541.3	318.4	1,158.9
2030	542.5	318.3	1,160.9
2031	543.6	318.1	1,162.8
2032	544.6	317.9	1,164.4
2033	545.4	317.7	1,165.8
2034	546.1	317.5	1,167.0
2035	546.9	317.2	1,168.1
2036	547.5	316.9	1,169.1

Source: Durham County, Tyne & Wear and Northumberland data, Office for National Statistics, Sub-national population projections for England - 2016-based projections.

5.15 The population projections show that the population is expected to grow in County Durham, Northumberland and Tyne and Wear as a whole over the period to 2036, albeit at a significantly smaller rate than other parts of England. The population could grow at an increased rate through policy interventions, in particular through the growth in housing delivery.

5.16 It is considered that population growth provides only an indication of overall growth. It does not provide a direct indication of demand for aggregate minerals as consumption per head of population can vary significantly.

Major infrastructure and construction projects

5.17 Major projects or developments have the potential to have an impact on the supply of aggregate minerals over and above the levels experienced in previous years. Table 5.5 provides details of major schemes both within the Joint LAA area and in adjoining areas.

Table 5.5 Major development projects of note in the Joint LAA area and surrounding areas

Project	Location	Details	Timeframe	Demand for aggregates
Completed project or projects currently being constructed:				
A1 upgrade at Lobley Hill	Gateshead, Tyne and Wear	Upgrade of two junctions to include new parallel road links between the junctions and three lanes in each direction.	Construction summer 2014 to summer 2016.	Not known.
Morpeth Northern Bypass	Morpeth, Northumberland	3.8 km of new single carriageway road.	Construction commenced in Spring 2015 and was completed in April 2017.	216,000 tonnes of primary aggregates were supplied from Barrasford and Howick quarries in Northumberland and 5,000 tonnes of recycled material. In addition aggregate was used in the concrete supplied to the project.
A1 Leeming to Barton	North Yorkshire	12 mile section of dual carriageway to be replaced with a new three lane motorway.	Construction commenced in 2014 and was completed in 2018.	Quarries in the south of County Durham have contributed to supply for this project.
Waverley Line re-opening	Scottish Borders	Re-opening of a 30 mile section of the Waverley Line between Tweedbank and Newcraighall near Edinburgh.	Major construction works commenced in spring 2013 and were completed in summer 2015.	Understood materials supplied from quarries in Scotland. Therefore unlikely to influence on demand from Joint LAA area.
A19 Silverlink Junction improvements	North Tyneside, Tyne and Wear	Improvements to the A19/A1058 Coast Road junction by upgrading the existing grade separated roundabout to a three level interchange.	Construction commenced in 2016. Completion by March 2019.	Materials include 4,785 m ³ of concrete, 11,042 m ³ of sub-base, 1,454m ³ and 10,838 m ³ of bituminous material.
Potential future projects or projects yet to commence:				

Project	Location	Details	Timeframe	Demand for aggregates
A1 dualling in Northumberland	Northumberland	Upgrade 13 miles of existing single carriageway to dual carriageway between Morpeth and Felton and between Alnwick and North Charlton.	Construction to start in 2020 (Morpeth to Felton) and 2023 (Alnwick to North Charlton).	Not known. Likely to create demand from quarries in the north of Northumberland in particular.
A19 Testos and Downhill Junction improvements	South Tyneside, Tyne and Wear	It is planned to raise the A19 above the A184 on a flyover.	Development Consent Order submitted in Summer 2017. Construction could start in 2019 and be complete by 2021.	Graded aggregates 140,000 m ³ , asphalt 40,000 m ³ , concrete (<i>in situ</i>) 4,800 tonnes and pre-cast concrete 648 tonnes.
International Advanced Manufacturing Park (IAMP)	South Tyneside and Sunderland, Tyne and Wear.	Development of manufacturing site targeting the automotive and advanced low carbon manufacturing sectors on 150 hectares of land to the north of the Nissan car manufacturing plant alongside the A19.	Development Consent Order expected to be submitted 2018.	The first phase (IAMP One) was granted planning permission in May 2018. The Development Consent Order is now expected to be submitted in 2019.
A66 dualling	North Yorkshire, County Durham and Cumbria	Upgrade 15 miles of existing single carriageway to dual carriageway between A1(M) and M6.	Announcement made in 2016 Autumn Statement. No dates available.	Not known. Likely to create additional demand from quarries in the south of County Durham, including those along the A66 corridor.
A1 Newcastle Gateshead Western Bypass widening	Gateshead and Newcastle, Tyne and Wear	Widening of A1 to provide three lane carriageway between Birtley and Coal House and Brunton and Scotswood.	Construction to commence 2020.	Not known.
A19 Norton to Wynyard widening	Stockton on Tees, Tees Valley	Widening of existing dual carriageway to provide three lanes in each direction.	Work could commence in Spring 2020 and be completed by Spring 2022.	Not known.
Durham Western Relief Road	County Durham	New road linking the current B6302 at Broom Lane at Stone Bridge to the A691 adjacent to Sniperely Park & Ride. The route length is approximately 2.65 km in length.	Not known. Dependent on Local Plan adoption and funding.	Not known.

Project	Location	Details	Timeframe	Demand for aggregates
Durham Northern Relief Road	County Durham	Road linking the current Red House roundabout (near to Arnison Retail centre) to the A690 at Belmont (south of A1 Junction 62 Interchange). The route is approximately 3.35km in length.	Not known. Dependent on Local Plan adoption and funding.	Not known

5.18 Projects that were taking place in recent years have contributed to overall sales of aggregate minerals from quarries and wharves in the Joint LAA area. It is considered that that current projects identified that could place additional demand on aggregate minerals over and above the levels in the sales averages are limited and are unlikely to place significant additional demand for aggregate minerals over and above the levels experienced in the years prior to the economic downturn. It is, however, considered that there could be some local implications such as the A1 dualling project in Northumberland, which is expected to place additional demand from sites in the north of Northumberland.

General economic growth

5.19 General growth in the economy can be measured through projected growth in Gross Value Added (GVA). Projections for GVA growth over the longer-term are not widely available^(xx).

5.20 The UK Commission for Employment and Skills Working Futures 2012-2022 previously forecast that GVA will grow by 1.5% per year in North East England over the period from 2012 to 2022. Similarly, in March 2014, the North East Local Enterprise Partnership (NELEP) produced 'More and Better Job: the North East Strategic Economic Plan'. The Plan established the NELEP long term vision of a stronger North East economy. It has two key targets, to support the North East economy by delivering a 100,000 increase in the number of jobs available in the NELEP area by 2024, from a baseline of 900,000 jobs in 2013, an uplift of 11% on 2014; and to ensure 60% of the new jobs delivered are 'better' jobs – offering higher skilled, more productive and better quality opportunities to more people in the area. The Plan also seeks to increase GVA and employment in North East businesses, halving the gap between the North East and the national average (excluding London) and forecasts a 1.1% per annum growth in GVA between 2014-24. In contrast the Organisation for Economic Co-operation and Development (OECD) forecast GDP growth for the UK is currently at 1.5% in 2017.

5.21 Unfortunately, as explained above, GVA forecasts over the longer-term are not available for North East England as a whole or the individual sub-regions or local planning authority areas in North East England. While the above forecasts provided by the UK Commission for Employment and Skills and NELEP, provide a useful indication of forecast general growth in the economy, unfortunately the link between GVA growth and the demand for aggregate minerals is not clear. In isolation it is unlikely to provide a sound basis for preparing forecasts of demand for aggregate minerals.

Recommended method and provision

5.22 The information presented in this LAA indicates that the ten year sales average should not be used to identify the requirements for future provision in the Joint LAA area. In addition, consideration has also been given to pre-recession sales, pre-recession sales averages and the National and Regional Aggregate Supply Guidelines, however it is considered that these methods should also not

xx Projections for GVA growth over the longer-term are not widely available, but they can be purchased from suppliers such as Experian.

be used to identify the requirements for future provision in the Joint LAA area. Instead it is proposed that the three year sales average for the period 2015 to 2017 is used as the basis for calculating demand^(xxi). The three year sales average is higher than the ten year sales average reflecting that the latter includes a period of depressed sales over the period from 2009 to 2013 as a result of the economic downturn and that there has been a trend of increasing sales over the last three monitoring periods.

5.23 The approach that has been previously adopted by this LAA has been to take into account future economic growth by using housing growth within the the Joint LAA area and the Tees Valley sub-region. This has been on the basis that there is a linkage between house building and the requirements for aggregate minerals, particularly sand and gravel, and also a link between house building and requirements for other built infrastructure. However, as discussed above, it is not considered appropriate to use a housing based methodology to calculate the the annual demand requirement.

5.24 In terms of the other local factors that were explored above, it is concluded that the information does not indicate that additional provision over and above the three year sales average is required. Taking major infrastructure and construction projects as an example, there are no schemes identified that would result in a level of demand that are not reflected in the three year sales average where similar projects have taken place previously.

Proposed annual demand requirement

5.25 Table 5.6 sets out the recommended annual demand requirement. The figures in this table will be used to inform the scale of provision in Local Plans. These figures will be revisited each year through the preparation of the LAA to take account of the most up-to-date information on sales and changes to demand based on the local factors identified such as planned house building and major infrastructure and construction projects.

Table 5.6 Proposed annual demand requirement for land-won sand and gravel and crushed rock based upon the three year sales average (tonnes)

Sub area	Crushed rock	Sand and gravel
County Durham	2,799,000	303,000
Northumberland	1,650,000	420,000
Tyne and Wear	375,000	225,000
Total Across three sub-regions	4,824,000	948,000

xxi The exception to this is sand and gravel from Northumberland where it is proposed to use an average of sales in 2015 and 2016 as this more appropriately represents the more recent increase in demand that is over and above the ten year sales average.

6 Assessment of supply options

Land-won primary aggregates - County Durham

Crushed rock

6.1 County Durham is a regionally important source of crushed rock aggregate^(xxii) from the North East AWP cluster of MPAs, producing 59.17% of crushed rock from this cluster of MPAs over the period 2008 to 2017.

6.2 As at 31 December 2017 it is estimated that 130.74 million tonnes of permitted reserves of crushed rock for aggregate use remain to be worked in County Durham. Based on the demand forecast and the recommended annual provision from County Durham of 2.805 million tonnes, this equates to a landbank of permitted reserves of 46.6 years at 31 December 2017.

6.3 A quantitative assessment of the balance between supply and demand is set out below. Demand has been calculated using the recommended provision and in quantitative terms it can be seen that County Durham has sufficient permitted reserves of crushed rock to meet this identified demand over the sixteen year period to 2033 and the eighteen year period to 2035 (to align with the County Durham Plan period).

Table 6.1 Assessment of the balance between supply and demand for crushed rock from County Durham

	Forecast period 2018 to 2033 (16 years)	Forecast period 2018 to 2035 (18 years)
Permitted reserves at 31 December 2017	130,744,734 tonnes	130,744,734 tonnes
Ten year sales average 2008 to 2017	2,396,000 tonnes	2,396,000 tonnes
Annual demand forecast in LAA	2,799,000 tonnes	2,799,000 tonnes
Demand forecast 2018 to 2033	44,784,000 tonnes	53,181,000 tonnes
Landbank based on LAA provision	46.7 years	46.7 years
Balance between supply and demand 2018 to 2033 and 2018 to 2035	+85,961,000 tonnes	+77,564,000 tonnes

6.4 This analysis indicates that in quantitative terms County Durham does not need to seek to make any additional provision for crushed rock over the period to 2033 or 2035 as there are sufficient reserves with planning permission to deliver supply over the period to 2033 or 2035. However, this joint LAA has highlighted the following issues that need to be taken into account:

- A large part of the permitted reserves of crushed rock, in the region of 99.9 million tonnes on 31 December 2017, 77% are located within County Durham's ten magnesian limestone quarries. It is understood that a significant proportion of these permitted reserves are contained within seven sites (Old Quarrington and Cold Knuckles Quarry, Thrislington Quarry West, Thrislington Quarry East, Cornforth West Quarry, Cornforth East Quarry, Coxhoe Quarry and Bishop Middleham Quarry). The remaining permitted reserves being located within the three remaining quarries (Crime Rigg Quarry, Witch Hill Quarry and Running Waters Quarry). On 31 December 2017 it is estimated that only 11.395 million tonnes, 9% of the permitted reserves of crushed rock in County Durham are located within the County's four carboniferous limestone sites, (Hulands Quarry, Heights Quarry, Broadwood Quarry and Kilmond Wood Quarry) and it is

xxii Prior to the recession in 2008 it is understood that County Durham produced approximately 2 to 2.5 million tonnes of magnesian limestone aggregate, approximately 900,000 tonnes of carboniferous limestone and approximately 250,000 tonnes of dolerite every year.

estimated that only 18.166 million tonnes, 14% of the the permitted reserves of crushed rock in County Durham are located within the County's one dolerite site (Force Garth Quarry)^(xxiii). In addition it is also understood that further permitted reserves (which are not included within the landbank) also exist at a number of other dormant/Interim Development Order quarries which require a new schedule of working and restoration conditions to be issued by the Mineral Planning Authority before working could resume and permitted reserves could be included within the landbank.

- A number of the crushed rock aggregate sites in County Durham are currently inactive and some have not been worked for some years. The following magnesian limestone quarries are currently inactive Witch Hill Quarry, Running Waters Quarry, Cornforth West Quarry and Cornforth East Quarry. However, it should be noted the Council has been approached by mineral operators to agree new schemes of working at Witch Hill Quarry and at Cornforth West and Cornforth East Quarry's. In addition, it should be noted that the Council is also considering an application to agree new schemes of working and restoration at Hawthorn Quarry.
- The current planning permission for mineral extraction at a number of the magnesian limestone quarries in County Durham have end dates before 2030. These are Thrislington Quarry West in 2015, Coxhoe Quarry in 2018 and Crime Rigg Quarry in 2022. It is recognised that the reserves within some of these sites will not be exhausted before the end date of the current planning permissions. However, it should be noted that in October 2017 members resolved to grant planning permission to extend the time period of working at Thrislington Quarry West. Similarly, in February 2018 members resolved to grant planning permission to extend the time period for the working of Coxhoe Quarry.
- In terms of sales it is also understood that many of County Durham's quarries, in particular a number of the magnesian limestone quarries, have the ability to produce significantly more crushed rock aggregate than that has been achieved over the last ten year's.
- The uncertainty over the future of County Durham's one dolerite quarry, (Force Garth Quarry) is almost resolved. While the periodic review of this site under the Environment Act is ongoing the County Council has now concluded the Regulation 63 Review under the Conservation of the Habitats and Species Regulations 2010 (as amended). It has been concluded that the proposed working will have some affect but no likely significant effect on the integrity of the European designated sites either alone of in combination with other mineral consents.

6.5 While the crushed rock landbank for County Durham is relatively large and does not indicate a requirement for the release of additional reserves, the issues highlighted above must be considered through work to prepare the emerging Local Plan. The future planning policy strategy for County Durham will need to ensure that sufficient permitted reserves of crushed rock of the right type are available to ensure that a steady and adequate supply of crushed rock aggregate is maintained. In this regard the emerging County Durham Plan reached its Pre-Submission stage in January 2018. Reflecting, the requirement to ensure that the sufficient permitted reserves of crushed rock of the right type are available to ensure that a steady and adequate supply of crushed rock aggregate is maintained, and the composition of the crushed rock landbank the emerging plan identifies a need for the release of a further 14.3 million tonnes of carboniferous limestone over the Plan period^(xxiv).

xxiii The figure which is included within the Joint LAA relating to Force Garth Quarry relates only to the current approved working scheme area.

xxiv The emerging plan calculation was based upon the information contained within the previous Joint LAA published April 2018. Using the figures within this Joint LAA this calculation can be updated to 14.7 million tonnes. This calculation is based upon the current extent of permitted reserves of carboniferous limestone on the 31 December 2017, which is 11,395,000 tonnes and seeks to ensure that a steady and adequate supply of carboniferous limestone can be maintained throughout the plan period to 2035. The forecast is based upon a maximum forecast sales target of 900,000 tonnes per annum which is in excess of the maximum level of carboniferous limestone sales in recent years which was calculated at just under 800,000 tonnes in 2015.

6.6 As a rural County located between both Tyne and Wear to the north and the Tees Valley to the south it is recognised that County Durham has traditionally had a role in supplying crushed rock aggregate into areas outside of County Durham where the resources are less abundant and where there is significant demand. In this respect it is recognised that on the basis of the extent of existing permitted reserves and what is understood in relation to the productive capacity of existing sites in the County, County Durham's crushed rock sites will continue to make a significant contribution to meeting the needs of both surrounding sub-regions.

6.7 In order to ensure the long term potential for future provision within County Durham economically important crushed rock resources shall be safeguarded through the Local Plan.

Sand and gravel

6.8 County Durham provides a regionally important contribution to the provision of land-won sand and gravel from the North East AWP cluster of MPAs, producing around 28.47% of land-won sand and gravel from this cluster of MPAs over the period 2008 to 2017.

6.9 As at 31 December 2017, 7.1 million tonnes of permitted reserves remained to be worked in County Durham. Based on a recommended annual provision from County Durham of 303,000 tonnes, this equates to a landbank of permitted reserves of 23.5 years at 31 December 2017.

6.10 A quantitative assessment of the balance between supply and demand is set out below. Demand has been calculated using the recommended provision and in quantitative terms it can be seen that County Durham has sufficient permitted reserves to meet this identified demand over the sixteen year period to 2033 and the eighteen year period to 2035 (to align with the County Durham Plan period).

Table 6.2 Assessment of the balance between supply and demand for sand and gravel from County Durham

	Forecast period 2018 to 2033 (16 years)	Forecast period 2018 to 2035 (18 years)
Permitted reserves at 31 December 2017	7,113,000 tonnes	7,113,000 tonnes
Ten year sales average 2008 to 2017	238,000 tonnes	238,500 tonnes
Annual demand forecast in LAA	303,000 tonnes	303,000 tonnes
Demand forecast	4,848,000 tonnes	5,454,000 tonnes
Landbank based on LAA provision	23.5 years	23.5 years
Balance between supply and demand	+2,265,000 tonnes	+1,659,000 tonnes

6.11 This analysis indicates that in quantitative terms the prospects for maintaining supply over the period to 2033 and 2035 is very good. It is, therefore, considered that no additional provision for sand and gravel supply from County Durham is required in the short to medium-term. However, the requirement for additional provision in the long term is will need to be kept under review through work to review the Joint Local Aggregate Assessment on an annual basis. A variety of factors may influence future provision requirements. For example, in the past several operators have reviewed the extent of permitted reserves within individual sites and it is realised that such reviews can and have in the past had an impact upon the future availability of permitted reserves and the landbank length. In addition, it is also recognised that one of the County's sand quarries has a planning permission end date in five years time and if permitted reserves remain unworked at that time, then

those permitted reserves may become unavailable and may not be worked^(xxv). It is also recognised that if production rates significantly increases the permitted reserves in the County would be depleted more rapidly. On this basis it is recommended that local development plan policies incorporate a degree of flexibility to maintain supply and in order to maintain an appropriate landbank over the long-term. This could be achieved by Durham County Council seeking to allocate land for longer term working in the Council's forthcoming Minerals and Waste Policies and Allocations Document.

6.12 As a rural County located between both Tyne and Wear to the north and the Tees Valley to the south it is recognised that County Durham has traditionally had a role in supplying sand and gravel into areas outside of County Durham where the resources are less abundant and where there is significant demand. In this respect it is recognised that on the basis of the extent of existing permitted reserves and what is understood in relation to the productive capacity of existing sites in the County, County Durham's sand and gravel quarries may be able to make a greater contribution than in the past to the supply of sand and gravel into both surrounding sub-regions. It is also recognised that if this were to occur, this may ensure that the North East Region as a whole becomes more self sufficient and may in combination with some production of sand and gravel from the Tees Valley reduce the level of imports into North East England as a whole from surrounding regions.

6.13 No marine dredged sand and gravel is currently supplied into County Durham from ports in Durham. This is not expected to change given the established role of wharfs on the River Tyne and River Tees.

6.14 In order to ensure the long term potential for future provision within County Durham economically important sand and gravel resources shall be safeguarded through the Local Plan.

Land-won primary aggregates - Northumberland

6.15 This section includes the analysis of supply for both Northumberland County Council and Northumberland National Park Authority.

Crushed rock

6.16 Northumberland is an important source of igneous rock for aggregate use and this represents the most important crushed rock resource extracted in Northumberland. Sales of igneous rock make up about 90% of the annual sales of crushed rock from Northumberland for aggregate use. Within the Joint LAA area and the North East AWP cluster there is currently only one other active quarry extracting this resource (Force Garth Quarry in Teesdale, County Durham). Carboniferous limestone accounts for the remaining 10% of sales and, as a product of Northumberland's geology, a significant proportion of this extracted at quarries alongside igneous rock.

6.17 As at 31 December 2017 it is estimated that 81 million tonnes of permitted reserves of crushed rock for aggregate use remained to be worked in Northumberland. Based on the demand forecast and the recommended annual provision from Northumberland of 1.65 million tonnes, this equates to a landbank of permitted reserves of 49.1 years at 31 December 2017.

6.18 A quantitative assessment of the balance between supply and demand is set out below. Demand has been calculated using the recommended provision and in quantitative terms it can be seen that Northumberland has sufficient permitted reserves of crushed rock to meet this identified demand over the period to 2036^(xxvi).

xxv Planning permission for sand extraction is due to end at Crime Rigg Quarry on 31 December 2022.

xxvi This is in line with the end date of the emerging Northumberland Local Plan. The end date of the emerging Northumberland National Park Local Plan is 2037.

Table 6.3 Assessment of the balance between supply and demand for crushed rock for aggregate use from Northumberland

Permitted reserves at 31 December 2017	81,015,832 tonnes
Ten year sales average 2008 to 2017	1,365,000 tonnes
Annual demand forecast in LAA	1,650,000 tonnes
Demand forecast from 2018 to 2036	31,350,000 tonnes
Landbank based on LAA provision	49.1 years
Balance between supply and demand form 2018 to 2036	+49,665,832 tonnes

6.19 When considered in isolation, the reserve and landbank figures indicate that Northumberland does not need to seek to make any additional provision for crushed rock over the period to 2036 as there are sufficient reserves with planning permission in Northumberland as a whole to deliver supply to meet the level of demand forecast over the plan period. However, this does not consider a number of other matters that need to be taken into account when planning for future aggregates provision to ensure a steady and adequate supply of crushed rock is maintained from Northumberland.

6.20 The issues that this joint LAA has highlighted need to be taken into account are:

- A large part of the permitted reserves of crushed rock in Northumberland, in the region of 65%, are contained within a single site in the south and west of Northumberland;
- The current planning permissions for five of the quarries in Northumberland have end dates before 2036 (but it is recognised that the reserves within these sites may not be exhausted by the current end date of these permissions);
- The permitted reserves within some individual quarries are projected to be exhausted before 2036;
- The desirability to have some balance in supply from resource areas in the north and east of Northumberland and resource areas in the south and west of Northumberland; and
- One site located within the Northumberland National Park produces material that is valued for its red colour.

6.21 While the crushed rock landbank for Northumberland is relatively large and does not indicate a requirement for the release of additional reserves, the issues highlighted above must be considered. The future planning policy strategy for Northumberland and decisions on individual planning applications will need to ensure provision for crushed rock is made to address these issues in order to maintain productive capacity and ensure a steady and adequate supply is maintained. As there are significant reserves with planning permission it would appear appropriate to allow some flexibility in the policy approach for crushed rock in Northumberland to deal with the issues highlighted and maintain supply from a range of sites in both the south and west of Northumberland and the north and east of Northumberland.

6.22 In respect of the Northumberland National Park, it is recommended that future provision for extraction should be made outside the National Park where practical, recognising the resource that is available outside of this area with a large level of permitted reserves. However, it is recognised that the material extracted at Harden Quarry has special characteristics, is valued for its red colour and is not found elsewhere in Northumberland. While there is a large landbank for crushed rock in Northumberland, consideration should be given whether the need for the material found at the site outweighs any potential adverse effects on the purposes and special qualities of the National Park. The current planning permission for the site allows for extraction until 2029 with an anticipated output of up to 150,000 tonnes per annum. Any future proposals for this site would need to consider the

balance between the provision of the material from this site, the need for the material and the availability of alternatives in less sensitive locations. To ensure that the crushed rock resource within the Northumberland National Park is not needlessly sterilised by non-mineral development and is protected over the long-term, this resource shall be safeguarded in the local plan.

Sand and gravel

6.23 Northumberland provides an important contribution to the provision of land-won sand and gravel from the both the Joint LAA area and the North East AWP cluster of MPAs, producing 49% of land-won sand and gravel from the Joint LAA area between 2008 to 2017.

6.24 As at 31 December 2017 it is estimated that 5.41 million tonnes of permitted reserves remained to be worked in Northumberland. Based on the demand forecast and a recommended annual provision from Northumberland of 420,000 tonnes, this equates to a landbank of permitted reserves of 12.9 years at 31 December 2017.

6.25 A quantitative assessment of the balance between supply and demand is set out below. Demand has been calculated using the recommended provision and in quantitative terms it can be seen that Northumberland has a shortfall in permitted reserves of sand and gravel to meet this identified demand over the period to 2036^(xxvii).

Table 6.4 Assessment of the balance between supply and demand for sand and gravel for aggregate use from Northumberland

Permitted reserves at 31 December 2017	5,410,000 tonnes
Ten year sales average 2008 to 2017	408,000 tonnes
Annual demand forecast in LAA	420,000 tonnes
Demand forecast from 2018 to 2036	7,980,000 tonnes
Landbank based on LAA provision	12.9 years
Balance between supply and demand from 2018 to 2036	-2,570,000 tonnes

6.26 As a result of the identified shortfall in supply over the latter part of the period to 2036, it is recommended that additional provision for sand and gravel from Northumberland is made in the local plan and given appropriate weight to the identified shortfall when determining individual proposals. There are known resources of sand and gravel within Northumberland that are suitable for aggregate use that could meet this demand, although the environmental acceptability of extracting these resources has yet to be tested. Marine sand and gravel imported via the Port of Blyth will also make a contribution in the future.

6.27 In respect of the Northumberland National Park, provision of sand and gravel should be made outside of this area in line with the NPPF. There are currently no sand and gravel quarries in the Northumberland National Park and no sand and gravel for aggregate use is currently produced from this MPA area. To ensure that the sand and gravel resource within the Northumberland National Park is not needlessly sterilised by non-mineral development and is protected over the long-term, this resource shall be safeguarded in the local plan. Co-operation with the other MPAs in the North East AWP cluster, particularly Northumberland County Council, will be required to ensure the provision

xxvii This is in line with the end date of the emerging Northumberland Local Plan. The end date of the emerging Northumberland National Park Local Plan is 2037.

can be made from areas outside the National Park and that do not have a significant adverse effect on the purpose and special qualities of the Northumberland National Park taking account of other relevant factors such as the need for the mineral.

Land-won primary aggregates - Tyne and Wear

6.28 This section includes the analysis of supply for Gateshead, Newcastle, North Tyneside, South Tyneside and Sunderland.

Crushed rock

6.29 Crushed rock within the Tyne and Wear sub-region is supplied from South Tyneside and Sunderland as this is where the resource is found. Both South Tyneside and Sunderland provide only a relatively small contribution to the provision of crushed rock aggregate from the Joint LAA area, producing on average around 7.1% of crushed rock aggregate from the Joint LAA area between 2008 to 2017.

6.30 As at 31 December 2017 it is estimated that approximately 7,000,000 tonnes^(xxviii) of permitted reserves remained to be worked in Tyne and Wear. Based on a recommended annual provision from Tyne and Wear of 375,000 tonnes, this equates to a landbank of permitted reserves of 18.7 years at 31 December 2017. The equivalent landbank based on the ten year sales average is 24.3 years at 31 December 2017.

6.31 A quantitative assessment of the balance between supply and demand is set out below. Demand has been calculated using the recommended provision and in quantitative terms it can be seen that Tyne and Wear has permitted reserves of crushed rock to meet this identified demand over the period to 2033.

Table 6.5 Assessment of the balance between supply and demand for crushed rock from Tyne and Wear

Permitted reserves at 31 December 2017	7,000,000 tonnes ⁽¹⁾
Ten year sales average 2008 to 2017	288,000 tonnes ⁽²⁾
Annual demand forecast in LAA	375,000 tonnes
Demand forecast 2017 to 2033	6,000,000 tonnes
Landbank based on LAA provision	18.7 years
Balance between supply and demand 2017 to 2033	1,000,000 tonnes

1. Note: Crushed rock reserve and sales are based on Mineral Planning Authority estimates.

2. Note: Crushed rock reserve and sales are based on Mineral Planning Authority estimates.

6.32 Supply from within Tyne and Wear is currently restricted to just two quarries, Eppleton Quarry in Sunderland and Marsden Quarry in South Tyneside. In the short-term it is understood that these two quarries will have sufficient productive capacity to meet the annual demand forecast recommended. However, in the medium-term it is anticipated that the permitted reserves at Marsden Quarry will be exhausted and Eppleton Quarry, with an estimated productive capacity of 250,000 tonnes per annum, does not have the productive capacity to meet the provision recommended in this LAA.

xxviii The reserve figure for Tyne and Wear is based on Mineral Planning Authority estimates.

6.33 It is, therefore, recommended that Local Plans and in decisions on planning applications should, in principle, support additional areas for extraction where environmentally acceptable. This is considered necessary in order to avoid a reliance on supply from a single site, avoiding limiting the future scale of production to that of Eppleton Quarry as well as helping to ensure that an appropriate contribution to local and wider needs is made. The scale of provision should be to a level of at least that in the LAA.

6.34 If new or extended quarries that are environmentally acceptable cannot be identified, future demand for crushed rock aggregate from Tyne and Wear will need to be met from alternative sources. Due to geography, this is likely to place additional pressure on resources in County Durham and Northumberland. It is important that consideration is given to provision for the supply of crushed rock given that markets in Tyne and Wear represent a major source of demand for these materials from quarries in both County Durham and Northumberland.

6.35 In order to ensure the long-term potential for future provision within Tyne and Wear the economically important crushed rock resources shall be safeguarded in the relevant local plans and given appropriate policy protection.

Sand and gravel

6.36 Sand is currently only supplied from one quarry, Eppleton Quarry in Sunderland, within the Tyne and Wear sub-region. Nonetheless this provides a regionally important contribution to the provision of land-won sand and gravel from the Joint LAA area, producing approximately 22.8% of land-won sand and gravel from the Joint LAA area over the period 2008 to 2017.

6.37 As at 31 December 2017, 6,200,000 tonnes of permitted reserves are estimated to be remaining to be worked in Tyne and Wear. Based on a recommended annual provision from Tyne and Wear of 225,000 tonnes, this equates to a landbank of permitted reserves of 27.6 years at 31 December 2017. A quantitative assessment of the balance between supply and demand is set out below. Demand has been calculated using the recommended provision and in quantitative terms it can be seen that Tyne and Wear currently has sufficient permitted reserves of sand and gravel to meet this identified demand over the period to 2033.

Table 6.6 Assessment of the balance between supply and demand for sand and gravel from Tyne and Wear

Permitted reserves at 31 December 2017	6,200,000 tonnes ⁽¹⁾
Ten year sales average 2007 to 2016	191,000 tonnes ⁽²⁾
Annual demand forecast in LAA	225,000 tonnes
Demand forecast 2017 to 2033	3,600,000 tonnes
Landbank based on LAA provision	27.6 years
Balance between supply and demand 2017 to 2033	2,600,000 tonnes

1. Note: Sand and gravel reserve and sales figures are based on Mineral Planning Authority estimates.

2. Note: Sand and gravel reserve and sales figures are based on Mineral Planning Authority estimates

6.38 While it is recognised that Eppleton Quarry has the productive capacity to meet the required annual provision, supply is nonetheless restricted to a single site in an area that is a major source of demand. It is, therefore, recommended that Local Plans and decisions on planning applications should, in principle, support additional areas for extraction where environmentally acceptable. This is considered necessary in order to avoid a reliance on supply from a single site, avoiding limiting the

future scale of production to that of Eppleton Quarry or even the eventual cessation of the extraction of this resource from this area as well as helping to ensure that an appropriate contribution to local and wider needs is made.

6.39 If additional environmentally acceptable new or extended sand and gravel sites cannot be identified, future demand for sand and gravel from Tyne and Wear will need to be met by a combination of marine dredged aggregates and from sites quarries in adjoining areas such as County Durham and Northumberland, which already make a significant contribution to supply. Until it can be demonstrated that there are no further environmentally acceptable sites remaining in Tyne and Wear further working must be given consideration.

6.40 In order to ensure the long-term potential for future provision from within Tyne and Wear, the relevant authorities will seek to safeguard economically important sand and gravel resources in their local plans.

Marine dredged sand and gravel

6.41 The closest areas licenced for the dredging of marine aggregates from North East England are in the Humber dredging area. Information provided by The Crown Estate shows that within the Humber dredging area 5.05 million tonnes of material is permitted for extraction each year under existing licences. The Crown Estate identify that over the ten year period between 2002 and 2011 an average of 76% of the permitted has been dredged and there is an opportunity to supply approximately 2.1 million tonnes of extra material each year^(xxix). The Crown Estate also identify that there are permits to supply a further 8.46 million tonnes each year from this dredging area.

6.42 The existing wharf infrastructure in Joint LAA area is well established and these wharves have capacity to deal with the tonnages currently delivered there as well as any future increase in the tonnages of marine aggregates delivered. In 2017 marine sand and gravel was imported via the Port of Blyth in Northumberland and Jarrow Wharf on the River Tyne in South Tyneside. The wharves at Gateshead (inactive since 2011), Howdon (inactive since 2014) and Port of Sunderland were inactive. In addition, the LAA recognises that the port facilities at Berwick-upon-Tweed in Northumberland and Seaham in County Durham have the potential to land marine aggregates.

6.43 Supply of marine sand and gravel is therefore likely to be maintained and there is also the scope for it to increase. There is capacity at the wharf sites within the Joint LAA area and there is understood to be resource available in the Humber dredging area that could supply the Joint LAA area. These supplies are an important source of concreting sand, particular to main markets in Tyne and Wear where there is a reliance on imports to meet the level of demand.

6.44 Given the importance of marine dredged aggregates to the overall supply of sand and gravel in North East England the existing marine wharves shall be safeguarded in the relevant local plans to ensure there is long-term capability and capacity to import marine dredged sand and gravel into North East England.

Imports of crushed rock by sea

6.45 Imports of crushed rock via the wharves in the Joint LAA area are make a small but important contribution to supply (less than 100,000 tonnes in 2017).

6.46 The established wharf infrastructure in the Joint LAA is understood to have capacity to deal with the tonnages currently delivered. In 2016 crushed rock was landed on the River Tyne at Hayhole Road Wharf in North Tyneside and the Port of Tyne in South Tyneside. Rock has been imported via the Port of Blyth in Northumberland and the Port of Sunderland in previous years but not during 2017.

xxix See The Crown Estate. Minerals Planning Briefing Note: Marine Aggregate Opportunities, Region: Humber. Issue 3. May 2012

6.47 Supply of crushed rock is therefore likely to be maintained and there is also the scope for it to increase. There is capacity at the wharf sites within the Joint LAA area and no particular issues with the sources of supply have been noted.

6.48 Also given the contribution to the overall supply of crushed rock, particular the areas of higher demand, the existing wharves shall be safeguarded in the relevant local plans to ensure there is long-term capability and capacity to import crushed rock into North East England.

Recycled and secondary aggregates

6.49 Information provided by the Mineral Products Association at a national level estimates that recycled and secondary materials account for 28% of the aggregates market^(xxx).

6.50 In the Joint LAA area, the main sources of recycled aggregate are from construction and demolition waste. A number of fixed sites that recycle such materials for aggregate uses are found in County Durham, Northumberland and Tyne and Wear (see Appendix B).

6.51 In Northumberland, ash from Lynemouth Power Station is an important source of secondary aggregate. While the power station has been converting to use biomass as its primary fuel rather than coal there has been no supply of this material for aggregate uses during 2017. Notwithstanding this it is anticipated that the existing ash material stored on the site can be extracted and used as a secondary aggregate in the future and supplied at rates at least equivalent to those in previous years.

6.52 Due to the uncertainties regarding the quantities of recycled materials used to produce aggregates as a result of data issues, it is not proposed to amend the demand forecast for the Joint LAA to reflect the contribution of these materials to overall supply. It is, however, assumed that recycled and secondary aggregate will continue to provide a proportion of overall supply from the Joint LAA area.

Imports

6.53 The most significant movements of primary aggregates within the Joint LAA area and to/from the Joint LAA have been identified as:

- Supply of crushed rock and sand and gravel from North Yorkshire northwards to the south of County Durham (and also to Tees Valley, which is outside of the Joint LAA area); and
- Supply of primary aggregates from County Durham and Northumberland to Tyne and Wear and, in respect of County Durham to the Tees Valley.

6.54 Other important and notable cross-boundary movements have also been identified:

- Supply of marine sand and gravel from wharf sites on the River Tyne;
- Movements from Cumbria into the Joint LAA area; and
- Supply of crushed rock from a quarry in the Northumberland National Park to a range of destinations (although the tonnages are not significant in both sub-regional and regional terms).

xxx Mineral Products Association (2016). *The Mineral Products Industry at a Glance: 2016 Edition*. Available at: http://www.mineralproducts.org/documents/Mineral_Products_Industry_At_A_Glance_2016.pdf

6.55 The most significant imports of aggregates into the Joint LAA area is recorded as land-won sand and gravel and crushed rock from North Yorkshire to County Durham, reflecting the availability of good quality resources in the northern part of North Yorkshire that are in close proximity to the southern part of County Durham. Previous and ongoing discussions and liaison with North Yorkshire County Council during the preparation of this LAA have indicated that this pattern of supply is expected to continue. It has also been highlighted that there has been a reduction in the tonnages supplied northwards from North Yorkshire over the last 10 years or so. A declining level of permitted reserves in the northern part of North Yorkshire may have an impact on supply in the medium to long-term and the implications of this will be kept under review through the LAA.

6.56 Imports of marine sand and gravel also make an important contribution to the supply of sand and gravel aggregate to the Joint LAA area. Wharfs on the River Tyne and in Sunderland are important for the supply of aggregates to Tyne and Wear. They are also important in terms of supplying material further afield as well.

6.57 Within the Joint LAA it has been identified that there are significant movements between rural areas and the urban areas where a greater demand for these materials exists. As rural counties, County Durham and Northumberland have traditionally had a role of supplying crushed rock and sand and gravel for aggregate use to the Tyne and Wear conurbation where there is significant demand and suitable resources are less abundant. In addition, County Durham has had a role in supplying aggregates south to the Tees Valley sub-region for similar reasons. This pattern of supply is expected to continue but it is recognised that there may be more pressure in the future for the supply of aggregates from County Durham and Northumberland if permitted reserves are not replenished within Tyne and Wear.

7 Conclusions and recommendations

Supply

Crushed rock supply

7.1 The analysis in this LAA has indicated that there are good prospects of crushed rock supply being maintained. However, the ability to maintain supply to meet the recommended levels of provision is dependent on the capability of the quarries to maintain productive capacity. This will be dependent on some quarries gaining consent to extend the time period for extraction to enable all the permitted reserves to be recovered and/or releasing additional reserves through extensions to the working areas of existing quarries or new quarries where it could be demonstrated that this course of action is necessary to maintain an adequate overall productive capacity.

County Durham

7.2 In the County Durham sub-regional area, it is recognised that there are significant permitted reserves of crushed rock which will be available to meet future supply requirements, which equates to a landbank of 46.7 years as calculated using the recommended provision of 2.799 million tonnes^(xxxii). This means that the prospects for maintaining supply over the period to 2033 is very good. The majority of permitted reserves in County Durham are concentrated in ten magnesian limestone quarries which are well related to the main market areas in County Durham and Tyne and Wear, with remaining permitted reserves concentrated in four carboniferous limestone quarries and one dolerite quarry. It has previously been recognised by the Council that there is a potential shortfall in permitted reserves of carboniferous limestone and that further provision is necessary in order to maintain the level of supply of this particular resource. However, part of this forecast shortfall has now been met following the decision of the Council to grant a five million tonne extension to Kilmond Wood Quarry in 2016. In addition, in relation to dolerite extraction at Force Garth Quarry the County Council has now completed the Regulation 63 Review and it has been concluded that the proposed working will have some affect but no likely significant effect on the integrity of European designated sites either alone or in combination with other mineral consents. Accordingly, this will now allow the periodic review to be completed. An extension of time for the determination of the periodic review has been agreed until October 2018.

7.3 Of the 15 crushed rock quarries in County Durham it is recognised that a large percentage of all permitted reserves are concentrated in eight quarries^(xxxii). With the exception of Force Garth Quarry, which works dolerite and is located in upper Teesdale all of these quarries are magnesian limestone quarries and are well related to the main market areas which County Durham supplies into including Tyne and Wear. It has also been previously been recognised that some of the permitted reserves in County Durham are located in sites which are inactive, and a number of sites have end dates for extraction before 2033. However, these issues are now being addressed at some sites, through the normal development management processes and it is expected that working could resume at a number of inactive quarries within the next three to five years. It is also recognised that many of the sites in County Durham, where permitted reserves remain have a significant productive capacity, which has not been reflected in recent sales. On this basis there is potential for sites in County Durham to respond positively to future increases in demand, as has been demonstrated by their ability to do so in recent years.

7.4 The local plan process will need to ensure that a steady and adequate supply of crushed rock can be maintained in the longer term. In particular, it is recommended that consideration is given to identifying and releasing additional reserves of carboniferous limestone to maintain supply over the

xxxii The equivalent landbank based on the ten year sales average is 54.6 years at 31 December 2017

xxxii Coxhoe (Raisby) Quarry, Old Quarrington and Cold Knuckles Quarry, Thrislington Quarry West, Thrislington East Quarry, Cornforth West Quarry, Cornforth East Quarry, Bishop Middleham Quarry and Force Garth Quarry.

long-term where environmentally acceptable. In quantitative terms it is calculated that an additional 5.7 million tonnes of carboniferous limestone will be required to be permitted to meet need to 2035 (the intended time period of the County Durham Plan), with a further 9 million tonnes of carboniferous limestone being required to meet longer term need and prevent the exhaustion of all permitted reserves by 2035. It is also recommended that, in line with national planning policy that additional provision as far as practical should be sought from outside of the North Pennines Area of Outstanding Natural Beauty. It is recommended that consideration should be given on how the ongoing supply of magnesian limestone can be maintained in the long term, including by ensuring the full recovery of permitted reserves of magnesian limestone by allowing extraction to continue at existing sites where permitted reserves remain when planning permission is due to end. A key consideration which will need to be addressed through the local development plan process is whether further working of magnesian limestone can be justified and found environmentally acceptable given the extent of existing permitted reserves, lack of need for further working and the significant potential productive capacity of existing sites.

Northumberland (Northumberland County and Northumberland National Park)

7.5 In the Northumberland sub-regional area, it is recognised that, while the landbank of permitted reserves is relatively large, significant reserves are contained within a single quarry in the south and west of Northumberland, five of the current quarries have end dates before 2036 and the permitted reserves within a number of quarries are likely to be exhausted by 2036^(xxxiii). The Northumberland Local Plan (covering the area outside of the Northumberland National Park) and decisions on planning applications will need to ensure provision is made to address these issues where this is environmentally acceptable in order to maintain productive capacity and ensure a steady and adequate supply is maintained. In the Northumberland National Park, Harden Quarry produces a crushed rock aggregate that is particularly valued for its red colour. The current planning permission will provide continuity of supply from this site until 2029. In the longer-term consideration needs to be given through the local plan process as to whether it would be appropriate to allow this site to continue when reserves are exhausted by means an extension to the site or an extension of time if the reserves are not exhausted by the current end date. A key consideration would be whether the need for the material outweighs the potential adverse effects on the purposes and special qualities of the Northumberland National Park.

Tyne and Wear (Gateshead, Newcastle, North Tyneside, South Tyneside and Sunderland)

7.6 In the Tyne and Wear sub-regional area supply is currently restricted to just two quarries, Eppleton Quarry in Sunderland and Marsden Quarry in South Tyneside. In the short-term it is understood that these two quarries will have sufficient productive capacity to meet the meet the annual provision recommended. However, in the medium-term it is anticipated that the permitted reserves at Marsden Quarry will be exhausted and Eppleton Quarry, with an estimated productive capacity of 250,000 tonnes per annum, does not have the productive capacity to meet the provision recommended in this LAA. Therefore, the relevant Local Plans and decisions on planning applications should, in principle, support additional areas for extraction where environmentally acceptable to avoid a reliance on supply from a single site, avoiding limiting the future scale of production and to help ensure that an appropriate contribution to local and wider needs is made.

Sand and gravel supply

7.7 In general terms prospects for supply of land-won sand and gravel in this joint LAA area are relatively good but this is dependent on additional permitted reserves being released to ensure supply over the long-term and capability of the quarries to maintain productive capacity.

xxxiii This is in line with the end date of the emerging Northumberland Local Plan. The end date of the emerging Northumberland National Park Local Plan is 2037.

County Durham

7.8 It is recognised that County Durham makes a sizeable contribution to the supply of land-won sand and gravel in North East England. It is also recognised that there are significant permitted reserves of sand and gravel which will be available to meet future supply requirements, which equates to a landbank of 23.5 years as calculated using the recommended provision of 303,000 tonnes^(xxxiv). This means that the prospects for maintaining supply over the period to 2033 are very good. Following the commencement of working at Low Harperley in August 2016 and a resumption of working at Old Quarrington and Cold Knuckles Quarry in 2017 County Durham now has four working sand and gravel quarries. It is, therefore, considered that no additional provision for sand and gravel supply from County Durham is required in the short to medium-term. It is also recognised that if production rates significantly increases the permitted reserves in the County would be depleted more rapidly. However, this will need to be kept under review through work to review the Joint Local Aggregate Assessment on an annual basis.

7.9 It is recommended that local development plan policies incorporate a degree of flexibility to maintain supply and in order to maintain an appropriate landbank over the long-term. This could be achieved by Durham County Council seeking to allocate land for further longer term working in the Council's forthcoming Minerals and Waste Policies and Allocations Document. It is also recognised that, on the basis of the extent of permitted reserves and the productive capacity of the quarries, County Durham may be able to make a greater contribution to the supply of land-won sand and gravel to the Tyne and Wear sub-region to the north and the Tees Valley sub-region to the south in addition to being increasingly self-sufficient.

Northumberland (Northumberland County and Northumberland National Park)

7.10 It is recognised that the Northumberland sub-region makes a significant contribution to the supply of land-won sand and gravel in North East England. The analysis has highlighted that permitted reserves are available to maintain supply in the short-term but there is likely to be a shortfall in the medium to long-term. It is also recognised that a number of the existing quarries have end dates prior to 2036^(xxxv). The Northumberland Local Plan and decisions on planning applications (in the area outside of the Northumberland National Park) should, therefore, support in principle identifying and releasing additional reserves to maintain supply over the long-term where the proposals are environmentally acceptable. This will also be necessary to maintain an appropriate landbank of reserves within Northumberland over the long-term. It is also recommended that, in line with national planning policy, additional provision should be sought outside of the Northumberland National Park unless there are exceptional circumstances.

Tyne and Wear (Gateshead, Newcastle, North Tyneside, South Tyneside and Sunderland)

7.11 In the Tyne and Wear sub-regional area, there is now only one site supplying sand following closure of the other sand and gravel quarries in Gateshead. While Eppleton Quarry has the productive capacity to meet the required annual provision, supply is restricted to a single site in an area. It is, therefore, recommended that Local Plans and decisions on planning applications should, in principle, support additional areas for extraction where environmentally acceptable. This is considered necessary in order to avoid a reliance on supply from a single site, avoiding limiting the future scale of production to that of Eppleton Quarry or even the eventual cessation of the extraction of this resource from this area as well as helping to ensure that an appropriate contribution to local and wider needs is made.

xxxiv The equivalent landbank based on the ten year sales average is 29.84 years at 31 December 2017.

xxxv This is in line with the end date of the emerging Northumberland Local Plan. The end date of the emerging Northumberland National Park Local Plan is 2037.

Marine aggregate supply

7.12 Marine dredged sand and gravel makes a significant contribution to the overall provision of sand and gravel in the Joint LAA area and North East England, particularly in terms of provision to Tyne and Wear where there are active wharf sites on the River Tyne and at the Port of Sunderland.

7.13 It is anticipated that supply from these wharves is likely to be maintained. These sites also have the capacity to increase supply in order to increase supply in the future, particularly if the currently mothballed sites are brought back into use. It is also recognised that there is expected to be an ongoing resource available from the Humber areas.

7.14 Given the contribution of marine sand and gravel to the overall provision of sand and gravel for aggregate use in the Joint LAA area, it is important that the existing wharves, including those currently mothballed, are safeguarded in line with national planning policy.

Recycled and secondary aggregate supply

7.15 Comprehensive information on the production and supply of recycled aggregates is not available to inform this LAA. It is assumed that the majority of material that is suitable for use as a recycled aggregate is put to beneficial use. Within the joint LAA area, the materials available for use as recycled aggregate are most commonly construction, demolition and excavation wastes and road planings. It is anticipated that the supply of both recycled and secondary aggregates is likely to continue at similar levels as in recent years, particularly in the short-term.

7.16 In terms of secondary aggregates, an important source of supply is ash from Lynemouth Power Station in Northumberland. The power station ceased burning coal in December 2015 to allow its conversion to use biomass as its principal fuel. It is, however, anticipated that ash material from the previous burning of coal stored on the site can be extracted and used as a secondary aggregate in the future and could therefore continue to contribute to supply over the next 15 years.

Imports of aggregates

7.17 Within the Joint LAA area there are significant movements between the rural areas and the urban areas where there is higher demand. As rural counties, Northumberland and County Durham have traditionally had a role of supplying crushed rock and sand and gravel for aggregate use to the Tyne and Wear conurbation where there is significant demand and suitable resources are less abundant. In addition, County Durham has had a role in supplying aggregates south to the Tees Valley sub-region for similar reasons. This pattern of supply is expected to continue recognising the availability of resources in County Durham and Northumberland. It is also recognised that there could be increased pressure for the supply of resources from County Durham and Northumberland if extracted reserves are not replaced with new permitted reserves within Tyne and Wear and the Tees Valley.

7.18 The most significant imports of aggregates into the Joint LAA are land-won sand and gravel and crushed rock from North Yorkshire, reflecting the availability of good quality resources in the northern part of North Yorkshire close to the southern part of the Joint LAA area. It is also recognised that sites in North Yorkshire are likely to also supply markets in County Durham, particularly in the south of the County which is assumed to be as a result of the proximity of the quarries in North Yorkshire to this part of County Durham, but not due to the lack of permitted reserves in County Durham.

7.19 In addition, it is recognised that imports of marine sand and gravel make an important contribution to the supply of sand and gravel aggregate to the Joint LAA area.

Key issues for local plan preparation

Key matters identified

7.20 The key matters to arise from this Joint LAA are summarised below. These matters are relevant to the preparation and review of local plans by the MPAs with the joint LAA area. The key matters identified are as follows:

- The use of the ten year sales average is not seen as being appropriate as the basis for assessing future supply requirements with the Joint LAA area. It is recommended that an alternative figure based upon the three year sales average is used. In this regard the implications of this requirement is set out in Table 5.6 and addressed by each sub-region in section 6 of this report.
- In general terms the prospects for the supply of land-won sand and gravel in this joint LAA area over the period to 2033 are positive but this is dependent on additional reserves being released to ensure supply over the long-term and capability of the quarries to maintain productive capacity (particularly relevant to the Northumberland and Tyne and Wear sub-regions). Where necessary local plans, therefore, need to consider releasing additional reserves to maintain a steady and adequate supply into the long-term and maintain landbanks of sand and gravel above the 7 year minimum specified by the NPPF.
- There are good prospects of crushed rock supply being maintained across this joint LAA area over the period to 2033. However, this will be dependent on some quarries gaining consent to extend the time period for extraction to enable all the permitted reserves to be recovered and/or releasing additional reserves through extensions to the working areas of existing quarries or new quarries where it could be demonstrated that this will help to maintain a continuous overall productive capacity and a steady and adequate supply of aggregates and landbanks of crushed rock over the ten year minimum specified by the NPPF. Local development plans, therefore, need to consider how to address this.
- MPAs should safeguard aggregate resources through their local plans to ensure these resources are not needlessly sterilised by non-mineral development. Mineral Safeguarding Areas should be identified in line with the NPPF.
- Marine sand and gravel supply is likely to be maintained and wharf capacity means there is potential for supply from this source to increase in future years.
- MPAs should safeguard wharf sites as these which are important for the supply of sand and gravel. This issue is particularly relevant to Tyne and Wear.
- MPAs should safeguard infrastructure associated with the transport and processing of aggregate minerals, which are important to the supply of these materials to their markets and end users.
- Supply of recycled and secondary materials for aggregate uses is assumed to continue at similar levels to those previously experienced.

Cross boundary movements

7.21 This Joint LAA has identified a number of important cross-boundary movements in terms of aggregates supply both within the area covered by the joint LAA and to/from the Joint LAA area. These are the key cross boundary issues that the MPAs should give consideration to in the preparation of their local plans.

7.22 The most significant movements have been identified as:

- Supply of primary aggregates from County Durham and Northumberland to Tyne and Wear and, in respect of County Durham, the Tees Valley.
- Supply of crushed rock from County Durham to North Yorkshire.
- Supply of primary aggregates from North Yorkshire to the south of County Durham (although there are also significant movements to the Tees Valley).

7.23 Other important cross-boundary movements that have been identified and need to be considered are:

- Supply of marine sand and gravel from the wharf sites on the River Tyne.
- Supply of crushed rock from a quarry in the Northumberland National Park to a range of destinations (although the tonnages are not significant in both sub-regional and regional terms).
- Movements of sand and gravel from Cumbria into the Joint LAA area.

Issues requiring further consideration or future review

7.24 A number of issues have also been identified that need to be reviewed in the future or which require further consideration. Some of these issues are ongoing. The issues include:

- The potential for an increase in demand for crushed rock and sand and gravel supply from County Durham and Northumberland as a result of reserves not being replenished within Tyne and Wear.
- The potential for increased demand for aggregates should there be an increase in construction activity resulting from more favorable economic conditions or from any major infrastructure projects. Changes in demand will be reviewed on an annual basis with the three year sales average used as a tool to identify changes in the patterns of supply.
- Understanding the level of provision made through the ten years sales average approach and how this compares to level of sales from the North East AWP cluster of MPAs set out in the national and sub-national guidelines.
- The potential change in the availability in the supply of secondary aggregate as a result of the proposed conversion of the Lynemouth Power station in Northumberland from a coal burning power station to a biomass burning power station.

7.25 In terms of the data and information used to inform this LAA, a number of issues have been identified in respect of its availability and how comprehensive some of the information is. It is acknowledged that the MPAs will not realistically be able to address some of these issues. This includes some acceptance of the commercially confidential nature of some of the data on aggregate sales and reserves supplied and that accurate information on sales and reserves will not always be available for individual sites. The main issues identified include:

- A lack of comprehensive information on the production and supply of recycled aggregates.

- A lack of comprehensive information on the cross-boundary movements of aggregates at the level of the Mineral Planning Authorities. The availability of this information would be helpful in understanding more fully the cross boundary issues and the reasons for particular patterns of cross boundary movements.
- The national and regional guidelines for the provision of aggregate minerals were published in 2009 for the period 2005 to 2020 and have not been reviewed by Government to take account of more up-to-date survey information, information regarding the economy and construction activity and demands from infrastructure proposals.

Appendix A Aggregate mineral sites

A.1 This appendix supports section 3 of the Joint LAA and provides details of all active aggregate mineral sites in County Durham, Northumberland and Tyne & Wear. In addition this appendix also provides details of all aggregate mineral sites in County Durham, Northumberland and Tyne & Wear upon which new schemes of conditions for working and restoration are required under the Environment Act 1995 prior to the winning and working of aggregate minerals being resumed.

County Durham

Magnesian limestone

Table A.1 Quarries with planning permission for magnesian limestone extraction in County Durham

Quarry	Location and Grid Reference	Operator	Planning status on 31 December 2017	Expiry date for extraction	Designations
Aycliffe Quarry East	Aycliffe NZ 290 222	Stonegrave Aggregates	Closed	12/05/2014	
Bishop Middleham Quarry	Ferryhill NZ 328 326	W & M Thompson Quarries	Active	30/06/2029	SSSI
Cornforth East	West Cornforth NZ 325 344	Tarmac	Active	21/02/2042	
Cornforth West	West Cornforth NZ 325 344	Tarmac	Inactive	21/02/2042	
Coxhoe (Raisby) Quarry	Coxhoe NZ 347 352	Breedon	Active	01/09/2018	SSSI
Crime Rigg Quarry	Sherburn NZ 346 416	Breedon	Active	31/12/2022	SSSI
Old Quarrington and Cold Knuckles Quarry	Bowburn NZ 330 380	Tarmac	Active	21/02/2042	
Running Waters Quarry	Bowburn NZ 334 403	Breedon	Inactive	21/02/2042	
Thrislington Quarry East	Cornforth NZ 317 322	Tarmac	Active	01/07/2045	
Thrislington Quarry West	Cornforth NZ 317 322	Tarmac	Active	18/01/2015	
Witch Hill Quarry	Sherburn NZ 345 397	Breedon	Inactive	21/02/2042	

Table A.2 Dormant Sites (Magnesian Limestone)

Site name	Location and Grid Reference	Designations
Tuthill Quarry	Haswell 390442	

Site name	Location and Grid Reference	Designations
Coxhoe (Joint Stocks)	Coxhoe 325366 & 330364	
John O'Tooles (Leasingthorn) Quarry	Bishop Auckland	

Table A.3 Interim Development Orders (Magnesian Limestone)

Site name	Location and Grid Reference	Designations
Hawthorn Quarry	Seaham 438462	SSSI
Chilton Quarry	Ferryhill Station 298325	

Carboniferous limestone**Table A.4 Quarries with planning permission for Carboniferous limestone extraction in County Durham**

Quarry	Location and Grid Reference	Operator	Planning status on 31 December 2017	Expiry Date for Extraction	Designations
Broadwood Quarry	Frosterley NZ 035 365	Breedon	Inactive	21/02/2042	AONB
Heights Quarry	Westgate NY 925 388	Aggregate Industries UK	Active	21/02/2042	AONB
Hulands Quarry	Bowes NZ 016 140	Aggregate Industries UK	Active	31/12/2026	
Kilmond Wood Quarry	Bowes NZ 024 134	Kearton Farms	Active	21/02/2042	

Table A.5 Dormant Sites (Carboniferous Limestone)

Site name	Location and Grid Reference	Expiry date for extraction	Designations
Bollihope (Jopler Sykes)	Frosterley 988 352	21/02/2042	AONB, SPA, SAC, SSSI
Bollihope L20	Frosterley 987349	21/02/2042	AONB, SPA, SAC, SSSI
Bollihope L21	Frosterley 995355	21/02/2042	AONB, SPA, SAC, SSSI
Carriers Hill	Killhope 825435	21/02/2042	AONB
Greenfield	Lanehead 852421	21/02/2042	AONB
Parson Byers	Stanhope 005370	21/02/2042	AONB

Site name	Location and Grid Reference	Expiry date for extraction	Designations
Puddingthorn.	Lanehead 840425	21/02/2042	AONB
Scutterhill	Westgate 911389	21/02/2042	AONB
Side Head	Westgate 890389	21/02/2042	AONB
White Hills	Ireshopeburn 855389	21/02/2042	AONB

Table A.6 Interim Development Order Sites (Carboniferous Limestone)

Site Name	Location and Grid Reference	Expiry date for extraction	Designations
Harrowbank and Ashby Bank Quarry ⁽¹⁾			AONB, SSSI

1. Harrowbank and Ashby Bank Quarry is currently inactive and has not been worked for many years. However, in May 2007 Tarmac Northern Ltd submitted an Environmental Statement and a revised schedule of working and restoration conditions to the Council, proposing to work part of this site in order to extract 3,750,000 tonnes of carboniferous limestone from 30 ha of the 76.4 ha permission area over a 15 year period.

Dolerite (also known as Whinstone)

Table A.7 Sites with planning permission for Dolerite extraction in County Durham

Quarry	Location and Grid Reference	Operator	Planning Status on 31 December 2017	Expiry Date for Extraction	Designations
Force Garth Quarry	Middleton-in- Teesdale NY 872 282	CEMEX	Active	21/02/2042	AONB, SPA, SCA, SSSI

Table A.8 Dormant Sites (Dolerite)

Quarry	Location and Grid Reference	Expiry date for extraction	Designations
Cockfield	Teesdale 130248	21/02/2042	
Crossthaite	Holwick 925253	21/02/2042	AONB
Greenfoot	Stanhope	21/02/2042	AONB
Middleton	Holwick 949245	21/02/2042	AONB
Park End	Holwick 921258	21/02/2042	AONB

Sand and gravel

Table A.9 Quarries with planning permission for sand and gravel working in County Durham

Quarry	Location and Grid Reference	Operator	Planning status on 31 December 2017	Expiry date for extraction	Designations
Crime Rigg Quarry	Sherburn NZ 346 416	Breedon	Active	31/12/2022	SSSI
Hummerbeck Quarry	West Auckland NZ 187 254	Hall Construction	Inactive ⁽¹⁾	21/02/2042	
Low Harperley Quarry	Wolsingham NZ 112 356	Breedon	Active ⁽²⁾	08/08/2032	
Old Quarrington and Cold Knuckles Quarry	Bowburn NZ 330 380	Tarmac	Active	21/02/2042	
Thrislington Quarry	Ferryhill NZ 317 322	Tarmac	Active	18/01/2015	

1. Hummerbeck Quarry - Yet to commence. Planning permission was issued on 25 November 2011. Period of working would be 8 years. However, the site actually has permission to 2042.
2. Low Harperley Quarry - Development commenced in August 2016 following the grant of planning permission on 19 August 2013.

Table A.10 Dormant Sites (Sand and Gravel)

Quarry	Location and Grid Reference	Expiry Date for Extraction	Designations
Page Bank	Byers Green, Wear Valley	21/02/2042	
Roger Hill	Derwent Bridge Wear Valley	21/02/2042	
Wolsingham	Wear Valley	21/02/2042	

Table A.11 Interim Development Order Sites (Sand and Gravel)

Quarry	Location and Grid Reference	Expiry Date for Extraction	Designations
Gypsy Lane Quarry ⁽¹⁾	Nunstainton East 313295	21/02/2042	

1. Gypsy Lane - One extant planning permission exists at this quarry. This is an Interim Development Order (IDO) permission and no working of the site can take place until there has been a determination of new conditions by the Minerals Planning Authority under the requirements of the Planning and Compensation Act 1991.

Northumberland

Table A.12 Sites with planning permission for crushed rock extraction in Northumberland

Quarry	Location and grid reference	Operator	Mineral	Planning status on 31 December 2017	Expiry date for extraction	Relevant environmental designations
Barrasford Quarry	Barrasford NY 913 743	Tarmac	Igneous rock and Carboniferous limestone	Active	31/12/2038	
Belford (Easington) Quarry	Belford NU 130 343	Tarmac	Igneous rock	Inactive	31/12/2031	
Cocklaw Quarry	Wall NZ 931 701	Tynedale Roadstone	Carboniferous limestone	Inactive (yet to commence)	21/02/2042	
Cragmill Quarry	Belford NY 108 346	CEMEX	Igneous rock	Active	22/08/2040	
Divethill Quarry	Great Bavington NY 978 795	CEMEX	Igneous rock	Active	31/12/2020	
Harden Quarry	Biddlestone NY 959 086	Tarmac	Igneous rock	Active	31/10/2029	National Park
Howick Quarry	Longhoughton NU 238 169	Tarmac	Igneous rock	Active	21/12/2020	
Keepersshield Quarry	Humshaugh NY 895 727	Hanson	Igneous rock and Carboniferous limestone	Active	21/02/2042	SSSI
Longhoughton (Ratcheugh) Quarry	Longhoughton NU 232 153	KW Purvis	Igneous rock	Active	21/02/2042	SSSI
Mootlaw Quarry	Matfen NZ 018 755	North Tyne Roadstone	Carboniferous limestone	Inactive	31/12/2025	
Swinburne Quarry	Colwell NZ 021 791	Hanson	Igneous rock	Inactive	31/12/2036	

Table A.13 'Dormant' quarries (as defined in the Environment Act 1995) for crushed rock extraction in Northumberland

Site	Location and grid reference	Mineral	Relevant environmental designations	Comments on potential future supply
Ayle Quarry	Alston NY 729 499	Carboniferous limestone	-	Not known
Barmoor Mill Quarry	Lowick NT 992 405	Carboniferous limestone	-	Not known
Burton Quarry	Bamburgh NU 179 327	Carboniferous limestone	-	Not known

Site	Location and grid reference	Mineral	Relevant environmental designations	Comments on potential future supply
Crindledykes Quarry	Bardon Mill NY 780 671	Carboniferous limestone	National Park, SSSI	Not known
Earle Quarry	Wooler NT 988 270	Igneous rock	-	Not known
Fell End Quarry	Slaggyford NY 666 516	Carboniferous limestone	AONB	Not known
Fontburn Quarry	Netherwitton NZ 047 941	Igneous rock	-	Not known
Kyloe Quarry	Lowick NU 042 406	Igneous rock	-	Not known
Holburn Quarry	Holburn NU 050 377	Igneous rock	-	Not known
Littlemill West Quarry	Howick NU 227 173	Carboniferous limestone	-	Not known
Wards Hill Quarry	Longframlington NZ 079 966	Igneous rock	-	Not known

Sand and gravel

Table A.14 Quarries with planning permission for sand and gravel extraction in Northumberland

Quarry	Location and grid reference	Mineral	Operator	Planning status on 31 December 2017	Expiry date for extraction	Relevant environmental designations
Ebchester (Broadoak) Quarry	Ebchester NZ 098 547	Sand and gravel	Tarmac	Active	31/12/2023	Green Belt
Caistron Quarry	Thropton NU 007 016	Sand and gravel	North East Concrete	Closed. Reserves exhausted	31/03/2016	
Haughton Strother Quarry	Humshaugh NY 978 795	Sand and gravel	W & M Thompson (Quarries)	Active	31/08/2022	
Hedgeley Quarry	Powburn NZ 068 180	Sand and gravel	North East Concrete	Active	31/12/2018	
Hemscott Hill Beach	Widdrington NZ 931 703	Sand	W Bell	Active	31/12/2020	SSSI
Lanton (Cheviot) Quarry	Milfield NT 954 311	Sand and gravel	Tarmac	Active	31/12/2020	
Merrysields Quarry	Stocksfield NZ 063 617	Sand and gravel	W & M Thompson (Quarries)	Inactive	21/02/2042	Green Belt
Wooperton Quarry	Wooperton NU 048 204	Sand and gravel	North East Concrete	Active	31/12/2032	

Table A.15 'Dormant' quarries (as defined in the Environment Act 1995) for sand and gravel extraction in Northumberland

Site	Location and grid reference	Mineral	Designations	Comments on potential future supply
Blakemoor Burn Beach	Cresswell NZ 287 944	Sand	SSSI	Not known
Blakemoor Sand Pit	Cresswell NZ 228 940	Sand		Not known
Cresswell Sand Pit	Cresswell NZ 291 923	Sand		Not known
Hauxley Links	Low Hauxley NU 280 038	Sand		Not known
The Hermitage	Hexham NY 934 653	Sand and gravel		Not known
Mouldshaugh Farm	Felton NU 203 008	Sand and gravel		Not known
Red Barns Links	Bamburgh NU 193 347	Sand	AONB, SSSI, SPA/SAC	Not known
Scremerston Sand Pit	Scremerston NU 036 476	Sand and gravel	AONB, SSSI, SAC/SPA	Not known
Tyne Green	Hexham NZ 932 651	Sand and gravel		Not known
Yeaverling Quarry	Kirknewton NT 924 305	Sand and gravel		Not known

Tyne and Wear

Table A.16 Quarries with planning permission for crushed rock and sand and gravel extraction in Tyne & Wear

Mineral Planning Authority	Quarry	Location and grid reference	Operator	Planning Status in 2017	Expiry date for extraction
Sunderland	Eppleton Quarry	Hetton-le-Hole NZ 260 482	Eppleton Quarry Products	Active	To be confirmed ⁽¹⁾ .
South Tyneside	Marsden Quarry	Whitburn NZ 406 642	Owen Pugh	Active	2027

1. On 20 October 2015 planning permission was granted to extend Eppleton Quarry. This permission allows the extraction of additional quantities of sand and limestone with the importation of soils for restoration. Condition 7 of the permission requires that all mineral extraction shall cease no later than 25 years from commencement of the development, unless as otherwise agreed in writing by the Mineral Planning Authority.

A.2 Note: It is understood that permitted reserves were included in the North East Region Aggregates Working Party Annual Monitoring Report 2010 at Blaydon Quarry and at Crawcrook Quarry. However, more recent information provided by Gateshead Council in 2012 indicates that extraction at Blaydon Quarry has now finished. In terms of Crawcrook Quarry, sand and gravel extraction has been ongoing at Crawcrook Quarry since the 1940's when the site was given consent under the Interim Development Order Consents (IDO) in 1947. However this permission was not registered under the Planning and Compensation Act 1991 and has effectively lapsed. Planning permission as an extension to this IDO consent was granted in 1950 for sand and gravel extraction (ref : CA4551). The Council until recently took the view that the current sand and gravel extraction on the site was working under this consent.

Following the Environment Act 1995 the Council took the view that it was not appropriate for the operators of Crawcrook Quarry to submit an application for the review of the old minerals planning conditions, as the operators were working outside of the application site boundary along the western edge of the site. The Council considered it was more appropriate to submit a consolidating application that would regularise the current operations and various temporary permissions that had been granted on the site for buildings and mineral processing plant. It was intended that this approach would result in everything being reviewed, updated and controlled under one single planning application/ planning permission.

A.3 A consolidating planning application (ref: 1133/97) was submitted in 1997 for mineral extraction, waste disposal and reclamation at Crawcrook Quarry. This planning application is still undetermined 15 years later due to several changes in ownership and insufficient information to assess the application. After several changes of ownership over the past decade SITA and Cemex are now on the site landfill and quarrying operators. These two companies submitted a joint re-edited environmental statement (ES) to Gateshead Council in March 2010. WA Fairhurst reviewed this updated ES on behalf of Gateshead Council. Fairhurst considered that some of the chapters of the ES are difficult to follow and do not fully accord with the EIA Regs. In addition some chapters lack sufficient details to allow Gateshead Council and statutory consultees to fully understand if there are significant effects as a result of the proposed development. In 2010 Gateshead received a legal opinion from a Barrister on the status of the planning permissions and planning applications at Crawcrook Quarry. This legal opinion advises that Cemex can no longer work the site / extract sand and gravel as the old 1950's planning permission has legally ceased to have effect except for the restoration and aftercare conditions.

Table A.17 'Dormant' quarries (as defined in the Environment Act 1995) for sand and gravel extraction in Tyne & Wear

Mineral Planning Authority	Quarry	Location and grid reference	Expiry date for extraction	Relevant environmental designations	Comments on potential future supply
Gateshead	Bog Wood	Blaydon NZ ??? ???	21/02/2042		Not known
	Land west of Barlow Lane	Blaydon NZ ??? ???	21/02/2042		Not known

A.4 Bog Wood lies to the south west of Blaydon Quarry on the southern side of Longridge Road. Bog Wood benefits from the following planning permissions for mineral extraction. CA 2633 (1950) CA6271 (1951) supersedes CA2633 (1950) CA 7073 (1952). Land West of Barlow Lane - This site lies adjacent to western boundary of Burnhills Quarry. This site benefits from the following planning permissions for mineral extraction: CA 2633 (1950) CA 6271 (1951) supersedes CA2633 (1950). At the time of the review, the sites were both in the ownership of Tilcon Ltd. It was indicated that reserves of sand and gravel still remained to be worked at both of these sites. Tilcon Ltd considered that both sites formed part of Burnhills Quarry a single "active" site. However after due consideration the MPA determined the two as separate dormant sites.

Appendix B Secondary and recycled aggregate facilities

B.1 This appendix supports section 3 of the joint Local Aggregate Assessment and provides details of all permanent secondary and recycled aggregate facilities in County Durham, Northumberland and Tyne & Wear.

County Durham

B.2 County Durham contained seven fixed recycled and secondary aggregate sites. Details of these sites are shown in table B1.

Table B.1 Secondary and Recycled Aggregates Facilities in County Durham

Site Name	Location	Operator
Bishop Middleham Quarry	Bishop Middleham	W&M Thomson
Aycliffe Quarry	Aycliffe	Stonegrave Aggregates
Thrislington Quarry	Cornforth	Tarmac
Old Quarrington Quarry	Bowburn	Tarmac
Constantine Farm	Crook	W Marley
Old Brickworks	Tanfield	Ken Thomas
Heights Quarry	Westgate	Aggregate Industries
Hulands Quarry	Near Bowes	Aggregate Industries

Northumberland

B.3 There are six known fixed recycled and secondary aggregate sites in Northumberland. Details of these sites are shown in table B2 below.

Table B.2 Secondary and recycled aggregates facilities in Northumberland

Site Name	Location	Operator
Barrington Industrial Estate	Bedlington	Remondis
Thornbrough Quarry	Corbridge	W & M Thompson
Lynemouth Power Station	Lynemouth	Lynemouth Power
West Sleekburn Industrial Estate	Bedlington	HFF Civil Engineering
Linton Transfer Station	Linton	Thornton
Longhoughton (Ratcleugh) Quarry	Longhoughton	Purvis

Tyne and Wear

B.4 There are eight known fixed recycled and secondary aggregate sites in Tyne and Wear. Details of these sites are shown in Table B.3.

Table B.3 Recycled and secondary aggregate sites in Tyne and Wear

Site Name	Location	Operator
Eppleton Quarry	Hetton le Hole	Eppleton Quarry Products
Hudson Dock	Sunderland	Northumbrian Roads
Marsden Quarry	Whitburn	O'Brien Aggregates
Newburn	Newburn, Newcastle upon Tyne	MGL Group
Springwell Quarry	Washington	W & M Thompson
Stephenson Street	Willington Quay	G O'Brien

Appendix C Mineral transport and processing infrastructure

C.1 This appendix provides details of aggregates transport and processing infrastructure in County Durham, Northumberland and Tyne and Wear. Details of secondary and recycled aggregate facilities and marine wharfs are detailed in separate appendices.

County Durham

Table C.1 Infrastructure associated with minerals transportation

Ports	Railheads	Rail Alignments (with potential to transport minerals)
<ul style="list-style-type: none"> Port of Seaham 	<ul style="list-style-type: none"> Thrislington Quarry Ferryhill Station 	<ul style="list-style-type: none"> Thrislington rail line connecting with East Coast Mainline Weardale Railway Line Ferryhill- Cornforth- Coxhoe Quarry Alignment Leamside Line

Table C.2 Coating plants and kilns

Coating plant	Kiln for the production of calcined Material
<ul style="list-style-type: none"> Force Garth Quarry Heights Quarry Hulands Quarry Coxhoe Quarry 	<ul style="list-style-type: none"> Thrislington Quarry

Table C.3 Concrete plants in County Durham

Site	Location	Operator
Consett Plant	Main Street, Crookhall, Consett, Durham, DH8 7NE	Cemex Readymix
Durham Plant	Littleburn Industrial Estate, Langley Moor, Durham, DH7 8HH	Cemex Readymix
Newton Aycliffe Plant	Behind BSC, Off Cumbie Way, Newton Aycliffe, Durham, DL6 6YA	Cemex Readymix
Ferryhill	Thrislington Quarry, West Cornforth, Ferry Hill, DL17 9EY	Tarmac Ready Mix Concrete
Crime Rigg Quarry	Durham Concrete Plant, Crime Rigg Quarry, Shadforth, Sherburn Hill, Durham	Breedon
Durham	Dragonville Industrial Estate, Rennys Lane, Durham, DH1 2RS	Breedon
Bishop Auckland	Romanway Industrial Estate, Tindale Crescent, Bishop Auckland	Breedon

Site	Location	Operator
Coxhoe	Coxhoe Quarry, off Station Road, Raisby Hill, Coxhoe	Breedon

Northumberland

Table C.4 Wharves for the importation of aggregate minerals in Northumberland

Site	Location and Grid Reference	Operator	Mineral	Status in 2017
Port of Blyth (Battleship Wharf)	Cambois (NZ 309 827)	Aggregate Industries and Breedon	Crushed rock (Aggregate Industries) and sand and gravel (Breedon)	Active
Port of Berwick (Tweed Docks)	Berwick-upon-Tweed (NT 996 525)	-	-	Inactive

Table C.5 Railheads for the transportation of aggregate minerals in Northumberland

Site	Location and Grid Reference	Operator	Mineral	Status in 2017
Railhead at Belford (Easington) Quarry	Belford (NU 130 343)	Tarmac	Crushed rock	Inactive

Table C.6 Concrete plants in Northumberland

Site	Location	Operator	Comments
Alnwick Plant	Old Gasworks, South Road, Alnwick, NE66 2PE (NU 196 124)	CEMEX	Stand alone facility
Barrington Road	Barrington Road, Bedlington, NE22 7AL (NZ 272 832)	Breedon	Stand alone facility within industrial area
Battleship Wharf	Battleship Wharf, Blyth, NE24 1SD (NZ 309 827)	Breedon	Stand alone facility within port area
Belford South Farm	South Farm, Belford, NE70 7DP (NU 114 332)	Gilbert Birdsall	Stand alone facility
Haltwhistle	Townfoot, Haltwhistle, NE49 0ND (NY 711 639)	Ritemix	Stand alone facility within industrial area
Howford Quarry	Acomb, Hexham, NE46 4RY (NY 919 663)	Hanson	Stand alone facility located within a former quarry
Lynemouth	Lynefield Park, Ashington, NE62 9YH (NZ 295 895)	H-Mix	Stand alone facility
Red Row	Red Row, Bedlington, NE22 7AL (NZ 272 833)	CEMEX	Stand alone facility within industrial area
West Sleekburn	Brock Lane, West Sleekburn, Bedlington NE22 7BY (NZ 285 841)	Aggregate Industries	Stand alone facility within industrial area

Table C.7 Coating plants in Northumberland

Site	Location	Operator	Comments
Barrasford Quarry	Barrasford, Hexham, NE48 4AP (NY 913 743)	Tarmac	Within boundary of an active quarry
Cragmill Quarry	Belford, NE70 7EZ (NU 108 346)	CEMEX	Within boundary of an active quarry
Divethill Quarry	Great Bavington, NE19 2BG (NY 978 795)	CEMEX	Within boundary of an active quarry
Howick Quarry	Littlehoughton, Alnwick, NE66 3JY (NU 238 169)	Tarmac	Within boundary of an active quarry
Keepersfield Quarry	Humshaugh, Hexham, NE46 4BB (NY 895 727)	Hanson	Within boundary of an active quarry
Swinburne Quarry	Barrasford, Hexham, NE48 4DN (NZ 021 791)	Hanson	Within boundary of an inactive quarry

Table C.8 Sites for the manufacture of concrete products in Northumberland

Site	Location	Operator	Comments
Lynx Precast	Lynefield Park, Ashington, NE63 9YH (NZ 294 897)	Lynx Precast	Stand alone facility within industrial area
West Sleekburn	Brock Lane, West Sleekburn, Bedlington, NE22 7BY (NZ 285 841)	Aggregate Industries	Stand alone facility within industrial area

Tyne and Wear

C.2 Within Tyne and Wear there are no active rail heads or rail links that are used for the transport of aggregate minerals. Potential exists for the use of the former Wardley Colliery Disposal Point in South Tyneside for the use as a railhead including the distribution by rail of minerals. In August 2012 a planning application was made by Harworth Estates Ltd for the change of use of the former Wardley Colliery Disposal Point (Follingsby Lane, West Boldon) including the demolition of mechanised rail loading bunker and associated structures, retention of rail loading head alteration/extension of rail loading pad to allow use of the site as a rail head for transportation and storage of coal, minerals and other products. South Tyneside Council are minded to approve this planning application subject to the completion of a legal agreement.

C.3 Within Tyne and Wear there are currently six identified wharf sites. Five of these sites are located on the River Tyne with the sixth at the Port of Sunderland.

Table C.9 Wharves for the importation of aggregate minerals in Tyne and Wear

Mineral Planning Authority	Site	Location and Grid Reference	Operator	Mineral	Planning Status in 2017
Gateshead	Gateshead Wharf	Gateshead NZ 306 609	Tarmac	Sand and gravel	Inactive

Mineral Planning Authority	Site	Location and Grid Reference	Operator	Mineral	Planning Status in 2017
North Tyneside	Hayhole Road Wharf	North Shields NZ 344 661	Northumbrian Roads / Stema Shipping	Sand and gravel	Active
	Howdon Wharf	North Shields NZ 360 482	Tarmac	Sand and gravel	Inactive
South Tyneside	Jarrow Wharf	South Shields NZ 335 657	CEMEX	Sand and gravel	Active
	Port of Tyne	South Shields NZ 350 655	Aggregate Industries	Crushed rock	Active
Sunderland	Port of Sunderland (Greenwells Quay Wharf)	Sunderland NZ 409 579	Northumbrian Roads	Sand and gravel and crushed rock	Inactive

C.4 Details of the concrete batching and coating plants in Tyne and Wear are provided in Table C.9 below.

Table C.10 Concrete batching (CB) and coating plants (CP) in Tyne and Wear

Mineral Planning Authority	Site	Location	Operator
Gateshead	Crawcrook ^(CB)	Crawcrook Lane, Ryton, NE40 3UL	CEMEX
	Hawks Road ^(CB)	Hawks Road, Gateshead, NE8 3BN	Hanson
	Longshanks Road ^(CB, CP)	Longshanks Road, Birtley, DH3 1QZ	North East Concrete
	Nest Road ^(CB)	Nest Road, Felling, Gateshead, NE10 0EY	Aggregate Industries
	Springwell Quarry ^(CB)	Springwell Road, Gateshead, NE9 7SQ	Tyneside Minimix
	South Shore Road ^(CB)	South Shore Road, Gateshead, NE8 3AE	Tarmac
Newcastle	Brunswick Plant (CEMEX) ^(CB)	Brunswick Industrial Estate, Brunswick, Newcastle-upon-Tyne, NE13 7BA	CEMEX

Mineral Planning Authority	Site	Location	Operator
	Brunswick Plant (Tarmac) ^(CB)	Brunswick Industrial Estate, Brunswick, Newcastle-upon-Tyne, NE13 7BA	Tarmac
	Newburn ^(CB)	High Street, Newburn, Newcastle upon Tyne, NE15 8LN	North East Concrete
	Newburn Haugh ^(CP)	Riverside Court, Newburn Haugh Industrial Estate, Newcastle upon Tyne, NE15 8SG	Tynedale Roadstone
	Paradise Works ^(CP)	Paradise Works, Scotswood Road, Newcastle upon Tyne, NE15 6BZ	Jobling Purser
	Newcastle Plant (Pottery Lane) ^(CB)	Pottery Lane, Newcastle upon Tyne, NE1 3SQ	CEMEX
	Scotswood Plant ^(CB)	Low Yard, Scotswood Road, Newcastle upon Tyne, NE15 6XA	Breedon
North Tyneside	Howdon ^(CB)	Willington Quay, Wallsend, NE28 6UR	Breedon
South Tyneside	South Shields Plant ^(CB)	Wilsons Yard, Jarrow Road, South Shields, NE34 9PL	CEMEX
	Tyne Dock ^(CB)	Tyne Dock, South Shields, NE34 9PL	Breedon
Sunderland	Sunderland ^(CB)	Trimdon Street, Sunderland, SR4 6DW	Tarmac
	Houghton le Spring ^(CB)	Market Place Industrial Estate, Market Place, Houghton le Spring, DH5 8AN	Breedon
	Wilden Road ^(CB)	Wilden Road, Washington, NE38 8QB	Hanson
	Low Southwick ^(CB)	Pottery Road, Low Southwick, Sunderland, SR5 2BP	CEMEX