



**CUMBRIA AND THE LAKE DISTRICT NATIONAL PARK**  
**JOINT ANNUAL LOCAL AGGREGATES ASSESSMENT 2018**  
**(incorporating figures for 2017)**

Final Version  
28 November 2018

## CONTENTS

<b>1. Executive Summary</b>	<b>1</b>
<b>2. Introduction</b> Purpose of this Local Aggregates Assessment What are aggregates? Aggregates in Cumbria The Managed Aggregates Supply System Sub-Regional Apportionment Landbanks LAA provision figures Information used to produce the Cumbria LAA	<b>5</b>
<b>3. Sand and Gravel</b> Demand for sand and gravel Supply of sand and gravel Managing supply and demand- LAA provision figures Marine dredged sand and gravel Summary	<b>11</b>
<b>4. Crushed Rock</b> Demand for crushed rock Supply of crushed rock Managing supply and demand – LAA provision figures Summary	<b>17</b>
<b>5. High Specification Aggregates</b> Demand for high specification aggregates Supply of high specification aggregates Managing supply and demand – LAA provision figures Summary	<b>22</b>
<b>6. Building Stone and Slate</b>	<b>28</b>
<b>7. Alternative Aggregates</b> Demand for alternative aggregates Supply of alternative aggregates Managing supply and demand Summary	<b>29</b>
<b>8. Infrastructure for aggregates</b>	<b>33</b>
<b>9. Imports and Exports</b> Supply patterns How much aggregate does Cumbria need? Movement of primary aggregates by sub-region Future demand from outside Cumbria Mode of transport	<b>34</b>

## Appendices

1	Other Relevant Local Information	41
2	Sand and Gravel quarries in Cumbria	46
3	Crushed Rock quarries in Cumbria	49
4	High & Very High Specification roadstone quarries in Cumbria	51
5	Building Stone and Slate quarries in Cumbria	53
6	Alternative Aggregates: Main Processing Facilities	56
7	Historic Sales Data for Aggregates in Cumbria	58
8	LAA Landbank and tonnage calculations	59
9	Population Growth Forecasts for Cumbria (ONS data)	61

## Tables

Table 1 – Executive Summary for 2018 LAA
Table 2 – Sand and gravel sales
Table 3 – Sand and gravel reserves
Table 4 – Sand and gravel : outcomes of potential sales scenarios
Table 5 – Marine landings at Barrow
Table 6 – Crushed rock sales
Table 7 – Crushed rock reserves
Table 8 – Limestone: outcomes of potential sales scenarios
Table 9 – High and very high specification aggregate sales
Table 10 – High and very high specification aggregate reserves
Table 11 – HSA/VHSA: outcomes of potential sales scenarios
Table 12 – VHSA only: outcomes of potential sales scenarios
Table 13 – Alternative aggregates sales
Table 14 – Tonnage of primary aggregate exports from Cumbria
Table 15 - Potential future aggregate demand from outside Cumbria
Table 16 – District Council housing supply figures

## 1 Executive Summary

- 1.1 The 2017 sales, reserves and landbank provision figures for all aggregates in Cumbria are summarised in the table at the end of this chapter.
- 1.2 Whilst lower than the 2016 figures which peaked across most of the aggregate types, generally sales in 2017 have continued the pattern of steady increase since 2013/2014.

### **Sand and Gravel**

- 1.3 Current permitted reserves of land-won sand and gravel for aggregate use (7.38Mt) are not sufficient to maintain the required land-bank of at least 7 years throughout the Plan period (2015-2030). A provision based on 2017 sales figures (0.79Mt) gives a landbank of 9.34 years which would run out in 2026, with reserves starting to fall below the required 7-year supply in 2019.
- 1.4 An additional 8.42Mt of sand and gravel reserve is required to maintain the landbank throughout the Plan period.

### **Crushed Rock**

- 1.5 Current permitted reserves of all crushed rock for aggregate use (127.35Mt) are more than sufficient to maintain the required land-bank of at least 10 years throughout the Plan period (2015-2030). A provision based on 10-year average sales (2.99Mt) gives a landbank of 42.59 years which would run out in 2059.
- 1.6 The 10-year average sales for sandstone and igneous (excluding high specification aggregates) gives a landbank of 74.38 years which would run out in early 2091. A provision based on 2017 sales figures (0.41Mt) maintains a landbank of 70.75 years which should last until 2087.
- 1.7 Looking at reserves for limestone alone (also excluding high specification aggregates) the 10 year average sales (2.07Mt) gives a landbank of 39.51 years which would run out in 2056.

### **High specification aggregates**

- 1.8 Current permitted reserves of high specification and very high specification aggregates for use as roadstone is 16.56Mt. This is sufficient to maintain the required 10 year land-bank throughout the Plan period (2015-2030). Provision based on 10-year average sales (0.54Mt) gives a landbank of 30.67 years which would last until mid-2047.
- 1.9 If sales increase significantly, the need for additional reserve to maintain the 10-year landbank could occur at the beginning of the next Plan period (after 2030).
- 1.10 Ghyll Scaur is the only operating quarry in England to produce the very high specification roadstone. This is a nationally significant resource and therefore demand is likely to increase as a result of planned growth in housing and infrastructure across the UK, not just within Cumbria.

### **Alternative aggregates**

- 1.11 Secondary or recycled aggregates will potentially have an increasingly important role in the provision of aggregate supply.
- 1.12 Recorded sales of secondary aggregates in 2017 is 0.31Mt but is likely to be higher in reality. Sales will continue to be monitored as we hope to identify a pattern of increased use of secondary aggregates during the Plan periods.
- 1.13 Trends in sustainable construction methods and the government's commitment to EU targets for recycling of construction and demolition waste (70% by 2030) mean that secondary aggregates should continue to be readily available and increasingly used in development projects.

### **Managing supply and demand**

- 1.14 Cumbria has traditionally supplied far more aggregate than is needed for its own use and this trend continues.
- 1.15 Planned infrastructure requirements within Cumbria (see Appendix 1 – Other Local Information) are not expected to reach construction stage until 5- 10 years' time so are unlikely to have any short term impact on the landbank position for primary aggregates.
- 1.16 Planned infrastructure requirements outside of Cumbria have also been taken into account when preparing this LAA. Major non-highways projects are not expected to commence until 5-10 years' time so are unlikely to have any short-term impact on the landbank position. However this will need to be kept under review as the cumulative impact of projects coming on line within the current Plan period could have an impact on the landbank position.
- 1.17 There are a number of highways schemes, mainly in the North East region, that are scheduled for construction within the next 5 years so there is a strong likelihood that demand will increase for imports of HSA and VHSA roadstone from Cumbria as a result.
- 1.18 As a nationally significant resource, the supply of HSA and VHSA roadstone will be affected by major infrastructure requirements from across the UK and not just within Cumbria. Additional monitoring of this resource is required, particularly as Cumbria contains the only operating quarry in England to produce the VHSA roadstone at Ghyll Scaur. Demand is likely to increase with various national infrastructure projects coming forward such as investment in new roads, airport expansion projects and new nuclear plant facilities. It is likely these projects could reach construction stage in 5 – 10 years' time so supply will be affected within the Plan periods and landbanks will need to be monitored accordingly.
- 1.19 Site Allocations have been made in the CMWLP that would provide sufficient reserve to maintain the landbank required for sand and gravel, however there is no guarantee that applications will be forthcoming. There is potential for marine-dredged sand and gravel to make a greater contribution towards the supply and use of secondary/recycled aggregate could also provide an alternative.

- 1.20 Site Allocations have been made in the CMWLP for safeguarding the reserve of high specification roadstone but no provision is made for very high specification roadstone. There is an area with potential for VHSA close to Ghyll Scaur but this lies within the Lake District National Park.
- 1.21 There are no concerns at this stage regarding supply and demand of crushed rock generally. The Site Allocation made for limestone is not to identify further reserves but to establish whether an alternative area for quarrying is available that would have less impact on the setting of the North Pennines Area of Outstanding Natural Beauty than part of the area currently permitted.
- 1.22 As required by the NPPF, in addition to the specific Site Allocations mentioned in this LAA , both the CMWLP and the LDNPA Local Plan have designated Minerals Safeguarding Areas to ensure that known minerals resources are not sterilised by other non-minerals developments. Railheads and wharves are also safeguarded as minerals related infrastructure.

Table 1: Executive Summary for 2018 LAA

Aggregate sales, reserve & landbank at the end of 2017	Sales Mt	Reserves Mt	10 yr avg sales	3 yr avg sales	LAA provision <sup>1</sup>	Landbank (years) <sup>2</sup>	Land bank end date	Reserve & Landbank years remaining at end of 2030	Additional tonnage required to maintain landbank <sup>3</sup>
<b>Crushed rock</b>									
Limestone	1.78	81.78	2.07	2.07	2.07	39.51	Mid 2056	54.87 Mt (+26 years)	
Igneous + sandstone exc.V/HSA.	0.41	29.01	0.39	0.42	0.41 <sup>4</sup>	70.75	Late 2087	23.68Mt (+57 years)	-
V/HSA igneous + sandstone	0.43	16.56	0.54	0.44	0.54	30.67	Mid 2047	9.54 Mt (+17 years)	-
TOTAL igneous + sandstone.	0.83	45.57	0.92	0.86	0.92	49.21	Early 2066	33.61Mt (+36 years)	-
TOTAL ALL crushed rock	2.61	127.35	2.99	2.93	2.99	42.59	Mid 2059	88.48 Mt (+29 years)	-
<b>Sand and gravel</b>									
Land-won sand and Gravel	0.79	7.38	0.62	0.77	0.79 <sup>5</sup>	9.34	Early 2026	-2.89 Mt (deficit) -3.6 yrs (deficit)	8.42Mt
Marine-dredged	0.008	0.008	-	-	-	-	-		-
TOTAL sand and gravel	0.80	7.39	0.62	0.77		9.34	Early 2026		
<b>Secondary /recycled aggregates</b>									
Secondary/recycled	0.088	-	-						
Slate waste	0.220	-	-						
TOTAL secondary + slate	0.308 (0.31Mt)	-	-	0.314	-	- <sup>6</sup>	-		-

<sup>1</sup> 10 -year average sales is the starting point but the LAA should also take into account recent trends (3-year average sales) and Other Relevant Local Information when establishing what sales figures to use when calculating landbank provision

<sup>2</sup> Calculated from LAA provision figure

<sup>3</sup> Only required where there is a deficit. Calculated to maintain landbank until end of Plan period (2030) i.e. to last until 2037 or 2040 .This is based on the LAA provision figure.

<sup>4</sup> Based on 2017 sales figure

<sup>5</sup> Based on 2017 sales figure

<sup>6</sup> Landbank not required for secondary aggregates

## 2 Introduction

### Purpose of this Local Aggregates Assessment

- 2.1 Mineral planning authorities should plan for a steady and adequate supply of aggregates. It is a requirement of the National Planning Policy Framework (NPPF) to produce an annual Local Aggregates Assessment (LAA), the purpose of which is the annual assessment of the demand for, and supply of, aggregates in a mineral planning authority's area<sup>7</sup>.
- 2.2 The LAA is used to inform the preparation, monitoring and review of each authority's minerals planning policies. The Cumbria Minerals and Waste Local Plan (CMWLP) was adopted by Cumbria County Council in September 2017 and covers a Plan period of 2015 – 2030. The Lake District National Park Authority is in the process of reviewing their Local Plan which includes mineral policies. The current Plan covers the period up to 2025.
- 2.3 This is the sixth annual Cumbria LAA and is prepared jointly by Cumbria County Council and the Lake District National Park Authority. This document – which includes all the supporting information- and a shorter Executive Summary can be found on the council website at: [http://www.cumbria.gov.uk/planning-environment/policy/minerals\\_waste/MWLP/LAA.asp](http://www.cumbria.gov.uk/planning-environment/policy/minerals_waste/MWLP/LAA.asp) and also on the Lake District National Park Authority website at: <http://www.lakedistrict.gov.uk/planning/planningpolicies/ldfresearchevidence>.
- 2.4 As set out in Planning Practice Guidance (PPG), it contains three elements<sup>8</sup>:
- a forecast of the demand for aggregates (based on annual sales figures);
  - an analysis of all aggregate supply options (based on permitted reserves at the year end);
  - an assessment of the balance between demand and supply.

### What are aggregates?

- 2.5 Aggregates are the basic raw materials used by the construction industry. Without them, houses, schools, hospitals, factories, offices and roads could not be built or maintained. They can be split into two main groups:-
- Primary aggregates. These are crushed rock and sand and gravel, which are extracted directly from the ground at quarries (**land-won** aggregates) or dredged from the sea (**marine-dredged** aggregates). Depending on their geological source, primary aggregates can have different properties or characteristics that can be important for their end-use. Important examples in Cumbria are the two types of crushed rock that are used for surfacing motorways and main roads because of their

<sup>7</sup> NPPF paragraph 207, MHCLG, July 2018

<sup>8</sup> PPG, chapter 27 Planning for Aggregate Minerals, paragraph 062 (ID: 27-062-20140306)



high or very high skid resistance properties (both in terms of the results of their high Polished Stone Value – PSV – and their Sideways force Coefficient Routine Investigation Machine - SCRIM).

- Alternative aggregates. These are alternatives to primary aggregates and are regarded as more sustainable. They can be split into two sub-groups:-
  - **secondary aggregates** are a by-product of mining or quarrying operations or of other industrial processes; they can include colliery spoil, china clay waste, incinerator ash and pulverised fuel ash from power stations, industrial glass waste, ceramic waste, old tyres, slate waste, spent foundry sand and old blast furnace slag banks.
  - **recycled aggregates** are produced by recycling construction, demolition, excavation and other wastes. They can include crushed concrete, bricks and glass, old railway track ballast and the surface layers removed from roads during roadworks (road planings).  
*(The terms “secondary” and “recycled” aggregates are sometimes used interchangeably)*

### **Aggregates in Cumbria**

- 2.6 Cumbria is self-sufficient in aggregates and also supplies other markets, especially in the North West and the North East. Just under a third of Cumbrian quarries supply national markets, including Wales and Scotland, and three of Cumbria’s crushed rock quarries are able to supply high specification aggregates (HSA) that are essential for high skid resistance roadstone used for highway surfacing. These are a nationally significant resource, located outside of the National Park.
- 2.7 There are 10 operating sand and gravel quarries within Cumbria, all outside of the Lake District National Park (LDNP); 23 building stone and slate quarries, of which 10 produce aggregates from slate, sandstone and limestone, and 17 operating hard rock quarries, providing limestone, igneous and sandstone rock. Two of the hard rock quarries, Shap Beck and Shap Blue are partly within the LDNP; a third, Shap Pink, is wholly within the LDNP. In addition to producing aggregates, four of the limestone quarries supply industrial markets, mostly for burnt lime.
- 2.8 Production of secondary and recycled aggregates in the county makes a valuable contribution to resource efficiency and the protection of the environment from unnecessary primary extraction. There are almost 20 main processing plants in Cumbria, producing alternative aggregates from quarry waste, recycled or reused materials.
- 2.9 A further resource is provided by marine dredged aggregates that are landed at Barrow Port, with small amounts arising as a result of channel maintenance activities at some Cumbrian harbours.

### **The Managed Aggregates Supply System**

- 2.10 Since the 1970s, there has been a national Managed Aggregates Supply System (MASS) set up to ensure a steady and adequate supply of aggregates, taking into

account the significant geographical imbalances in the availability of suitable aggregates and the areas where they are most needed. It requires mineral planning authorities that have adequate resources of aggregates to make an appropriate contribution to national as well as local supply, while making due allowance for the need to control any environmental damage to an acceptable level. The North West, as a whole, meets only around half of its aggregates consumption from within the region. Cumbria helps to meet the needs of other parts of the region but much of the shortfall is met from other regions - for example, quarries in Derbyshire and north Wales supply Greater Manchester due to their proximity.

- 2.11 Originally, the MASS was based on national estimates of need for aggregates projected forward for 15 years, which were then apportioned to regions. The NPPF (2012) brought in the requirement for mineral planning authorities to produce their own Local Aggregates Assessment each year. However, they still need to take into account the published national and regional guidelines for aggregates provision.
- 2.12 The MASS is undertaken through national, sub-national and local partners working together to deliver a steady and adequate supply of aggregates:
- at the local level, mineral planning authorities must prepare Local Aggregate Assessments to assess the demand for and supply of aggregates in their area;
  - at the sub-national level, mineral planning authorities belong to and are supported by Aggregate Working Parties who produce fit-for-purpose and comprehensive data on aggregates covering specific geographical areas;
  - at the national level, the National Aggregate Co-ordinating Group monitors the overall provision of aggregates in England.

### **Sub-Regional Apportionment**

- 2.13 The government sets national and regional apportionment figures for a 15 year period. The current figures are set in the National and Sub-National Guidelines for Aggregates Provision in England (2005- 2020) which was last updated in 2009. From this the regional Aggregate Working Party must set a sub-regional apportionment figure for each of the mineral planning authorities in that region.
- 2.14 Cumbria, including the area administered by the Lake District National Park Authority, is a member of the North West Aggregates Working Party (NW AWP) and constitutes one of the four sub-regions in the North West. In 2011 the NAWP agreed the sub-regional apportionment figures. For Cumbria this was set at 4.1Mt for crushed rock and 0.7Mt for sand and gravel.

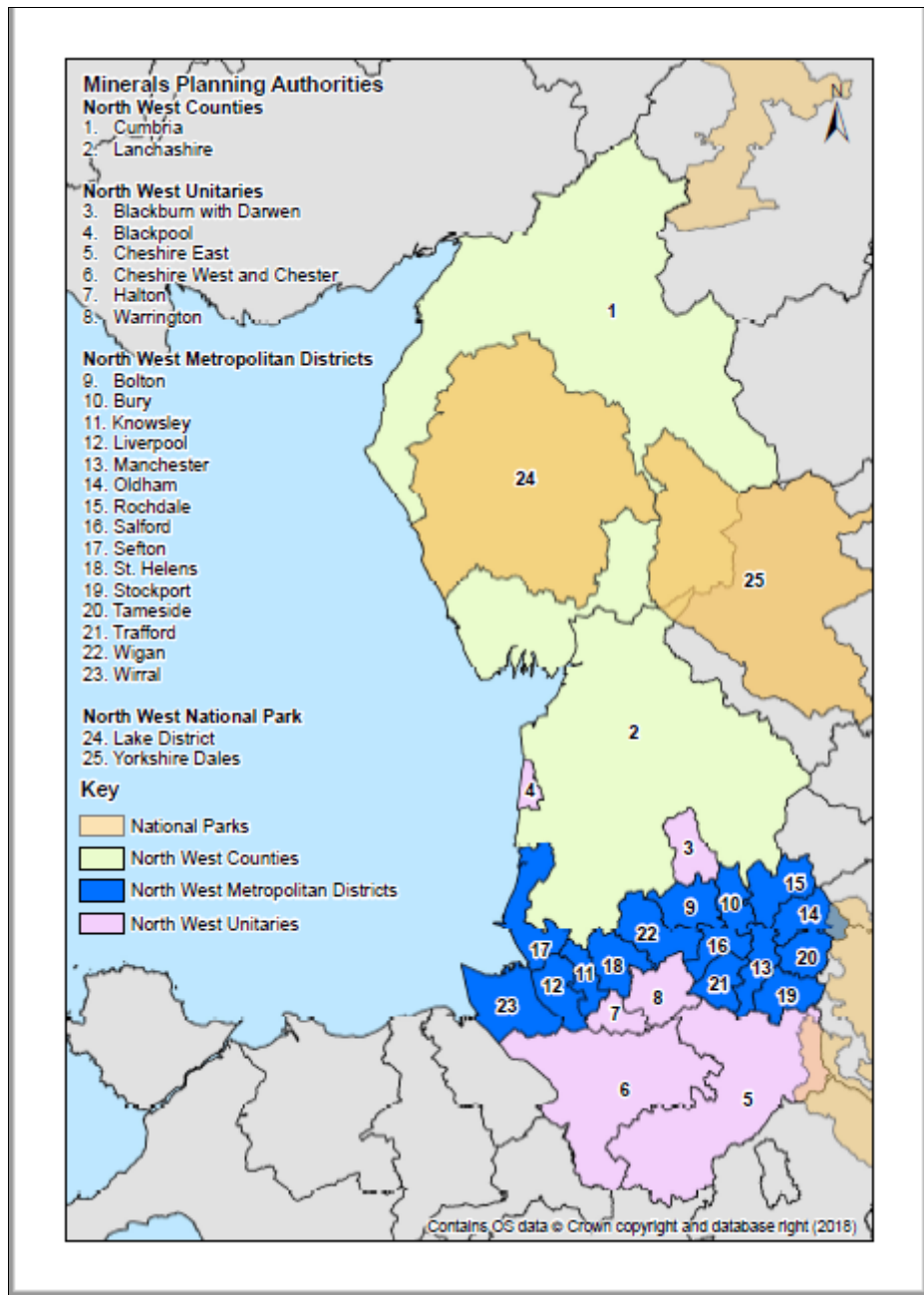


Figure 1 – Map of NW AWP area

## Landbanks

- 2.15 A key additional tool that underpins the working of the MASS is the aggregate landbank, which is principally a monitoring tool and the main basis for the mineral planning authority to consider whether to review their Local Plan.
- 2.16 Separate landbanks are required for two types of non-energy minerals<sup>9</sup> - crushed rock (at least 10 years) and sand and gravel (at least 7 years). The difference in time periods is to some extent because these two types of aggregate serve different markets and have different site infrastructure requirements. For example, quarries producing crushed

<sup>9</sup> construction and industrial minerals

rock will need a longer security of reserves to justify capital investment in crushing equipment.

- 2.17 Calculation of landbanks should be undertaken annually. The length of a landbank is the sum in tonnes of all permitted reserves for which valid planning permissions are extant, divided by the annual rate of future demand, based on the latest annual Local Aggregate Assessment. Permitted reserves include currently non-working sites, but exclude those sites where mineral working cannot take place until there has been a review of the planning conditions attached to their planning permission. A table showing all the figures used for calculating landbanks is included in *Appendix 8*. This is also used to estimate when additional tonnage will be needed to maintain the required landbank right to the end of the Plan period 2030 (i.e. so the reserves will last until 2037 for sand and gravel, and 2040 for crushed rock).
- 2.18 The NPPF<sup>10</sup> recommends that landbanks for non-energy minerals should be maintained outside of designated areas such as National Parks and Areas of Outstanding Natural Beauty (AONBs). Cumbria contains, in whole or in part, two National Parks (Lake District; Yorkshire Dales) and three AONBs (Solway Firth; Arnside and Silverdale; North Pennines). There is also a World Heritage Site (Frontiers of the Roman Empire: Hadrian's Wall) across the north of the county, around 580 Scheduled Monuments and just under 100 Conservation Areas, all outside of the Lake District National Park. The Lake District National Park itself is now a World Heritage Site.
- 2.19 The landbanks that have been calculated for this LAA, do include reserves located in the Lake District National Park - for crushed rock used as aggregate from Shap Beck and Shap Blue quarries, both on the very edge of the Park. Rooks Quarry in the Yorkshire Dales National Park is now incorporated in to their own LAA work. It provides limestone off cuts for building stone so does not impact on Cumbria's landbank position. There are also landbank reserves located in two of the AONBs – at Sandside (Arnside and Silverdale AONB), Hartley and Helbeck quarries (North Pennines AONB).
- 2.20 Another requirement of the NPPF is that mineral planning authorities should ensure that competition is not stifled by large landbanks of permitted reserves bound up in very few sites; by inference, this means landbanks held by few mineral companies. This has been made increasingly difficult by the succession of mergers and acquisitions within the minerals industry over the years, which have significantly reduced the number of mineral companies operating nationally. However, in Cumbria, the control of reserves is not limited to a very few sites or very few operators. This is not, therefore, a pressing concern, but the situation will be kept under review.

### **LAA Provision figures**

- 2.21 Having regard to the latest sales figures and other relevant local information, minerals planning authorities must set a sales figure each year in their LAA on which to calculate their landbank going forward and determine whether there will be sufficient aggregate reserve throughout the relevant local plan period. This is known as the LAA provision figure. It is likely to change from year to year depending on local circumstances. The Annual Monitoring Report prepared by the NAWWP will usually report on the most

---

<sup>10</sup> NPPF (July 2018) Section 17 Facilitating the sustainable use of Minerals – paras. 203 -211

recently published LAA provision figures, i.e. those completed in the previous calendar year.

### **Information used to produce the Cumbria LAA**

- 2.22 The LAA should be based on a rolling average of 10 years sales data as a starting point but other relevant local information must also be taken into account. This could include planned infrastructure projects, levels of projected housing growth, and assessment of the 3 year average sales figures to identify any recent trends in demand. The most significant information used to prepare this LAA is set out below:-
- the Annual Monitoring Survey forms - sent to all mineral operators in Cumbria for primary land won aggregates and for secondary/recycled aggregates; this survey collects sales data for each type of aggregate for the previous calendar year and also indicates the permitted reserves at year end;<sup>11</sup>
    - data and information on marine dredged aggregates, held by the Crown Estate;
    - local information, which includes, but is not restricted to:
      - data provided in planning applications
      - liaison with minerals operators
      - levels of planned construction and house building in Cumbria
      - the economic strategy of the Local Enterprise Partnership
    - the NW Aggregates Working Party annual report
    - the four-yearly aggregate minerals survey carried out by the British Geological Survey for DCLG – AM2014.
- 2.23 It has also been necessary to take account of the high specification roadstone quarries in the Yorkshire Dales National Park as any reduced production from within the National Park could have an impact on the high specification roadstone quarries within neighbouring Cumbria.
- 2.24 The assessment of demand and supply is set out for each aggregate type in the following chapters, with a concluding chapter summarising the overall position at the end of 2017. Further details on relevant local information such as planned infrastructure projects and growth forecasts are included in the Appendices, along with historic data on aggregate sales and import/export trends.
- 2.25 This LAA has been prepared taking into account comments made by the NWAWP and was formally ratified at the NWAWP meeting on 22 November 2018.

---

<sup>11</sup> The data gathered on the survey forms is confidential and an officer is nominated to receive the data provided by the operators. Itemised sales and reserves figures are not reported – they are collated so that individual figures and quarries cannot be identified

### 3 Sand and gravel

#### *Demand for sand and gravel*

3.1 Sales of land-won sand and gravel was 0.79Mt, dropping from 8.1Mt in 2016.

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
<b>Sand and Gravel Sales (Mt)</b>										
<b>Land-won</b>	0.77	0.52	0.53	0.46	0.46	0.48	0.68	0.71	0.81	0.79
<b>Marine dredged</b>	0.02	0.02	0.02	0.01	0.01	0.01	0.02	0.006	0.01	0.008
<b>Total sales</b>	0.79	0.54	0.55	0.47	0.47	0.49	0.7	0.716	0.82	0.80

Table 2 – Historic sand and gravel sales

- 3.2 In 2017, the 10 year average of sales of land-won sand and gravel was 0.62Mt and the 3 year average was 0.77Mt.
- 3.3 Sales of sand and gravel aggregates from Cumbrian quarries recovered in 2014, following five years of recession and continued to rise, matching pre-recession sales in 2016. In common with other aggregate sales in Cumbria, last year's LAA anticipated that with the push for growth and infrastructure and housing sales would not fall back again in 2017.
- 3.4 However, with the exception of the 2016 figure, the 2017 sales are the highest since 2007. This continues the pattern of steady increase from 0.48Mt in 2013 to 0.71Mt in 2015 and is now in excess of the sub-regional apportionment for Cumbria of 0.7Mt.
- 3.5 A number of significant infrastructure projects had been identified in previous LAAs as an influencing factor on future demand. Two of these major projects (new nuclear power station at Moorside and the associated North West Coast Connections scheme) are currently on hold. Further details of all planned infrastructure projects and household growth are provided in *Appendix 1 – "Other Relevant Local Information"*. In summary, the planned infrastructure projects are not expected to come to fruition until at least 5-10 years' time and therefore will not influence demand for aggregates in the short-term.
- 3.6 Nationally, the Minerals Products Association (MPA)<sup>12</sup> reported that primary aggregate sales continue to increase towards 2007 pre-recession levels, with crushed rock recovering more rapidly than sand and gravel. During 2016 sales of land-won sand and gravel were recorded as 48.6Mt, higher than the previous year.

<sup>12</sup> Profile of the UK Mineral Products Industry – 2018 Edition (Mineral Products Association)

### **Supply of sand and gravel**

- 3.7 Permitted reserves of all land-won sand and gravel at the end of the year were 7.62 million tonnes (Mt). Of this amount, 7.38 Mt were allocated by operators for aggregate use, with 0.24 Mt allocated for agricultural or leisure purposes.

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
<b>Sand and Gravel Aggregate Reserves (Mt)</b>										
<b>Land-won aggregate sand and gravel</b>	13.47	13.95	11.48	11.1	10.59	9.89	9.2	8.77	7.77	7.38
<b>Marine – dredged aggregate</b>	-	0.02	0.02	0.01	0.01	0.01	0.004	0.006	0.01	0.008
<b>Total Aggregate sand and gravel</b>	13.47	13.97	11.5	11.1	10.6	9.9	9.2	8.78	7.78	7.39

Table 3 – Historic sand and gravel reserves

- 3.8 All but two of the sand and gravel quarry permissions will expire before the end of the Plan period in 2030 - these are **Bonnie Mount** (2035) and **Low Plains** (2033). Details of all the active sand and gravel quarries in Cumbria and their end dates can be found in *Appendix 2*.
- 3.9 Planning permission 2/17/9004 was granted during 2017 for 0.27 Mt of sand to be extracted at **Overby**. This permission runs until 11 February 2020 by which time the site must be restored. This application was to regularise mineral working that had been taking place outside of the original permitted area. This 0.27Mt has been included in the reserve reported in this LAA.
- 3.10 The planning permission at **Low Gelt** will expire in 2019 with 0.56Mt reserve remaining at the end of 2017. It is likely an application for extension of time will be submitted if necessary to extract all the remaining permitted reserve.
- 3.11 **Brockleworth** has a small reserve remaining (0.04Mt) but is currently inactive and has not been operated since it changed ownership in 2013.
- 3.12 There is also the potential for an issue to arise at **Roosecote** quarry. Although the site has planning permission to 2029, the owner of the land and the mineral rights has only granted a 10-year licence to continue quarrying at the site, in case the land is required for their own operational purposes with regard to the adjacent gas terminals. If that were to happen, the reserves would be lost. Furthermore, consolidation of gas processing at the terminal closest to the quarry is likely to increase health and safety risks, which could also impact on the feasibility of future extraction at the quarry.
- 3.13 A number of the 2017 operator survey returns for sand and gravel quarries recorded a significantly higher permitted reserve than previous years. Some referred to a survey or formal re-assessment taking place but others had no evidence to support the figures. Only estimated increases which are evidenced by a survey or formal re-assessment have

been accepted for this year's calculations. Operators returning higher estimates without evidence have been asked for further clarification, noting it is the permitted reserve for extraction which is the relevant figure. In the meantime the 2016 figures have been maintained for calculating the landbank.

### ***Managing supply and demand – LAA provision figures***

- 3.14 Based on 2017 sales, the 10-year annual average sales figure of 0.62 Mt gives a **landbank of 11.9 years** that would last until late 2028.
- 3.15 As well as the 10-year sales average, two further scenarios have been considered - one with sales continuing at 2017 sales levels, and one with average sales rising to 0.8 Mt a year, which was the average figure for pre-recession sales (2001 – 2008). The table below illustrates how the landbank would perform under these three potential scenarios. It also shows the additional reserve required (over and above those currently permitted) to maintain a minimum 7-year landbank at the end of the Plan period in 2030, i.e. to 2037.

Scenario (2017 Reserve = 7.38Mt)	Sales level (Mt)	Landbank (years)	Landbank end date	Reserve remaining at the end of Plan period (2030) (Mt)	Additional tonnage required to maintain minimum 7-year landbank (Mt)
1: 10-year rolling average	0.62	11.9	2028	- 5.02 (deficit)	5.02
2: stabilise at 2017 sales	0.79	9.34	2026	- 8.42 (deficit)	8.42
3: match pre-recession average sales	0.80	9.23	2026	-8.62 (deficit)	8.62

Table 4: Sand and gravel – outcomes of potential sales scenarios

- 3.16 In all three scenarios, based on current permitted reserves the required land bank of 7 years would run out before the end of the Plan (2030). Taking into account recent sales trends ( 3 -year average sales is 0.77Mt); the sub-regional apportionment of 0.7Mt, and the other relevant local information set out in *Appendix 1*, **provision for sand and gravel will be based on 2017 sales level (0.79 Mt)**.
- 3.17 Using this provision figure, the existing landbank would run out in 2026, well before the end of the Plan period, with the reserve starting to fall below the required 7 years' supply in 2019. To maintain a 7 year landbank throughout the Plan period under this scenario would require an additional 8.42 Mt of sand and gravel reserve to be released towards the end of the Plan period.
- 3.18 The site allocations for sand and gravel Areas of Search that are identified in the adopted CMWLP, could be roughly estimated as containing 14 Mt of resources so there is potential for this shortfall to be met. However, this is based only on the reserves in the adjoining permitted sites and no estimates have been obtained from the relevant operators. It is by no means certain that planning applications would be submitted, or approved, on the Areas of Search, or that time extensions would be sought and granted on existing sites whose current planning permissions expire within the Plan period.



- 3.19 If all these applications were submitted and granted, it is likely that there would be sufficient reserves to satisfy pre-recession sales levels and provide a minimum 7-year landbank at the end of the Plan period.
- 3.20 The CMWLP identifies the following Site Allocations for sand and gravel–
- Land between Overby and High House Quarries – M6 Area of Search
  - Cardewmires Quarry – M8 Area of Search
  - Land near Roosecote Quarry – M12 Area of Search
  - Peel Place Quarry – M15 Area of Search
  - Rooscoote Quarry -M27 Preferred Area
  - Kirkhouse Quarry – M11 Areas of Search
- 3.21 All of these allocations – with the exception of Kirkhouse Quarry - are within the west and south of the county where there is a particular shortage of sand and gravel aggregate supply compared to the rest of the county.
- 3.22 In addition, there were some other sand and gravel site allocations proposed that were not included in the adopted CMWLP. The allocations currently in the adopted plan are capable of providing sufficient additional reserve to maintain the landbank within the Plan period. However, if these do not come forward then it would be possible to revisit those alternative allocations.

### **Marine dredged aggregates (sand and gravel)**

- 3.23 Marine dredged aggregates are also considered to be primary aggregates. They account for around 20% of the total supply of sand and gravel in England and Wales. There are no landbanks required for marine dredged aggregates.
- 3.24 In Cumbria, marine-dredged aggregates are landed at Barrow, principally taken from the large licensed area in Morecambe Bay, approximately twenty miles off the coast. Since 2004, around 4,000 to 25,000 tonnes/year of sand from this area have been landed at Barrow docks. This is supplemented by the amounts provided by channel maintenance activities at harbours, such as Workington and Maryport; these aggregates are often used very locally, as they are landed by a local operator.
- 3.25 Landings of marine dredged sand and gravel at Barrow dropped from 10,226 tonnes in 2016 to 8,327 tonnes during 2017. It had looked as though the general decline in landings at Barrow (from 23,111 tonnes in 2009, down to 9,831 tonnes in 2012) had halted in 2013 and that trends were reversing, but with another dip in 2014 and then rises in 2015 and 2016, landings are currently unpredictable.

YEAR	2009	2010	2011	2012	2013	2014	2015	2016	2017
Tonnes	23,111	15,592	12,333	9,831	11,805	3,790	5,905	10,226	8,327

Table 5 – Marine Landings at Barrow (source: The Crown Estate 2018)

- 3.26 The amounts of marine dredged aggregates that are landed in the North West have generally been falling over several years and have always been less than the authorised extraction rates. In 2016, the total marine aggregates extraction rate from all licensed areas off the coast of the North West was 270,624 tonnes for primary aggregates, a decrease from the previous year's figure (302,431 tonnes). The 2016 figure is less than a quarter of the permitted extraction rate of 1.3 Mt/year. Current estimates are that there is around 40 years' primary aggregate production still permitted. One application for a licence could, if permitted, increase the permitted tonnage for the region by an additional 0.5Mt.<sup>13</sup>
- 3.27 One of the key issues relating to reducing supply is poor demand; however, with the pressures on land resources, it is expected that marine aggregates will play an increasingly important role. This can be seen with the renewal for a 15 year period of the Hilbre Swash (off North Wales) licences at the start of 2014, and the future entry of a new company into Cumbria's marine marketplace, with Hanson Aggregates Marine Ltd being awarded a new Option and Exploration Agreement in 2014. If progressed, extraction could commence by 2020.
- 3.28 As can be seen in Table 3, marine-dredged sand and gravel does not currently make any substantial contribution to the total reserve figures. There does appear to be considerable potential to increase the substitution of marine dredged sand for that which is land-won. This should be encouraged given the uncertainty over whether sufficient land-won reserves will be released to meet the 8.42Mt shortfall in supply over the Plan period that has been identified. In recognition of this, CMWLP Policy SP10 states that planning permission will be granted for developments at appropriate locations that would enable increased use of marine dredged aggregates (subject to being environmentally acceptable).

<sup>13</sup> Marine Aggregates: Capability & Portfolio, The Crown Estate, 2017 (reporting on the 2016 calendar year)

**Summary – sand and gravel**

Current permitted reserves of land-won sand and gravel for aggregate use (7.38Mt) are not sufficient to maintain the required 7 year land-bank throughout the Plan period (2015-2030). Based on 2017 sales figures (0.79Mt) the available landbank would run out in 2026, starting to fall below the required 7 years' supply in 2019.

An additional 8.42Mt of sand and gravel reserve is required to maintain the 7 year landbank throughout the Plan period.

A number of existing permissions for sand and gravel extraction are due to expire within the next 2-3 years and there is uncertainty over the duration of the operational licence for Roosecote Quarry , despite the planning permission running until 2029.

Site Allocations have been made in the adopted CMWLP for Areas of Search/Preferred Area for sand and gravel. If progressed, these would provide sufficient reserve to satisfy pre-recession sales levels and provide a 7 year landbank at the end of the Plan period.

There is potential for marine-dredged sand and gravel to make a much greater contribution to the total reserve figures in Cumbria but current trends in landing figures are too unpredictable to make any robust assumptions at this stage.

## 4 Crushed rock

### *Demand for crushed rock*

4.1 Sales of crushed rock for aggregate use (excluding slate, building stone and other non-aggregate sales) were 2.61Mt, dropping from 2.89Mt in 2016.

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
<b>Crushed Rock Sales for aggregate use (Mt)</b>										
<b>Limestone</b>	2.7	1.91	2.46	1.84	2.03	1.62	1.9	2.52	1.92	1.78
<b>Sandstone and igneous rock (excl. HSA)</b>	0.4	0.38	0.41	0.37	0.37	0.37	0.3	0.36	0.49	0.41
<b>High Specification Aggregate (HSA)</b>	0.72	0.78	0.59	0.6	0.55	0.41	0.38	0.42	0.48	0.43
<b>Total sales</b>	3.58	3.07	3.46	2.81	2.95	2.4	2.58	3.3	2.89	2.61 <sup>14</sup>

Table 6 – Historic crushed rock sales

4.2 In 2017, the 10 year average sales for all crushed rock was 2.99Mt and the 3 year average was 2.93Mt. Sales figures for crushed rock have consistently been below the sub-regional apportionment set for Cumbria of 4.1Mt.

4.3 Sales figures for crushed rock have fluctuated over the past 10 years and this is more pronounced when reviewing Limestone sales. The collated sales figures for limestone also exclude non-aggregate uses; however, if sales of limestone used for non-aggregate purposes fluctuate in response to market changes, this could have an effect on the rate of decrease in aggregate reserves. Reported non-aggregate use limestone sales in 2017 were 11% of the total limestone crushed rock sales (2.03 Mt), whereas reserves allocated by operators for non-aggregate uses were only 4% of all limestone crushed rock reserves. The sales of limestone for industrial purposes has fallen since calendar year 2014, when it constituted 27% of the total limestone crushed rock sales; the percentage of reserves reported by operators to be allocated for non-aggregate purposes has stayed the same.

4.4 A number of significant infrastructure projects had been identified in previous LAAs as an influencing factor on future demand. Two of these major projects (new nuclear power station at Moorside and the associated North West Coast Connections scheme) are currently on hold. Further details of all planned infrastructure projects and household growth are provided in *Appendix 1 – “Other Relevant Local Information”*. In summary, the planned infrastructure projects are not expected to come to fruition until at least 5-10 years’ time and therefore will not influence demand for aggregates in the short-term.

<sup>14</sup> Figures in this table are rounded up to Mt: Limestone 1,777,521; sandstone & igneous 405,573; V/HSA 426,214; Total sales = 2,609,308

- 4.5 Nationally, the Minerals Products Association (MPA)<sup>15</sup> reported that primary aggregate sales continue to increase towards 2007 pre-recession levels, with crushed rock recovering more rapidly than sand and gravel. During 2016 sales of crushed rock were 113.9Mt, higher than the previous year.

### **Supply of crushed rock**

- 4.6 Permitted reserves of all crushed rock at the end of the year were 131.65Mt. Of this amount, 4.3Mt (3.1%) were allocated by operators for non-aggregate use, leaving 127.35Mt for aggregate use.

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
<b>Crushed Rock Reserves for aggregate use</b>										
<b>Limestone</b>	110.05	103.9	109.8	103.8	99.56	99.17	96.26	97.9	84.26	81.78
<b>Sandstone and igneous rock</b>	47.75	47.81	47.36	24.81	23.41	10.33	29.82	29.5	29.00	29.01
<b>High Specification Aggregate (HSA)</b>	18.2	17.26	13.16	13.81	13.77	11.53	10.98	17.22	16.74	16.56
<b>Total reserves</b> <sup>16</sup>	186.7	168.9	170.3	142.4	136.7	121.03	137.06	144.63	130.00	127.35

Table 7 – Historic crushed rock reserves

- 4.7 Details of all active crushed rock quarries in Cumbria and their end dates can be found in *Appendix 3*. Five crushed rock quarry permissions will expire before 2030. **Moota** did secure permission for a time extension (to 2024) and physical extension in early 2015, which has resulted in the working of further reserves. In 2016, **Holme Park** submitted an application for an extension of time to 2043, which was granted permission in July 2017, subject to a Section 106 agreement; in 2017 **Sandside** submitted an application for an extension of time to 2029 which was granted permission in July 2018 subject to a Section 106 Agreement; **Shapfell** submitted an application for a time extension and to deepen the quarry over ten years ago which remains undetermined but the site has been largely inactive since then. It is anticipated extraction will cease in the near future but there is only a relatively small reserve remaining (estimated less than 0.1Mt). **Tendley** is working steadily in accordance with its phasing. **Snowhill no.1 Quarry**, which was previously only considered for building stone, was granted permission in 2014 to increase its aggregate production five-fold for a three year trial period; in mid-2017, the quarry was granted a time extension to 2022.
- 4.8 The planning application for **Holme Park**, does not entail any deepening or lateral extension of the quarry, as it is located in a very sensitive area. A National Nature Reserve and SSSI lie in the centre of the quarry, and there are several surrounding Limestone Pavement Orders. **Sandside** Quarry is also situated in a constrained site, within the Arnside & Silverdale AONB, and it is unlikely that a lateral extension could be accommodated. The situation at both of these quarries will be monitored throughout the Plan period and the LAA updated, as necessary

<sup>15</sup> Profile of the UK Mineral Products Industry – 2018 Edition (Mineral Products Association)

<sup>16</sup> Excluding slate and those classified by operator as non-aggregate use.

- 4.9 There may be issues with two other crushed rock quarries, which have the potential to impact on the landbank. Firstly, **Eskett and Rowrah** quarries; that part of the quarry known as Eskett is almost worked out and the operator intends to move into that part known as Rowrah, in order to exploit the reserves located there. However, there is a substantial amount of water in the Rowrah area and, if an environmentally acceptable solution for its dewatering is not found, the reserves could be lost. Secondly, **Kendal Fell Quarry** is the subject of a master-planning exercise; the development would potentially sterilise the resource, which remains in a Mineral Safeguarding Area. Prior extraction could be considered if development of the site was likely to result in an unacceptable loss of the available limestone reserve within the county.

***Managing supply and demand – LAA provision figures***

- 4.10 Based on 2017 sales and remaining reserves , the 10-year annual average sales figure of 2.99Mt for **all crushed rock** gives a **landbank of 42.59 years** which would last until Mid-2059.
- 4.11 **Provision for all crushed rock will be based on the 10-year average sales level (2.99Mt)** to allow for some growth but recognising sales have fluctuated. This would be higher than last year’s provision of 2.89Mt based on 2016 sales level. Although 2017 sales have dropped and there are no major infrastructure projects anticipated to start within the next 5 years or so, working to the 10-year sales average is considered to be an appropriate starting point and would also be closest to the sub-regional apportionment figure of 4.1Mt. The landbank is substantial and there are no other local circumstances that would justify departing from the 10-year average sales figure at this time.
- 4.12 **Provision for all sandstone and igneous will be based on the 10-year sales average sales level (0.92Mt).** Sales were at 0.92Mt in 2012 and have since fluctuated - the 2017 sales figure of 0.83Mt being the highest since 2013 with the exception of last year when they peaked at 0.97Mt.
- 4.13 Based on 2017 sales and remaining reserves, the 10-year annual average sales figure of 0.39Mt for **sandstone and igneous (excluding high and very high specification roadstones)** gives a **landbank of 74.38 years** which should last until early 2091.
- 4.14 **Provision for sandstone and igneous (without HSA) will be based on the 2017 sales level (0.41Mt).** This is the highest figure since 2011, with the exception of last year which peaked at 0.49Mt, and higher than the 10-year average of 0.39Mt. This gives a **landbank of 70.75 years** which should last until late 2087.
- 4.15 Use of the 10-year average figure has been considered (to be consistent with the provision for other crushed rock) but the 3-year average of 0.42Mt suggests a trend of increasing sales. Given the 2016 sales appears to be a peak, and there are no major infrastructure projects anticipated within the next 5 years, sticking with the current sales figure is considered most appropriate but will be kept under review and increased in future years if the trend for increased sales continues.
- 4.16 Due to the substantial landbanks available- which should extend well beyond the Plan period - it is not considered necessary to consider any further scenarios for sandstone and igneous (excluding high specification aggregates) or for the provision of crushed rock

generally. Historic sales data and landbank years based on 10-year average sales for all aggregates is provided in the table at *Appendix 7* for reference.

- 4.17 Assessment of **high specification aggregates**, including the LAA provision figure, is reported separately in the following chapter.
- 4.18 Looking at **limestone alone**, used only for general aggregate use and not as high specification roadstone, based on 2017 sales and remaining reserves (81.78Mt), the 10-year average sales figure (2.07 Mt) gives a **landbank of 39.51 years** which would last until mid-2056. These figures also exclude limestone reserves for non-aggregate use, which are generally the high purity limestone that is used for industrial purposes.
- 4.19 Three scenarios are considered for managing the supply of limestone. Firstly, the continuance of the 10-year average sales level (2.07 Mt); secondly, stabilisation at the 2017 sales level (1.78 Mt); and thirdly, a scenario in which limestone aggregate sales achieve pre-recession average sales of 2.75Mt over the entire period to 2030. The table below illustrates how the landbank would perform under these potential scenarios.

Scenario (2017 reserve = 81.78Mt)	Sales level (Mt)	Landbank (years)	Landbank end date	Reserve remaining at end of Plan period (2030) (Mt)	Additional tonnage required to maintain 10-yr landbank (Mt)
1: 10-year rolling average	2.07	39.51	2056	54.8	0 (34.17 excess)
2: stabilise at 2017 sales	1.78	45.94	2062	58.6	0 (40.84 excess)
3: rise to pre- recession average sales	2.75	29.74	2046	46	0 (18.53 excess)

Table 8: Limestone – outcomes of potential sales scenarios

- 4.20 Each scenario shows that no additional reserves are required (over and above those currently permitted) to maintain a minimum 10-year landbank at the end of the Plan period in 2030, i.e. to 2040.
- 4.21 The previous LAA provision figure was based on pre-recession average sales of 2.75Mt. However, sales figures have fluctuated a lot in recent years and even the highest figure of 2.46 Mt achieved in 2010 seems a long way off the pre-recession sales. The 3-year average sales figure this year is 2.07Mt - coincidentally the same as the 10-year average sales figure. This is considered a more reasonable scenario in the context of 1.78Mt sales achieved in 2017, and also taking into account there are no major infrastructure projects expected to commence within the next 5 years or so.
- 4.22 **Provision for limestone will be based on the 10-year average sales level (2.07 Mt)**, but will, of course, be kept under review.

#### 4.23 The CMWLP identifies the following Site Allocations for Limestone–

- Silvertop Quarry – M10 Area of Search

This allocation relates to a possible small extension to the existing quarry. It is not to identify further reserves but to establish whether an alternative area for quarrying is available that would have less impact on the setting of the North Pennines Area of Outstanding Natural Beauty, which overlooks the quarry, compared to part of the land within the current planning permission.

#### **Summary – crushed rock**

Current permitted reserves of all crushed rock for aggregate use (127.35Mt) are more than sufficient to maintain the required 10 year land-bank throughout the Plan period (2015-2030). Based on 10-year average sales (2.99Mt) there is a landbank of 42.59 years which would run out in 2059.

The 10-year average sales for sandstone and igneous (excluding high specification aggregates) gives a landbank of 74.38 years which would run out in early 2091. Applying the 2017 sales figure of 0.41Mt maintains a landbank of 70.7 years which should last until 2087.

Looking at reserves for limestone alone (also excluding high specification aggregates) the 10 year average sales (2.07Mt) gives a landbank of 39.51 years which would run out in 2056.

A number of planning permissions have been granted for time extensions on crushed rock quarries to allow for continued extraction of the permitted reserve.

A Site Allocation has been made in the adopted CMWLP for limestone. This is not to identify further reserves but to establish whether an alternative area for quarrying is available that would have less impact on the setting of the North Pennines Area of Outstanding Natural Beauty than part of the area currently permitted.

There are no concerns at this stage regarding supply and demand of crushed rock generally. However, as Cumbria has three quarries producing high specification and very high specification aggregates for use as roadstones, and this is a nationally significant resource, these aggregates are assessed separately.



## 5. High specification aggregates

- 5.1 The High and Very High Specification Aggregates (HSA and VHSA) produced in Cumbria are essential for the building and maintenance of low-skid surfaces on roads, especially motorways. They have a national and regional market and are a nationally significant resource. Collection of separate data on this material commenced in 2005, in order to ensure ongoing supplies distinct from general crushed rock use for aggregates. A distinction is also made between a HSA with a PSV of 58+ and Very High Specification Aggregates (VHSA) with a PSV of 68+ which are geologically rare.
- 5.2 It is now possible to derive annual average sales for these roadstones over a ten year period. There are indications that the demand will rise over the next 5 to 10 years, and there are limited sources of the material in the UK and as yet no suitable alternatives.

### ***Demand for high specification aggregates***

- 5.3 Sales of high specification aggregates (HSAs) and very high specification aggregates (VHSAs) were 0.43Mt, dropping from 0.48Mt in 2016.

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
<b>HSA Sales (Mt)</b>										
<b>High and Very High Specification Aggregate (V/HSA)</b>	0.72	0.78	0.59	0.6	0.55	0.41	0.38	0.42	0.48	0.43

Table 9 – Historic sales for high specification aggregates

- 5.4 Sales of HSA and VHSA have fluctuated over the past 10 years, rising from 0.38Mt in 2014 to 0.48Mt in 2016 but have not regained their pre-recession levels of over 0.7Mt. In common with other aggregates, last year's LAA anticipated that with the push for growth in infrastructure and housing, the sales would not fall in 2017.
- 5.5 The peak in 2016 sales is likely due to construction projects taking place at the time, in particular the Bay Gateway at Morecambe which would have required this high specification product for the road construction.
- 5.6 A number of other significant infrastructure projects had been identified in previous LAAs as an influencing factor on future demand. However, as detailed in *Appendix 1 – Other Relevant Local Information*- some of these have been put on hold (i.e. Moorside and the associated North West Coast Connections) and the major infrastructure projects currently planned are not expected to come to fruition until another 5 – 10 years' time.
- 5.7 The United Utilities pipeline project near Ennerdale Water is under construction now and likely to carry on until 2020. However, this is unlikely to place significant demand on high

and very high specification roadstone as the project mainly involves tunnelling and excavation work and not the construction of roads.

- 5.8 However, as a nationally significant resource, demand for HSA and VHSA will be influenced by growth in infrastructure and housing from across the UK and not just within Cumbria or the North West. The Government published its first Road Investment Strategy in December 2014 and this committed £15billion (i.e. a tripling of expenditure) to upgrade existing roads and build new roads over the next 5 years (i.e. to 2020). This is likely to substantially increase demand for VHSA and HSA from current levels. There is also likely to be increased demand for VHSA and HSA resulting from airport expansion projects and the development of new nuclear power plant facilities across the UK. Thus there would seem to be clear indications that the demand for HSA and VHSA will markedly rise over the next 5 to 10 years.

### ***Supply of high specification aggregates***

- 5.9 Permitted reserves of HSAs/VHSAs at the end of the year were 16.56Mt, all of which is for aggregate use.

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
<b>HSA Reserves</b>										
<b>High and Very High Specification Aggregate (V/HSA)</b>	18.2	17.26	13.16	13.81	13.77	11.53	10.98	17.22	16.74	16.56

Table 10 – Historic reserves of high specification aggregates

- 5.10 There are three established quarries within Cumbria which provide high and very high specification roadstone aggregate. Details of these quarries and their end dates can be found in *Appendix 4*. The expiry date of all these permitted reserves extends beyond the Plan period.
- 5.11 Planning permission was granted in 2017 for extraction of an additional 0.3Mt of high specification roadstone at **Roan Edge Recycling and Landfill** facility, adjacent the Roan Edge quarry (5/16/9018). This provides an additional reserve to complement the existing reserve at **Roan Edge** quarry and is outside of the Area of Search site allocation at Roan Edge quarry.
- 5.12 **Holmescales** quarry has an expiry date of February 2042 but is currently mothballed with an estimated reserve of just 20,000 tonnes remaining. It has been identified as an Area of Search in the CMWLP. Extraction is currently limited to 100,000 tonne per annum on road movements due to capacity constraints of the local road network for access. An appeal against refusal of planning permission for an increase in HGV movements was dismissed on these grounds.
- 5.13 Ghyll Scaur provides the highest quality VHSA roadstone and has an estimated reserve of 7.61Mt remaining at the end of 2017. It is the only operating quarry in England that produces roadstone to this standard.
- 5.14 The adopted CMWLP establishes that a policy approach for security of HSA supplies is required as the need to supply HSA from Cumbria may increase if the supply of HSA

from within the Yorkshire Dales National Park were to be restricted in the future, as implied by NPPF paragraphs 204 and 172, or if policies for European Wildlife sites led to closures of existing quarries in or adjacent to such sites.

- 5.15 In the neighbouring Yorkshire Dales National Park, 4 out of the 5 working quarries produce High PSV gritstone. According to the Yorkshire Dales Local Plan (December 2016) at the end of 2012 there was a landbank of 10 years available for PSV gritstone. However, the planning permissions for 3 of the high PSV quarries were due to expire in 2015, 2018 and 2021. Only 1 high PSV producing quarry (Horton) would continue throughout the Plan period, expiring in 2042.
- 5.16 Some of these permissions have since been extended (Arcow from 2015 to 2029 and Ingleton from 2018 to 2020) and it is anticipated that further applications for time extensions will be submitted in respect of Ingleton and also Dry Rigg (currently expiring 2021). The Yorkshire Dales Local Plan does include safeguarding areas for sandstone which will protect the remaining reserves of high PSV gritstone from sterilisation. There is no stone of the very high specification within the Yorkshire Dales National Park.
- 5.17 If demand for this aggregate increases then, unless further permissions are granted, there is potential for the reserves of high PSV aggregate in the Yorkshire Dales National Park to be significantly reduced towards the end of our Plan periods. This would put more pressure on the reserve available in Cumbria

***Managing supply and demand – LAA provision figures***

- 5.18 Based on 2017 sales and remaining reserves, the 10-year annual average sales figure of 0.54Mt for **high specification roadstones** gives a **landbank of 30.67 years** which should last until Mid-2047.
- 5.19 However, given the importance of these resources for the UK and regional economy, a further three scenarios are included in this LAA. One in which sales average 0.8 Mt per year for the entire period to 2030 (this is just over the highest sales figure of 0.78 Mt recorded in 2009 for these roadstones); one with sales rising to the pre-recession average sales figure of 0.73Mt, and the other continuing sales at the 2017 level (0.43 Mt).
- 5.20 The table below illustrates how the landbank would perform under these potential scenarios. It also shows the additional reserve required (over and above those currently permitted) to maintain a minimum 10-year landbank at the end of the Plan period in 2030, i.e. to 2040.

Scenario (2017 reserve= 16.56Mt)	Sales level (Mt)	Landbank (years)	Landbank end date	Reserve remaining at end of Plan period (2030) (Mt)	Additional tonnage required to maintain minimum 10-yr landbank (Mt)
1: 10-year rolling average	0.54	30.67	2047	9.5	0 (4.14 excess)
2: stabilise at 2017 sales	0.43	38.5	2055	10.9	0 (6.67 excess)
3: rise to pre-recession average sales	0.73	22.68	2039	7.07	0.23
4. rise to highest pre- recession sales	0.80	20.7	2037	6.16	1.84

Table 11: HSA/VHSA – outcomes of potential sales scenarios

- 5.21 It can be seen that in two of these scenarios there would be a shortfall in the required landbank at the end of the Plan period. In the scenario of 0.8Mt sales there would only be a 7.7 year landbank remaining at the end of the 2030 instead of the 10 years required. Reserves would start to fall below the required landbank of 10 years by mid-2027, with only 6.16Mt reserve remaining by 2030. An additional 1.84Mt would be required in order to maintain a 10 year landbank right to the end of the Plan period at this sales level.
- 5.22 If the lower sales figure of 0.73Mt is used (pre-recession average sales, rather than the highest pre-recession sales) there would be 9.6 years landbank remaining at the end of 2030. Reserves would start to fall below the required landbank of 10 years during 2029. An additional 0.23Mt would be required to maintain a 10 year landbank right to the end of the Plan period at this sales level.
- 5.23 Available reserves at the end of 2017 are sufficient to maintain a 10-year landbank at the end of the Plan period under current sales and 10-year average sales.
- 5.24 If we consider sales scenarios solely in relation to the VHSA reserve (because this is the scarcer resource), applying the sales figures for all HSA and VHSA would be disproportionate. Based on recent returns we estimate that VHSA accounts for approximately two-thirds of total sales. The table below repeats the sales scenarios from Table 10, applied just to the 7.6Mt reserve of VHSA and with the sales figures reduced by one-third.

Scenario (Based on 7.6Mt VHSA igneous reserve)	Sales level (Mt)	Landbank (years)	Landbank end date	Reserve remaining at end of Plan period (2030) (Mt)	Tonnage required to maintain minimum 10-yr landbank (Mt)
1: 10-year rolling average	0.36	21.14	2038	2.9	0.67
2: stabilise at 2017 sales	0.28	27.18	2044	3.9	0 (1.17 excess)
3: rise to pre-recession average sales	0.48	15.8	2032	1.37	3.43
4. rise to highest pre- recession sales	0.53	14.36	2031	0.72	4.58

Table 12: VHSA only – outcomes of potential sales scenarios

- 5.25 This shows that, potentially, only by stabilising at 2017 sales levels will the available reserve of VHSA provide sufficient landbank to the end of the Plan period (i.e. lasting up until 2040). Based on 10-year rolling average, there would only be 2.9Mt of VHSA remaining at the end of the Plan period, with the reserve falling below the required 10 years' supply in 2028. An additional 0.67Mt is required to maintain the landbank right through to the end of the Plan period at this sales level. Under the scenario of pre-recession average sales, potentially there would only be 1.37Mt remaining at the end of the Plan period, with the reserve starting to fall below the required 10 years' supply in 2022. An additional 3.43Mt is required to maintain the landbank to the end of Plan period at this sales level.
- 5.26 Whilst it appears there is sufficient reserve of VHSA to last until the end of the Plan period, if sales increase it is likely that a landbank of 10 years' supply could not be maintained right to the end of the Plan period unless additional reserves can be provided. Given the scarcity of this igneous VHSA, significant infrastructure projects outside of the county are likely to impact on demand for the available reserve in Cumbria.
- 5.27 As detailed in *Appendix 1 – Other Relevant Information*- whilst there are no significant infrastructure projects expected to come to fruition over the next 5 years , there are a number of major projects that could commence before the end of the current Plan period and continue into the next Plan period. A number of these projects – in particular the planned southern bypass road for Carlisle- are likely to require VHSA so we would expect sales/demand to increase towards the end of the current Plan period.
- 5.28 Sales of VHSA will therefore be monitored closely in future LAAs. However, the position in respect of VHSA and HSA combined is that there is sufficient reserve to maintain a 10-year landbank right to the end of the Plan period under current sales and 10-year average sales.

- 5.29 **Provision for HSA/VHSA will be based on the 10-year rolling average sales level (0.54 Mt).** This is slightly lower than last year's 10-year average sales figure (0.57Mt) but is the highest sales figure since 2012 and anticipates some increase due to infrastructure projects in the pipeline. This gives a landbank of 30.67 years which should last until 2047.
- 5.30 None of the currently permitted reserves are located in the Lake District National Park. Restrictions on quarrying within the Lake District National Park, where there is potentially an alternative supply of VHSA, will further impact on landbank provision. There is no permitted reserve for VHSA/HSA identified by the other mineral planning authorities in the NW AWP.
- 5.31 The CMWLP identifies the following Site Allocations for high specification roadstones only; there is no provision for VHSA –
- Holmescales Quarry – M16 Area of Search
  - Roan Edge Quarry – M30 Area of Search

#### **Summary – high specification aggregates**

Current permitted reserves of high specification and very high specification aggregates for use as roadstone is 16.56Mt. This is sufficient to maintain the required 10 year landbank throughout the Plan period (2015-2030). Based on 10-year average sales (0.54Mt) there is a landbank of 30.67 years which would last until mid-2047.

If sales increase significantly, the need for additional reserve to maintain the 10-year landbank could occur around the start of the next Plan period (after 2030).

There are four high specification quarries in the neighbouring Yorkshire Dales National Park with some permissions due to expire within the next three years. If these permissions are not extended there will be additional pressure on the supply in Cumbria.

Ghyll Scaur is the only operating quarry in England to produce the very high specification roadstone. This is a nationally significant resource and therefore demand is likely to increase as a result of planned growth in housing and infrastructure across the UK, not just within Cumbria.

If we apply the 10-year average sales proportionately to VHSA alone (this typically equates to about two-thirds of all sales), the reserve of VHSA would start to fall below a 10 year landbank in 2028. An additional 0.67Mt will be required to maintain a 10 year supply of VHSA right to the end of the Plan period. The situation with VHSA will be closely monitored.

Site Allocations in the adopted CMWLP are made for two Areas of Search for high specification aggregate. There is potential for an Area of Search for very high specification aggregate to be made within the Lake District National Park but currently their policies would not permit extraction.

## 6. Building stone and slate

- 6.1 There are 30 quarries in Cumbria which produce primarily building stone rather than aggregate (including 10 slate quarries). 9 of these are located within the Lake District National Park and 1 in the Yorkshire Dales National Park. Details of all the active building stone and slate quarries in Cumbria and their end dates can be found in *Appendix 5*. Those identified as producing some aggregate are considered in this LAA.
- 6.2 Of the building stone quarries that do provide some aggregate there are five located outside the National Park, whose permission will expire in or before 2030. Of these, there is steady progress at **Flinty Fell** and also at **West Brownrigg**; **Rooks** is worked on a campaign basis and extracts only about a quarter of its permitted reserves each year, so it is likely that an application for an extension of time will be submitted, but this will now be to the Yorkshire Dales National Park due to the latter's boundary change; **Snowhill No.1** has been granted permission to increase its annual production rate and produce aggregate and in 2017 was granted permission for a time extension until 2022; **Snowhill No.2** was granted a physical and time extension to 2020 in 2015. In late 2015, **Scratchmill Scar** was granted a time extension to 2031.
- 6.3 With the exception of Kirkby, the remaining slate quarries are all within the Lake District National Park and the majority are not producing aggregates. **Honister**, **Elterwater** and **Kirkby** all produce slate waste for aggregate use which is recorded as a secondary aggregate in this LAA. **High Fell** produces green slate used in flooring and worktops. **Brathay** and **Peatfield** expire in 2018; **Petts** will expire in 2020 but these are all non-aggregate.
- 6.4 The Lake District National Park Local Plan is currently under review and proposes a policy that would support the extension of an existing site or reopening of an old site where the mineral extraction would meet a local need for building stone and slate.
- 6.5 The Yorkshire Dales National Park Local Plan (December 2016) also supports the quarrying of building stone or roofing slate, including by re-opening of existing quarries, in order to increase supplies of locally sourced materials for use in new developments and the repair and maintenance of traditional buildings.
- 6.6 Due to the conservation value and sustainability benefits of allowing this local resource to be quarried within the two National Parks, the potential for aggregate provision from these quarries to contribute to the supply of aggregates within Cumbria is likely to remain throughout the Plan period.

## 7. Alternative aggregates

- 7.1 The term alternative aggregates is used to describe both secondary and recycled aggregates. Secondary aggregates are by-products of other mining or quarrying operations or of other industrial processes; recycled aggregates are produced by recycling construction, demolition, excavation and other wastes. There are no landbanks required for secondary or recycled aggregates.
- 7.2 In Cumbria, important examples of secondary aggregates are slate waste and old blast furnace slag banks. Important examples of recycled aggregates include railway track ballast.
- 7.3 As well as those quarries already identified as producing aggregates from quarry waste, there are around 20 main processing plants in Cumbria producing alternative aggregates from recycled or reused materials (see *Appendix 6*). They are situated in a variety of locations: aggregate quarries, building stone quarries, on industrial estates, railway land or at landfill sites. Few of the slate quarries, which are predominantly situated in the National Park, provide significant quantities of waste material that can be used for aggregates.

### ***Demand for alternative aggregates***

- 7.4 It has proved difficult to obtain reliable information on the amounts of alternative aggregates that are produced. Sales figures obtained for the last few years have ranged from around 180,000 to 450,000 tonnes/year but these are definitely underestimates.

	2011	2012	2013	2014	2015	2016	2017
<b>Secondary/recycled aggregate sales – including slate- (Mt)</b>							
	0.294	0.212	0.202	0.306	0.183	0.450	0.308

Table 13 – Historic sales of alternative aggregates

- 7.5 2017 sales are recorded on the survey returns for secondary/recycled aggregates as 308,763 tonnes (0.31Mt); this includes 220,300 tonnes in slate waste.
- 7.6 The production and use of alternative aggregates, as a sustainable option to augment primary aggregates, will become an increasingly important element in the growth of Cumbria.
- 7.7 According to the Mineral Products Association (MPA) recycled and secondary aggregates accounted for 29% of the total aggregates supply in 2016 with 70.4Mt sales recorded.<sup>17</sup> With increased focus on sustainable construction methods it is anticipated that demand for secondary aggregates will increase as housing growth is delivered. The MPA also point out that the declining reserve of primary sand and gravel will put growing pressure on other sources of supply, including recycled aggregates.

<sup>17</sup> Profile of the UK Mineral Products Industry – 2018 Edition (Mineral Products Association)



- 7.8 The NPPF makes it clear that planning policy should take into account the contribution that secondary/recycled materials and minerals waste can make to the supply of materials before considering extraction of primary materials.

### ***Supply of alternative aggregates***

- 7.9 No realistic figures can be provided about reserves of alternative aggregates because they will only arise as the waste feedstock material becomes available. Data on tonnages produced each year is, at present, sketchy, dependent upon figures held in the Environment Agency's Waste Data Interrogator and Environmental Permits or gleaned from the monitoring of planning permissions.
- 7.10 *Appendix 6* lists the main processing facilities for alternative aggregates. Some are permanent and run under an Environmental permit issued and monitored by the Environment Agency. Others are run under the conditions set out in their planning permissions, and some are tied to the life of other operations carried out at the site; for example, quarrying or landfill.
- 7.11 Five out of the eight sites that have an end date in their planning permissions, will expire before the end of the Local Plan periods (2025 and 2030). Of these, it is expected that, in due course, an extension of time to continue producing alternative aggregates will be submitted for **Silvertop**, as the quarry itself has permission for extraction until 2042. In 2016 planning permission was granted for continued production of alternative aggregates at High Greenscoe Quarry by **Harry Barker Properties Ltd.** In 2017 planning permission was granted for an extension of time on operations at **Roan Edge Recycling and Landfill** for an additional 15 years up to 2031 (5/16/9018).
- 7.12 **Derwent Howe** slag bank ceased operating for slag extraction and recycling of wastes in 2016. It is understood that a further licence would not be issued for this site due to concerns about coastal erosion.
- 7.13 The permission for the recycling of construction waste materials at **Roosecote** expired in 2016. This was tied to the end date of the permission to extract sand and gravel from the quarry, granted in 2011. Since that time, the quarry itself secured an extension of time until 2029, but an application to extend the time period for the aggregates producing facility was not submitted. This facility has ceased operations, and the quarry operator has formed a partnership with the recycled aggregates producer at Goldmire.
- 7.14 **Kingmoor** marshalling yards on the rail sidings at Carlisle is also a major source of secondary aggregates as Network Rail Infrastructure import large quantities of old rail ballast here to process and then export around the UK.
- 7.15 As well as the sites identified in *Appendix 6*, there are a number of operators with mobile plant who travel to demolition sites to process waste. This suits the dispersed settlement pattern in Cumbria and incidentally cuts down on 'waste miles'.
- 7.16 Many of the planned infrastructure projects set out in *Appendix 1 - Other Relevant Local Information* - may generate large amounts of inert waste that could be recycled and re-used for aggregate purposes. The United Utilities pipeline project underway this year,

for example, is creating significant amounts of material from tunnelling, road planings and excavation for the reservoirs. As well as providing fill for nearby quarry restoration projects, an opportunity has been identified to provide a waste recycling and processing facility in the area in order that up to 50% of the material can be re-used as secondary aggregate rather than simply disposed as landfill.

- 7.17 There is likely to be an increase in supply of secondary aggregate over the next few years due to recycling targets in the EU Waste Directive which the government has agreed to commit to even post-Brexit. This requires 70% of construction and demolition waste to be recycled by 2030.

### ***Managing supply and demand***

- 7.18 Both Cumbria County Council and the Lake District National Park Authority seek to record and monitor alternative aggregate arisings in the county and are considering if, in the future, it may be possible to provide targets. An alternative could be to place a condition on CD&E waste arising from demolition of buildings, roads, etc., but both authorities receive only one or two applications of this type each year. This situation will be kept under review.
- 7.19 As noted above, trends in sustainable construction methods and the government's commitment to EU targets for recycling of construction and demolition waste should mean that secondary aggregates will continue to make a significant contribution to the supply of aggregates.
- 7.20 Proposed Policy 07 (Design and Development) in the LDNPA Local Plan Review includes a requirement that developers should use construction methods that allow disassembly rather than demolition and facilitate the re-use of materials. It is also intended to encourage provision of on-site facilities to create re-cycled aggregates from materials that cannot be re-used.
- 7.21 The Cumbria Minerals and Waste Development Framework Core Strategy required sites to be identified to ensure that at least a quarter of aggregate needs can be met by alternative aggregates. That policy has not continued in the adopted CMWLP as it was considered too inflexible. Firstly, in relation to alternative aggregate production at existing quarries or landfills, although the location is appropriate whilst the quarry is operating, it is much less likely to be appropriate once the quarry or landfill is closed and restored. Secondly, the establishment of businesses that produce alternative aggregates is market-led and they will often use mobile plant, allowing them to move to where the feedstock arises. However, the production of alternative aggregates is still encouraged in the adopted CMWLP, and policy DC9 (Criteria for waste management facilities) proposes that suitable industrial estates are appropriate locations for such facilities, plus aggregate quarries and non-inert landfills if the facility permission is tied to the active life of the site
- 7.22 Derwent Howe slag bank is identified as a Mineral Safeguarding Area (MSA) - reference M24 in the CMWLP - as it is an important resource of secondary aggregates. In previous drafts of the Plan it was suggested that both Millom and Barrow slag banks, which are owned by the County Council, could be similarly safeguarded. At present, neither resource is likely to be accessible: Millom is now a Local Nature Reserve that also falls within the Duddon Estuary Special Protection Area and Ramsar, whilst Barrow

is located adjacent to the same SPA and Ramsar, as well as the Morecambe Bay Special Area of Conservation. There are no such slag resources located in the Lake District National Park.

- 7.23 There is an MSA identified for slate in the CMWLP. This is a fairly localised MSA, of the Wray Castle formation, which encompasses Kirkby Slate Quarry, a producer of secondary aggregate. The LDNPA Local Plan also has an MSA for slate, which encompasses both Elterwater and Honister quarries, the other slate waste producers.

#### **Summary – alternative aggregates**

Secondary or recycled aggregates will potentially have an increasingly important role in the provision of aggregate supply. There is no landbank requirement for secondary aggregates and reserve figures cannot be provided as they only arise when the waste material becomes available.

Recorded sales of secondary aggregates in 2017 is 0.39Mt but is likely to be higher in reality. Sales will continue to be monitored as we hope to identify a pattern of increased use of secondary aggregates during the Plan periods.

Trends in sustainable construction methods and the government's commitment to EU targets for recycling of construction and demolition waste (70% by 2030) mean that secondary aggregates should continue to be readily available and increasingly used in development projects.

Mineral Safeguarding Areas are identified in the CMWLP for Derwent Howe slag bank as an important resource of secondary aggregates and for slate at Kirkby Quarry. The LDNPA Local Plan also has a Mineral Safeguarding Area for slate at Elterwater and Honister quarries.

## 8. Infrastructure for Aggregates

8.1 The NPPF also states that planning authorities should safeguard existing, planned and potential rail heads and wharfage in their Local Plans. In the adopted CMWLP site allocations policy SAP5 identifies the following existing and potential rail head/sidings for safeguarding for aggregates use:

AL18 Port of Workington and railhead  
 AL32 Siddick potential rail sidings  
 AL39 Silloth Port  
 BA26 Barrow Port and rail sidings, Barrow  
 M34 Kingmoor rail sidings, Carlisle  
 M35 Shap Beck Quarry rail sidings, Shap  
 M36 Shapfell Quarry rail sidings, Shap  
 M37 Shap Blue Quarry rail sidings, Shap  
 M38 Kirkby Thore gypsum works rail sidings, Kirkby Thore

8.2 The potential site, AL32 at Siddick, near Workington, was put forward originally as a rail head for a conveyor link to a coal extraction site. Although the coal extraction site is not an allocation, the rail head could still be used for other, economically viable, mineral or waste operations in the area.

8.3 The Lake District National Park does not contain any rail heads, but two within the county serve quarries whose extraction area lies within the Park and these need to be safeguarded; these are M35 Shap Beck Quarry and M37 Shap Blue Quarry in the CMWLP. Shapfell Quarry is in the same area, but lies wholly outside the Park; it also has rail sidings that are safeguarded in policy SAP5, as site M36. Kingmoor sidings near Carlisle are also identified (site M34), as Network Rail Infrastructure import large quantities of old rail ballast here, process it and then export the recycled aggregate around the UK.

8.4 In addition to these safeguarded facilities, planning permission was granted in January 2018 for a rail loading facility at Cavendish Dock, Barrow. This is privately owned and we understand not currently in use for transportation of aggregates but anticipated to be when demand arises from infrastructure projects in the area.

8.5 There are no wharves in the Lake District National Park, as there is only a very small coastal section on their boundary. Two working ports and their rail sidings have been identified in the CMWLP: BA26 Barrow Port and AL18 Workington Port. Barrow in particular, handles limestone, sand, aggregates (including marine landings) and granite. Workington is situated on the river Derwent, and the channel is regularly dredged to maintain its access to deeper drafted ships. Silloth Port no longer has rail connection, but is identified for safeguarding as a working port.

## 9. Imports and Exports

### Supply patterns

- 9.1 The location and size of Cumbria, its dispersed settlement pattern and the layout of road and rail networks, have implications for how it meets its needs for minerals. Not only does the county as a whole tend to be self-sufficient, but there are also recognisable areas within the county, which have traditionally met their own needs from local sources.
- 9.2 As the maps in the Appendices show, the locations of Cumbria's quarries are not dispersed uniformly around the county because of geology. There are very few hard rock quarries in the north of the county and only two operating sand and gravel quarries in the south west.
- 9.3 To some extent the old, traditional supply patterns of minerals within the county still exist. This pattern mainly arises from the small operators, often with a local niche market, but the rising cost of transport of minerals is also a contributory factor. It is more usual for the national, conglomerate or international companies to operate across a wider area, often sending their minerals to their own processing/production plants around the UK.
- 9.4 Of the three crushed rock quarries that have specialised national and regional markets, Ghyll Scaur is the only operating quarry in England that produces very high skid resistance roadstones; Roan Edge and Holmescales produce high skid resistance ones. Because of geology other parts of the North West and also other parts of the UK rely on supplies of aggregates from Cumbria. The county has traditionally supplied far more crushed rock than it needs for its own use.

### How much aggregate does Cumbria need?

- 9.5 The 4-yearly DCLG-BGS aggregates survey data gathered in 2015 (AM2014) showed that a population of 57.65 million<sup>18</sup> people in England and Wales 'consumed' 40.52 million tonnes of land-won sand and gravel and 82.50 million tonnes of crushed rock, which equates to 0.7 tonnes/person of sand and gravel and 1.43 tonnes/person of crushed rock.
- 9.6 The 2014 figures are up by around 10% on the 2009 figures, which were around 30% lower than the previous survey results in 2005. This mainly reflected the recession and cut backs in major infrastructure projects and in house building and other developments, but also reflected the changes in construction methods for road and house building. The results of the survey carried out in 2015 appear to show that the downward trend is turning back up.
- 9.7 On the basis of the 2014 BGS figures, Cumbria, now with a population of around half a million people<sup>19</sup>, would need approximately 348,530 tonnes/year (0.35Mt) of land won sand and gravel and 711,997 tonnes/year (0.71Mt) of crushed rock. In 2017, Cumbria's quarries sold 0.79Mt of sand and gravel and 2.61 Mt of crushed rock, which equates to

<sup>18</sup> based on the average figure for mid-2014 and mid-2015 population issued by the Office for National Statistics

<sup>19</sup> 498,000 at mid-2015 and 497,900 at mid-2016 (Cumbria Intelligence Observatory: <http://www.cumbriaobservatory.org.uk/Population/populationestimates.asp>)

more than twice as much sand and gravel and over three and a half times as much crushed rock as it needed for its own use.

- 9.8 Looking ahead, the council's latest population growth figures show the total population in Cumbria dipping slightly from 498,793 in 2016 to 490,496 at the end of the Plan period in 2030. This would result in the consumption of sand and gravel in Cumbria dipping from 0.35Mt during 2016 – 2026 to 0.34Mt for the period 2027 – 2030. Consumption of crushed rock would dip from 0.71Mt in 2016-2026 to 0.70Mt for the period 2027-2030. The LAA provision figures set for sand and gravel and crushed rock in this LAA will therefore continue to provide for well in excess of the amount of aggregate required within Cumbria based on population growth alone. The calculations based on population growth are included in **Appendix 9**.
- 9.9 A number of significant infrastructure projects had been identified in previous LAAs as an influencing factor on future demand. However, as detailed in *Appendix 1 – Other Relevant Local Information*- some of these have been put on hold (i.e. Moorside and the associated North West Coast Connections) and the major infrastructure projects currently planned are not expected to come to fruition until another 5 – 10 years' time. It is therefore unlikely that planned major infrastructure projects within Cumbria will have a significant impact on the demand for aggregates over the next 5 years.
- 9.10 However, as a nationally significant resource, the supply of HSA and VHSA roadstone will be affected by major infrastructure requirements from across the UK and not just within Cumbria.

### **Movement of primary aggregates by sub-region**

- 9.11 The majority of sales have been within Cumbria itself, with exports primarily within the North West region or the neighbouring North East. The exception to this are the High/Very High Specification Aggregates (HSA/VHSA), which have a national market.
- 9.12 The 4-yearly survey<sup>20</sup> collated by British Geological Survey shows that Cumbria does help to meet the mineral needs of other parts of the region. For sand and gravel it indicated 77% sales within Cumbria; 9% in the North West and 14% elsewhere. For crushed rock it indicated 51% sales within Cumbria; 37% in the North West and 11% elsewhere. However, much of the North West region's shortfall is met from other regions - for example, quarries in Derbyshire and North Wales supply Greater Manchester due to their proximity, whilst half of Cumbrian quarries serve other regions, especially the North East. Just under one third of Cumbrian quarries also supply national markets, including Wales and Scotland.
- 9.13 The table below shows the tonnage sold in Cumbria and exported to other regions, as reported in the 2014 BGS survey.

---

<sup>20</sup> Results of Aggregate Mineral Survey England and Wales 2014, British Geological Survey, March 2016

<b>Aggregate Type</b>	<b>Total Sales (tonnes)</b>	<b>Sold within Cumbria</b>	<b>Sales to North West</b>	<b>Sales Elsewhere</b>
Sand and gravel	675,000 (0.67Mt)	518,000 (0.52Mt)	62,000 (0.06Mt)	95,000 (0.09Mt)
Crushed Rock	2,555,000 (2.5Mt)	1,311,000 (1.31Mt)	952,000 (0.95Mt)	292,000 (0.29Mt)

Table 14 – Tonnage of exports from Cumbria to other regions (source: BGS, March 2016)

- 9.14 According to the survey, in 2014 Cumbria imported 3,000 tonnes of sand and gravel (compared to an average of 200,000 tonnes – 0.2Mt- imported by all the other North West mineral planning authorities) and 209,000 tonnes of crushed rock (compared to an average of 2,196,000 – 2.19Mt- imported by all the other North West mineral planning authorities). Cumbria's imports account for just under 2% of the total primary aggregates imported into the North West (10,744,000 tonnes – 10.74Mt).
- 9.15 Currently, the 2014 BGS survey is the most up-to-date comprehensive assessment of aggregates sales destinations. Information provided by operators on the 2017 annual survey returns for this LAA confirms that sand and gravel sales include exports outside of Cumbria and the North West to the North East (Durham, Northumberland, Tyne and Wear) and to Scotland. Crushed rock sales outside the region include to Yorkshire and Humberside (North Yorkshire, West Yorkshire and Humberside), the North East and to Scotland (typically for asphalt sites). Sales of secondary aggregates are predominantly local within Cumbria although some slate sales are more regional and there is a national market for decorative slate.
- 9.16 Export of the HSA/VHSA roadstone is likely to rise as demand increases with various national infrastructure projects coming forward such as investment in new roads, airport expansion projects and new nuclear plant facilities. It is likely these projects could reach construction stage in 5 – 10 years' time so supply will be affected within the Plan periods and landbanks will need to be monitored accordingly.

### **Future demand from outside Cumbria**

- 9.17 Information on planned infrastructure requirements within other NW authorities - and also those outside the region identified as importing materials from Cumbria - can be found in their LAAs and this information needs to be taken into account when predicting future demand. Growth in housebuilding generally is common across all authorities. Details of other key projects are outlined below and summarised in Table 15, with anticipated timescales where known.
- 9.18 In Merseyside large regeneration projects at Liverpool Waters and Wirral Waters are starting to be developed, as well as significant commercial/research construction in the Knowledge Quarter at Liverpool University. It is unclear at this stage whether significant imports from Cumbria would be required; the need for reusing and recycling construction waste on site is encouraged to minimise aggregate requirements wherever possible.

- 9.19 The Lancashire LAA refers to significant investment in the transport network through the Lancashire City Deal (Preston Western Distributor, Broughton Bypass and the East-West Link Road) which will in turn unlock sites for delivery of housing and commercial developments. Details on the amount of aggregate required and likely duration of the works are uncertain at this stage.
- 9.20 The LAAs for Cheshire West & Chester (CWaC) and Cheshire East (CEC) both set out planned infrastructure projects, including a number of major highway schemes. Most of these are anticipated to commence construction during 2019 and 2020 but several are still subject to planning approval. Longer term, creation of the HS2 route will have significant aggregate requirements, including the proposed hub station at Crewe and associated plans under the Constellation Partnership – formed from Local Enterprise Partnerships and local authorities, including CEC, within Staffordshire and Cheshire to maximise the growth and investment opportunities of HS2- to deliver 100,000 new homes and 120,000 new jobs by 2040.
- 9.21 Significant projects in Cheshire are potentially more likely to impact on reserves in Cumbria as the Cheshire MPAs do not have their own reserves of crushed rock. However, the CEC LAA states that the main suppliers of crushed rock are Flintshire, Derbyshire and Leicestershire, with Cumbria providing between 1-10% of their crushed rock and less than 1% of their sand and gravel consumption.
- 9.22 In Greater Manchester, major projects include upgrade works to the M60 and M62 as well as continuing developments at Media City; no estimates on aggregate requirements are currently available. The proposed Greater Manchester Spatial Framework will plan for significant growth to meet requirements up to 2035 but historically material has been supplied to this area from outside of the North West. Final growth and housing figures are still being confirmed.
- 9.23 Looking at planned infrastructure requirements outside of the North West region, the latest Joint LAA for Durham, Northumberland, Tyne and Wear (April 2018) identifies a number of major road widening proposals including works to the A1 in Northumberland scheduled to start in 2020 (this is reported as likely to be met by quarries in the north of Northumberland); A19 junction improvements in South Tyneside/Tyne and Wear due to start in 2019 and be completed by 2021; construction of a major manufacturing site near the Nissan plant along the A19 which could commence in 2018/2019; and additional widening works to the A1 and A19 expected to commence in 2020. Highways England is also proposing to upgrade two roundabouts on the A69 but these particular sites are close to a number of quarries in Northumberland so implications in terms of cross-boundary movements are expected to be minimal.
- 9.24 These could all potentially require supply of HSA and VHSA from Cumbria within the next 5 years although precise quantities and likely sources are generally not known at this stage. The A66 dualling - affecting North Yorkshire, County Durham and Cumbria - is also identified but the expected start date is not yet known.
- 9.25 The North Yorkshire Sub-Region LAA (3<sup>rd</sup> Review May 2018) does not identify any specific planned infrastructure projects. The document does note the issue of continued supply of HSA as one that needs monitoring, in liaison with Cumbria County Council.



<b>Region</b>	<b>MPA</b>	<b>Projects</b>	<b>Timescale</b>
North West	Merseyside	Liverpool/Wirral Waters regeneration	Commencing 2018
North West	CWaC/CEC	HS2 Phase 2	2027-2033
North West	CEC	Constellation Partnership (100,000 homes)	2030- 2040
North West	CEC	Poynton Relief Road; Congleton Link Road; others subject to planning	2018 – 2021
North West	Lancashire	Preston Western Distributor; Broughton Bypass; East-West Link Road	Unknown
North West	Greater Manchester	Upgrading M60 and M62; continuing developments at Media City	Ongoing
North West	Greater Manchester	Greater Manchester Spatial Framework – planned housing growth	Growth requirements planned for period to 2035; GMSF still out to consultation
North East	Northumberland	A1 Northumberland	Commencing 2020
North East	Tyne and Wear	A1 Newcastle – Gateshead western bypass widening	Commencing 2020
North East	Tyne and Wear	A19 flyover	2019 – 2021
North East	Tyne and Wear	A19 Norton to Wynyard widening	2020-2022
North East	Tyne and Wear	Manufacturing site near Nissan plant, A19	Unknown
North East/North West/ Yorks & Humberside	NYCC; County Durham; Cumbria	Upgrade to dual carriageway between A1(M) and M6	Unknown

Table 15 – Potential future aggregate demand from outside Cumbria

9.26 Planned infrastructure projects outside the county could lead to increased demand for exports from Cumbria. Timescales for the major non-highways schemes outlined above are either unknown or anticipated in 5-10 years' time. Cumbria currently has a 42 year landbank of crushed rock and the major infrastructure projects proposed within Cumbria are also anticipated to start in 5-10 years' time. The situation regarding timescales for these strategic non-highways projects will need to be kept under review in forthcoming LAAs, including liaison with the relevant MPA and AWP to assess whether additional aggregate will be required from Cumbria. It may be necessary to adjust provision figures

in future Cumbria LAAs if more certainty can be provided on the timescale of works and amount of imported aggregate that will be required.

- 9.27 Table 15 identifies a number of highways schemes, mainly in the North East region, that are expected to commence within the next 5 years. As Cumbria is an important supplier of HSA and VHSA roadstone there is a strong likelihood that demand for this particular aggregate will increase in the near future as a result. The need to monitor the situation regarding supply and demand of VHSA in particular is already addressed in Chapter 4 this LAA. To inform future LAAs Cumbria will liaise with the relevant MPAs to establish whether additional imports from Cumbria are anticipated in order to deliver these highways schemes.

### **Mode of transport**

- 9.28 The 2014 BGS survey provides some data on the principal transport method for primary aggregates sales by region. For the North West there is a record of 1,000 tonnes (0.001Mt) of sand and gravel being transported by water, with the remaining 8,817,000 tonnes (8.82Mt) of aggregate being transported by road, and no record of any movement by rail.
- 9.29 Within Cumbria, there are a number of rail sidings and wharves that are used for transportation of aggregates. The ports at Workington, Maryport and Barrow provide opportunity for transportation of mineral to some destinations outside of the county by water but not necessarily for the main export destinations identified for Cumbria in the North East, Yorkshire and Humberside.
- 9.30 As noted in Chapter 8, there are existing rail facilities - and in addition the recently approved rail loading facility at Cavendish Dock, Barrow – which are not currently used for transportation of aggregates but have potential to be used for this purpose.
- 9.31 Increased use of rail and, if appropriate, water is to be encouraged. The 2017 annual survey forms used for this LAA did not include a request for information on transportation methods used. This will be incorporated in future survey forms so it can be monitored in the LAA going forward.

## **APPENDICES**

## OTHER RELEVANT LOCAL INFORMATION

**Planned Infrastructure Projects**

- A1.1 In December 2014, the National Infrastructure Plan (NIP) was published<sup>21</sup>, which presents an overview of more than 2,500 infrastructure projects and schemes that have been initiated since 2010, and showing their delivery progress. It notes that the Dong Energy offshore wind farm at Walney is complete, but also states that its extension will begin in 2018. The NIP was replaced by the National Infrastructure Delivery Plan 2016-2021<sup>22</sup>, reflecting a new approach to long-term infrastructure planning, with the creation of the Infrastructure and Projects Authority and an independent National Infrastructure Commission. The accompanying National Infrastructure Pipeline identifies just over 80 projects in the North West.
- A1.2 In Cumbria, the majority of infrastructure projects listed concern the nuclear industry, including the potential new nuclear power station at Moorside (for which the final financial decision will be taken at the end of 2018) and over 30 replacement or refurbished facilities at the Sellafield complex.
- A1.3 At Budget 2016, the Government announced that flood defence and resilience funding will be increased and additional capital schemes will be delivered – including schemes in Carlisle and wider Cumbria. In addition to this, the Government will fund much of the repair to transport infrastructure damaged by Storms Desmond and Eva.
- A1.4 As a consequence of the proposal to build a new nuclear power station on the west coast of Cumbria, National Grid have initiated a project called North West Coast Connections, which is looking at the route corridors for installing upgraded electricity transmission lines north and south of Moorside. They are considering a range of technology options, including overhead power lines, underground cables and a tunnel under Morecambe Bay. Each of these technologies will need different aggregates, and each could give rise to differing amounts of excavation waste that could be recycled as aggregate. The project is currently paused.
- A1.5 As part of their 5-year Management Plan cycle, United Utilities identified a large project to connect West Cumbria to a new drinking water source. Currently, water is taken from Ennerdale, but this lake and the River Ehen host a range of protected species, and unless water extraction is reduced, long-term damage could occur. The plan is to connect West Cumbria with the regional water network via a major new pipeline from Thirlmere; this will also entail the building of a new water treatment works, pumping stations and underground reservoirs. Not only will the project require significant volumes of aggregates, there is also likely to be a significant volume of excavation waste arising, although 70% is likely to be reused, whilst 30% has been earmarked for restoration

<sup>21</sup> National Infrastructure Plan 2014, HM Treasury, December 2014, <https://www.gov.uk/government/publications/national-infrastructure-plan-2014>

<sup>22</sup> National Infrastructure Delivery Plan 2016-2021, Infrastructure and Projects Authority, March 2016, <https://www.gov.uk/government/latest?departments%5B%5D=infrastructure-and-projects-authority>

projects. Construction has now commenced on this project, with the project expected to be complete and in operation by 2022.

- A1.6 Studies in the 1980s revealed that the Solway Firth and Morecambe Bay came second and third among UK estuaries ranked for their tidal potential. A variety of projects have been discussed over the years, such as a barrage with road across the Duddon Estuary that was investigated by Britain's Energy Coast in 2010. In 2015, two companies put forward potential projects in Cumbria: one by North West Energy Squared for a 108km tidal barrage with road, from Workington to the north Solway coast (complete by 2022); the other by Tidal Lagoon Power for a tidal lagoon on the coast north of Workington (complete by 2021). Obviously, they cannot both be developed, but if either project comes to fruition, a large amount of aggregates will be needed. North West Energy Squared also plan to develop the Morecambe Bay Tidal Gateway, with road, linking Heysham on the Fylde Coast to Barrow-in-Furness.
- A1.7 In 2016, the Cumbria LEP published the Cumbria Infrastructure Plan<sup>23</sup>, which identifies key infrastructure priorities that can maximise the economic growth potential of Cumbria and the UK. The Infrastructure Plan developed a 'long list' of infrastructure projects, which will then be prioritised, shortlisted and promoted to Government via the development of outline business cases. This county-wide Plan must deliver against Cumbria LEP and Government objectives to maximise positive impacts for the county over the next five years.
- A1.8 Development proposals set out in Cumbria Infrastructure Plan include regeneration schemes at Barrow Waterfront (Enterprise Zone) and Whitehaven Town Centre; new facilities and the refurbishment of existing infrastructure, in preparation for the construction of a successor to the Vanguard class submarines at BAE Barrow; improvements to transport links and hubs; revival of the house building market; employment site improvements; and proposals for improved flood defence works.
- A1.9 One project already approved is the development of the Port of Workington; construction will include a new road bridge, a new rail crossing point link and refurbishment of the lock gates. This is identified as a short term priority which, along with other road improvement schemes and flood resilience works, should take place within 5 years (i.e. by 2021). The new road bridge is expected to be constructed within the next 18 months; the rail improvements may be more longer term.
- A1.10 Other major proposals set out as medium/long term priorities include major road schemes (Carlisle Southern Link Road, A590 and A66 road enhancements, Ulverston Bypass and Whitehaven relief route). These are anticipated to commence in 5 – 15 years' time, so between 2021 and 2031 (up to the end of the Plan period).
- A1.11 The Carlisle Southern Link Road is being developed to enable the strategic growth to the south of Carlisle. An urban extension – St Cuthbert's Garden Village – is proposed which could accommodate up to 10,000 new homes along with new schools and community facilities. Initial work on planning the extension and the link road has commenced; delivery of this scheme would extend beyond 2030.

<sup>23</sup> Infrastructure Plan, Cumbria LEP, May 2016, <http://www.cumbrialep.co.uk/cumbria-infrastructure-plan/>

### Summary

A1.12 There are clearly a number of a significant infrastructure projects planned for Cumbria which are schedule to take place during the Plan periods (i.e. by 2030) No significant developments are anticipated to commence within the next 5 years or so, other than the United Utilities pipeline which is currently under construction and due to completed by 2020, so it is not anticipated there will be any substantial impact on demand for aggregates in the short term.

A1.13 Previously identified short-term schemes (Moorside nuclear power station and associated North West Connections project) have experienced delays and work on planning for these has only recommenced this year. It is not anticipated that the construction stage will be reached within the next 5 years and so these are currently regarded as medium-term projects.

A1.13 The timescale for the projects identified to take place in the medium/long term are such that there should be sufficient lead-in time to plan for the required aggregates provision. Regular liaison with the county council Infrastructure Planning Team as part of annual monitoring will ensure this LAA keeps up to date with project timings.

### Planned Housing Growth

A1.15 The six district councils currently have commitments to deliver over 30,000 new homes through their Local Plans, with an annual provision target of 1,663 across the county. Details of individual council requirements are set out in the table below:

LPA	Adopted/Emerging Policy	Housing figures	Annual provision	Plan period for supply
Allerdale	Adopted ( July 2014) Policy S3	5,471	304	2029
Barrow	Submission Draft (December 2017)	2,261	119	2031
Carlisle	Adopted (November 2016) Policy SP2	9,606	478 (2013-2020) 626 (2020 – 2030)	3356 by 2020; 6260 by 2030
Copeland	Adopted (December 2013) Policy SS2	4,150	230 (5 yrs) 300 (10 yrs) <sup>24</sup>	2028
Eden	Main Modifications (March 2018) Policy LS2	4,356	242	2032
South Lakeland	2017 SHMA	5,264	290	2036 <sup>25</sup>
<b>Total housing provision</b>	-	<b>31,108</b>	<b>1,663</b>	<b>End of latest Plan period = 2032<sup>26</sup></b>

Table 16: District Council Local Plan housing supply figures (as at August 2018)

<sup>24</sup> Annual provision with 'market uplift' anticipating housing requirements associated with the Moorside development

<sup>25</sup> SLDC adopted Local Plan period ends 2025; the current suite of LP documents will be combined to form single Local Plan 2016 – 2036 due to be adopted 2021; SHMA covers new LP period 2016 - 2036

<sup>26</sup> As above, SLDC adopted Plan date only 2025 but work to revised annual housing provision figures

A1.16 The Cumbria Infrastructure Plan identifies a number of strategic housing sites from these plans, including St Cuthbert's Garden Village, south of Carlisle as well as sites in Ulverston, Barrow, Workington and Penrith. In total these sites could accommodate around 12,350 homes.

A1.14 In addition, a site at Whitehaven is identified as providing accommodation for between 2,500 and 4,000 worker in association with the new Nuclear power station at Moorside, some of which would remain as permanent housing post construction. This is not currently included as a Site Allocation in the Copeland's adopted Local Plan.

### **Planning constraints in neighbouring Mineral Planning Authorities**

A1.15 As mentioned in the main report, the Yorkshire Dales National Park contains four high specification roadstone quarries, some of which have planning permissions that will expire shortly and well before the end of the Plan periods. At this stage it is considered likely that applications for time extensions to continue extracting the permitted reserve would be permitted. If applications are not forthcoming there will be additional pressure on the reserve in Cumbria.

A1.16 The Lake District National Park has been asked to consider designating an Area of Search for very high specification roadstone on land near to Ghyll Scaur but their current and proposed policies would not permit extraction at this time.

A1.17 Force Garth dolerite quarry in County Durham provides an exceptionally hard and durable roadstone aggregate but the majority of the permission is within the Moor-House Upper Teesdale SAC and North Pennine Moors SPA. A ROMP application has been submitted in respect of this quarry and there has been some concern that it may not be able to continue operating to its original capacity due to revisions required to avoid any adverse effect on qualifying features of the designated areas. Again, any reduction in capacity would impact on demand for the reserve within Cumbria.

### **Market Commentary**

A1.18 The Mineral Products Association (MPA) state in their latest sales figures<sup>27</sup> that market performance throughout 2017 was generally positive. Aggregate sales have been depressed since the onset of the recession in 2008, reflecting the significant decline in construction markets but have started to recover since mid-2013. Despite increasing by 29% between 2013 and 2017 as construction activity picked up, the aggregates market remains about 10% below 2007 volumes.

A1.19 Cement sales have improved since 2012 but sales in 2016 remain lower than in 2007. Mortar sales volumes have also picked up but in 2017 remained about 9% below the pre-recession peak. Sales of asphalt (used for road construction and maintenance) rose 25% between 2013 and 2017 but remain 9% below the pre-recession sales.

A1.20 The sales trends in Cumbria are consistent with the national picture, with most aggregate sales being slightly below the peak figures achieved in 2016 but otherwise continuing the steady rise from post-recession.

---

<sup>27</sup> Profile of the UK Mineral Products Industry – 2018 Edition (Mineral Products Association)

A1.21 Cumbria continues to produce more aggregates than it requires and exports mainly to elsewhere in the North West, but also to other regions including the North East, Yorkshire & Humberside and Scotland.

A1.22 Cumbria has the only quarry in England which produces very high specification roadstone (Ghyll Scaur) and consequently there is a national market for this resource which will be affected by major infrastructure developments across the UK and not just within Cumbria.



**APPENDIX 2**  
**SAND AND GRAVEL QUARRIES IN CUMBRIA**  
(see Map 1)

<b>Location</b>	<b>Expiry date*</b>	<b>Notes</b>
Bonnie Mount	2035 31 December	also recycling of inert building waste
Brocklewath	2021 31 August	no mineral extraction since change of owner in November 2013
Cardewmires	2025 1 December	identified for an Area of Search in CMWLP
Faugh No.1	2024 30 June	currently mothballed
Faugh No.2	2022 31 December	
High House**	2021 31 December	scoping opinion for physical and time extension (to 2036) sought in 2016
Kirkhouse	2023 28 July	identified for two Areas of Search in MWLP
Low Gelt	2019 31 December	potential for time extension to be submitted
Low Plains	2033 30 September	
Overby No.2**	2026 31 December	Additional 0.27Mt reserve permitted in 2017
Peel Place	2025 26 April	Area of Search identified in CMWLP
Roosecote	2029 28 May	- quarry extension identified as a Preferred Area in CMWLP - adjacent greenfield quarry identified as an Area of Search in CMWLP

\* expiry dates as at July 2018

\*\* an Area of Search between High House and Overby Quarries is identified in the CMWLP

Map 1 – Sand and gravel quarries



1:550000 at A4 size OS Grid Ref: NY3727 Scale 0 4 8 12 km Drawing Ref: Plan Created on: © Crown Copyright and Database Right September 2014. Ordnance Survey Licence Number 100019596.



## APPENDIX 3

## CRUSHED ROCK QUARRIES IN CUMBRIA

(see Map 2)

Location	Geology	Expiry date*	Notes
Eskett and Rowrah	Limestone	2034 30 September	two parts of quarry now combined into one planning permission; options for working 'hard to access' reserves being considered
Flusco (Silverfields)	Limestone	2032 31 December	also construction waste recycling to 31 Dec 2031 Quarry closed- March 2017
Goldmire	Limestone	2042 21 February	also construction waste recycling to 2041
Hartley	Limestone	2042 21 February	- ROMP conditions agreed in December 2013 - limited operations at site
Helbeck	Limestone	2042 21 February	ROMP and lateral extension applications approved in 2016. 0.23Mt reserve permitted in lateral extension.
Holme Park	Limestone	2023 31 December	application for time extension to 2043 submitted August 2016. Approved subject to S106 Agreement.
Kendal Fell	Limestone	2042 21 February	reserves sterilised, very small chance of limited prior extraction
Moota	Limestone & sandstone	2024 31 December	time and physical extension approved May 2015
Sandside	Limestone	2029 30 June	Planning permission granted subject to S106 Agreement in July 2018 to extend quarry operations until 2029
Shap Beck #	Limestone	2042 21 February	
Shap Blue #	Igneous (Sandstone & limestone)	2042 21 February	also deposit of mining waste on land east of the A6 to 31 December 2034
Shap Pink	Igneous	2042 21 February	wholly within the Lake District National Park
Shap Fell (aka Hardendale)	Limestone	2018 31 December	application for time extension and to deepen quarry submitted in 2007. Currently inactive. Anticipate operations will cease with limited reserve remaining.
Silvertop	Limestone	2042 21 February	also construction waste recycling to 16 Dec 2018
Stainton	Limestone	2042 21 February	planning permission for operating a deeper part of the quarry (for industrial limestones) granted a time extension to 31 March 2025
Tendley	Limestone & Sandstone	2029 31 December	

\* expiry dates as at July 2018

# the extraction areas for these two quarries are within the Lake District National Park

Map 2 – Crushed rock quarries



1:550000 at A4 size OS Grid Ref: NY3826 Scale 0 4 8 12 km Drawing Ref: Plan Created on: © Crown Copyright and Database Right September 2014. Ordnance Survey Licence Number 100019596.

**APPENDIX 4**

**HIGH AND VERY HIGH SPECIFICATION ROADSTONE QUARRIES IN CUMBRIA** (see Map 3)

<b>Location</b>	<b>Geology</b>	<b>Expiry date</b>	<b>Notes</b>
Ghyll Scour	igneous	2045 31 December	- Very High Specification Aggregate
Roan Edge	sandstone	2038 31 December	identified for an Area of Search in MWLP
Holmescales	sandstone	2042 21 February	- mothballed - identified for an Area of Search in MWLP
Roan Edge Landfill and Recycling Site	sandstone	1 November 2031	new permission for extraction of 0.3Mt granted in 2017

**Map 3 – High and very high specification roadstone quarries**



**APPENDIX 5**  
**BUILDING STONE AND SLATE QUARRIES**  
 (see Map 4)

<b>QUARRIES IN THE LAKE DISTRICT NATIONAL PARK</b>			
<b>Location</b>	<b>Geology</b>	<b>Expiry date*</b>	<b>Notes</b>
Brathay	slate	2018 31 March	no aggregate production
Petts (aka Pets)	slate	2020 31 December	- no aggregate production
Broughton Moor	slate	2042 21 February	no aggregate production
Bursting Stone (aka Coniston)	slate	2030 31 December	no aggregate production
Elterwater (aka Lords)	slate	2042 21 February	aggregate production
Low Brandy Crag (aka Brandy Crag)	slate	2026 30 November	no aggregate production
Peatfield (aka Hodge Close)	slate	2018 31 October	no aggregate production
High Fell (aka High Fellside or High Tilberthwaite)	slate	2024 31 March	no aggregate production
Honister	slate	2042 21 February	by products including aggregates

\* expiry dates as at July 2018



<b>QUARRIES OUTSIDE THE LAKE DISTRICT NATIONAL PARK</b>			
<b>Location</b>	<b>Geology</b>	<b>Expiry date*</b>	<b>Notes</b>
Bank End	sandstone	2042 22 February	- inactive, to be restored
Baycliff Haggs	limestone	2042 21 February	- off cuts used as primary aggregate
Birkhams	sandstone	2030 31 July	- no aggregate production
Blaze Fell	sandstone	2011 29 September	- awaiting restoration
Bowscar	sandstone	2042 21 February	- no aggregate production - physical extension granted Jan 2016
Crag Nook	sandstone	2042 21 February	- no aggregate production
Flinty Fell	sandstone	2024 31 December	- waste used as aggregate
Grange	sandstone	2028 29 January	- no aggregate production
Kirkby Slate	slate	2042 21 February	- application to amend extraction area and time extension permitted 2016 - waste used as secondary aggregate
Lambhill	sandstone	2021 30 January	- no aggregate production
Larchwood	sandstone	2007 30 September	- awaiting restoration
Leipsic	sandstone	2022 20 December	- no aggregate production
Mousegill	sandstone	2016 30 June	- no aggregate production
Pickering	limestone	2023 26 February	- no aggregate production - now within Yorkshire Dales National Park extension
Red Rock Canyon	sandstone	2025 10 December	- no aggregate production
Rooks	limestone	2017 31 October	- off cuts used as primary aggregate - now within Yorkshire Dales National Park extension
Scratchmill Scar	sandstone	2031 30 January	- off cuts used as primary aggregate
Snowhill no.1	limestone	2022 31 May	- no longer primarily building stone - time extension approved in 2017
Snowhill no.2	sandstone	2020 31 May	- primarily building stone - very limited aggregate production
Talkin Fell	sandstone	2011 3 February	- inactive
West Brownrigg	sandstone	2021 31 July	- off cuts used as primary aggregate

\* expiry dates as at July 2018

Map 4 - Building stone and slate quarries



1:550000  
at A4 size

OS Grid Ref:  
NY3828

Scale  
0 4 8 12 km



Drawing Ref:

Plan Created on:

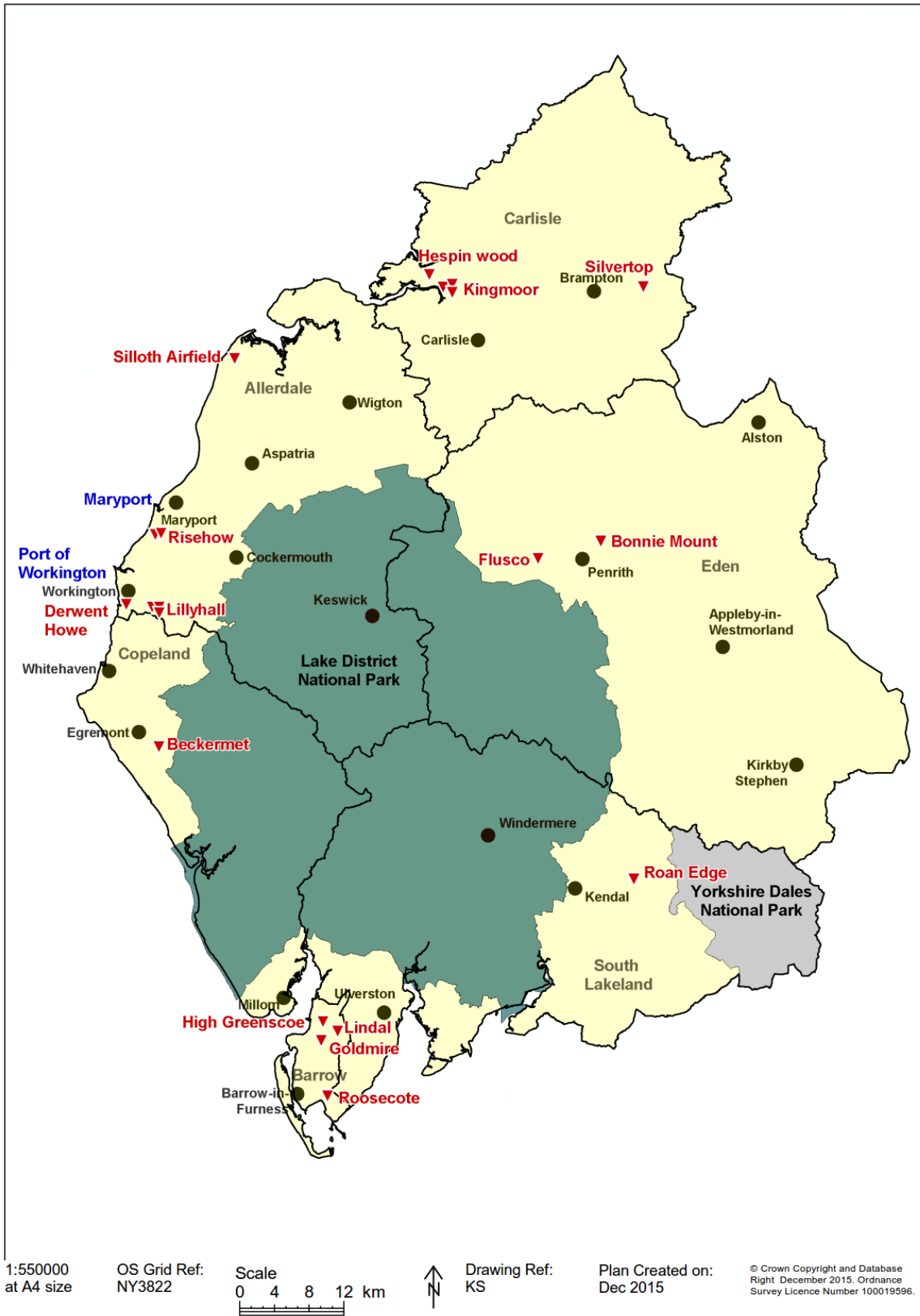
© Crown Copyright and Database  
Right September 2014. Ordnance  
Survey Licence Number 100019596.

**APPENDIX 6**  
**ALTERNATIVE AGGREGATES: MAIN PROCESSING FACILITIES**  
(see Map 5)

<b>Facility</b>	<b>Material</b>	<b>Notes</b>
Silvertop Quarry	inert construction waste	permission to 16 Dec 2018
Flusco Quarry	household, commercial, industrial and construction waste	EA permit permission to 31 Dec 2031 (tied to cessation of adjacent landfill)
Roosecote Quarry	construction materials	- permission to 31 Aug 2016 - now ceased operations
Goldmire Quarry	construction and demolition waste	EA permit permission to 31 Dec 2041
Bonnie Mount Quarry	inert building waste	permission to 7 Oct 2035
Roan Edge landfill	inert wastes	- permission to 1 Nov 2016 - time extension submitted
Hespin Wood landfill	secondary aggregates	EA permit - permanent
Derwent Howe slag bank	slag extraction and recycling of wastes	- permission to 31 Oct 2016 - now under restoration
McKay Plant & Skip Hire, Lillyhall	construction and demolition waste	EA permit - permanent Lillyhall Industrial Estate
Phillip Carruthers Ltd, Lillyhall	concrete, rubble and bricks	EA permit - permanent Lillyhall Industrial Estate
Ashcroft Demolition (Cumbria) Ltd, Flimby, Maryport	construction waste	EA permit - permanent Risehow Industrial Estate
Thompson's Plant Hire Ltd, Flimby, Maryport	construction waste	EA permit - permanent Risehow Industrial Estate
NW Recycling, Kingmoor, Carlisle	construction and demolition waste	EA permit - permanent Rockcliffe Estate
Cubby Construction Ltd, Kingmoor, Carlisle	construction waste, road planings	EA permit - permanent Rockcliffe Estate
Tony Brown Aggregates Ltd, Diamond Yard, Lindal-in-Furness	stone, brick, etc.	EA permit - permanent
Lawson's Recycling Centre, Beckermest	construction waste	EA permit - permanent
D A Harrison, Silloth Airfield	Inert	EA permit – permanent
Harry Barker Properties Ltd, High Greenscoe	construction waste	EA permit permission to 1 Nov 2024
Kingmoor Marshalling yards	concrete rail sleepers and spent ballast	EA permit - permanent

\* expiry dates as at July 2018

Map 5 – Alternative aggregates sites and marine dredged landing points



**HISTORIC AGGREGATE SALES FROM CUMBRIA (million tonnes)**

Survey year	Limestone	Sandstone and igneous (excluding HSA)	High spec roadstone (HSA)	All crushed rock	Sand and gravel	Marine dredged	Secondary and recycled aggregates*
2001	3.0	1.1		4.1	0.7	0.03	-
2002	2.9	1.1		4.0	0.9	0.04	-
2003	2.6	1.1		3.7	1.0	0.04	-
2004	2.8	1.1		3.9	0.8	0.02	-
2005	2.6	0.36	0.74	3.70	0.70	0.020	-
2006	2.7	0.27	0.69	3.66	0.79	0.020	-
2007	2.8	0.53	0.70	4.03	0.87	0.010	-
<b>start of the period for 10-year averages</b>							
2008	2.7	0.40	0.75	3.85	0.77	0.020	-
2009	1.91	0.38	0.78	3.07	0.52	0.020	-
2010	2.46	0.41	0.59	3.46	0.53	0.020	-
2011	1.84	0.37	0.60	2.81	0.46	0.012	0.294
2012	2.03	0.37	0.55	2.95	0.46	0.010	0.212
2013	1.62	0.37	0.41	2.40	0.48	0.012	0.202
2014	1.90-	0.30	0.38	2.58	0.68	0.022	0.306
2015	2.52	0.36	0.42	3.30	0.71	0.006	0.183
2016	1.92	0.49	0.48	2.89	0.81	0.010	0.450
2017	1.78	0.41	0.43	2.61	0.79	0.012	0.309
3-year average	2.07	0.42	0.44	2.93	0.77	0.009	0.314
10-year average	2.07	0.39	0.54	2.99	0.62	0.014	-
Landbank (years) based on 10 yr avg sales	39.51	74.38	30.67	42.59	11.9	-	-

\* including slate waste

**Appendix 8– 2018 LAA Landbank and Tonnage Calculations (based on 2017 returns data)**

**APPENDIX 8 - 2018 LAA Landbank and Tonnage Calculations**  
(based on 2017 returns data)

	Sand and Gravel	All Crushed Rock	Limestone	lg & Sa exc VHSA	VHSA/HS	All lg & Sa	VHSA only
<b>Reserves at 31 December 2017</b>	7,375,680	127,354,124	81,782,124	29,010,000	16,562,000	45,572,000	7,610,000
<b>Annual demand forecast in LAA (sales provision figure)</b>	<b>790,000</b>	<b>2,990,000</b>	<b>2,070,000</b>	<b>410,000</b>	<b>540,000</b>	<b>920,000</b>	<b>360,000</b>
<b>Demand from 2017 to 2030 (13 x LAA figure)</b>	10,270,000	38,870,000	26,910,000	5,330,000	7,020,000	11,960,000	4,680,000
<b>Landbank (reserve/annual demand) Years supply remaining</b>	9.34	42.59	39.51	70.76	30.67	49.53	21.14
<b>Balance (Reserve minus demand) Reserve remaining at 2030</b>	-2,894,320	88,484,124	54,872,124	23,680,000	9,542,000	33,612,000	2,930,000
<b>Required landbank (7 or 10 yrs x LAA fig) To last until 2037 or 2040</b>	5,530,000	29,900,000	20,700,000	4,100,000	5,400,000	9,200,000	3,600,000
<b>Outstanding balance (balance minus required landbank)</b>	-8,424,320	58,584,124	34,172,124	19,580,000	4,142,000	24,412,000	-670,000
<b>Tonnage to maintain landbank (if Outstanding Balance is -ve)</b>	8,424,320	-58,584,124	-34,172,124	-19,580,000	-4,142,000	-24,412,000	670,000
<b>Required Tonnage in Mt</b>	8.42	-58.58	-34.17	-19.58	-4.14	-24.41	0.67
<b>Landbank years remaining after 2030 (if outstanding balance is +ve)</b>	-3.66	29.59	26.51	57.76	17.67	36.53	8.14
<b>Landbank End date (add/subtract number of years remaining to 2030)</b>	2026.34	2059.59	2056.51	2087.76	2047.67	2066.53	2038.14
<b>Year in which 7 or 10 year landbank will start to fall (end date - 7 or 10)</b>	2019.34	2049.59	2046.51	2077.76	2037.67	2056.53	2028.14

## Appendix 9 – Population Growth Forecasts for Cumbria (ONS data)

Forecast Annual Aggregates Consumption	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
<b>Total population (latest ONS data)</b>	<b>498,793</b>	<b>497,982</b>	<b>497,468</b>	<b>497,050</b>	<b>496,687</b>	<b>496,290</b>	<b>495,834</b>	<b>495,323</b>	<b>494,777</b>	<b>494,179</b>	<b>493,519</b>	<b>492,823</b>	<b>492,093</b>	<b>491,321</b>	<b>490,496</b>	
<b>Sand &amp; gravel consumption @ 0.7te per head</b>	<b>349,155</b>	<b>348,587</b>	<b>348,228</b>	<b>347,935</b>	<b>347,681</b>	<b>347,403</b>	<b>347,084</b>	<b>346,726</b>	<b>346,344</b>	<b>345,925</b>	<b>345,463</b>	<b>344,976</b>	<b>344,465</b>	<b>343,925</b>	<b>343,347</b>	
<b>Convert to Mt</b>	<b>0.35</b>	<b>0.35</b>	<b>0.35</b>	<b>0.35</b>	<b>0.35</b>	<b>0.35</b>	<b>0.35</b>	<b>0.35</b>	<b>0.35</b>	<b>0.35</b>	<b>0.35</b>	<b>0.34</b>	<b>0.34</b>	<b>0.34</b>	<b>0.34</b>	
<b>Annual provision @ 2017 sales</b>	<b>0.79</b>	<b>0.79</b>	<b>0.79</b>	<b>0.79</b>	<b>0.79</b>	<b>0.79</b>	<b>0.79</b>	<b>0.79</b>	<b>0.79</b>	<b>0.79</b>	<b>0.79</b>	<b>0.79</b>	<b>0.79</b>	<b>0.79</b>	<b>0.79</b>	
<b>Surplus/deficit (Provision less consumption)</b>	<b>0.44</b>	<b>0.44</b>	<b>0.44</b>	<b>0.44</b>	<b>0.44</b>	<b>0.44</b>	<b>0.44</b>	<b>0.44</b>	<b>0.44</b>	<b>0.44</b>	<b>0.44</b>	<b>0.45</b>	<b>0.45</b>	<b>0.45</b>	<b>0.45</b>	
<b>LAA provision rate - 2017 sales</b>	<b>0.79</b>	<b>0.79</b>	<b>0.79</b>	<b>0.79</b>	<b>0.79</b>	<b>0.79</b>	<b>0.79</b>	<b>0.79</b>	<b>0.79</b>	<b>0.79</b>	<b>0.79</b>	<b>0.79</b>	<b>0.79</b>	<b>0.79</b>	<b>0.79</b>	
<b>Surplus/deficit (Provision less consumption)</b>	<b>0.44</b>	<b>0.44</b>	<b>0.44</b>	<b>0.44</b>	<b>0.44</b>	<b>0.44</b>	<b>0.44</b>	<b>0.44</b>	<b>0.44</b>	<b>0.44</b>	<b>0.44</b>	<b>0.45</b>	<b>0.45</b>	<b>0.45</b>	<b>0.45</b>	
<b>Crushed rock consumption @1.43te per head</b>	<b>713,274</b>	<b>712,114</b>	<b>711,379</b>	<b>710,782</b>	<b>710,262</b>	<b>709,695</b>	<b>709,043</b>	<b>708,312</b>	<b>707,531</b>	<b>706,676</b>	<b>705,732</b>	<b>704,737</b>	<b>703,693</b>	<b>702,589</b>	<b>701,409</b>	
<b>Convert to Mt</b>	<b>0.71</b>	<b>0.71</b>	<b>0.71</b>	<b>0.71</b>	<b>0.71</b>	<b>0.71</b>	<b>0.71</b>	<b>0.71</b>	<b>0.71</b>	<b>0.71</b>	<b>0.71</b>	<b>0.71</b>	<b>0.70</b>	<b>0.70</b>	<b>0.70</b>	
<b>Annual provision @ 2017 sales</b>	<b>2.61</b>	<b>2.61</b>	<b>2.61</b>	<b>2.61</b>	<b>2.61</b>	<b>2.61</b>	<b>2.61</b>	<b>2.61</b>	<b>2.61</b>	<b>2.61</b>	<b>2.61</b>	<b>2.61</b>	<b>2.61</b>	<b>2.61</b>	<b>2.61</b>	
<b>Surplus/deficit (Provision less consumption)</b>	<b>1.90</b>	<b>1.90</b>	<b>1.90</b>	<b>1.90</b>	<b>1.90</b>	<b>1.90</b>	<b>1.90</b>	<b>1.90</b>	<b>1.90</b>	<b>1.90</b>	<b>1.90</b>	<b>1.91</b>	<b>1.91</b>	<b>1.91</b>	<b>1.91</b>	
<b>LAA provision rate - 10 Yr average sales</b>	<b>2.99</b>	<b>2.99</b>	<b>2.99</b>	<b>2.99</b>	<b>2.99</b>	<b>2.99</b>	<b>2.99</b>	<b>2.99</b>	<b>2.99</b>	<b>2.99</b>	<b>2.99</b>	<b>2.99</b>	<b>2.99</b>	<b>2.99</b>	<b>2.99</b>	
<b>Surplus/deficit (Provision less consumption)</b>	<b>2.28</b>	<b>2.28</b>	<b>2.28</b>	<b>2.28</b>	<b>2.28</b>	<b>2.28</b>	<b>2.28</b>	<b>2.28</b>	<b>2.28</b>	<b>2.28</b>	<b>2.28</b>	<b>2.29</b>	<b>2.29</b>	<b>2.29</b>	<b>2.29</b>	