



Somerset Local Aggregate Assessment:

incorporating data
from 2005-2014



Somerset County Council with Exmoor National Park Authority

Minerals and Waste Development Framework



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NATIONAL PARK

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For further details of the Somerset Minerals and Waste Development Framework, and to view and download this and related documents, please visit the Somerset County Council website:
www.somerset.gov.uk/mineralsandwaste

For further details of the Exmoor National Park Local Plan, please visit
<http://www.exmoor-nationalpark.gov.uk/planning/planning-policy>

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1 Introduction

- 1.1 Aggregates (sand and gravel, and crushed rock) are the raw materials used to make construction products. They are an essential part of every day life and can be found in our roads, houses, schools and hospitals.
- 1.2 There are three main sources of aggregate in the UK: land-won; marine-dredged; and recycled and secondary. Land-won aggregates (often referred to as "natural" or "primary" aggregates) are materials extracted directly from the ground in quarries or pits. Marine-dredged aggregates comprise sand and gravel dredged from the sea floor in licensed areas of the UK continental shelf. Secondary aggregates are a by-product from mineral operations or industrial processes. Recycled aggregates are materials produced by treatment of construction and demolition waste.
- 1.3 Somerset is the largest producer of crushed rock in the south of England, the vast majority of which is extracted from the quarries in the east Mendip Hills.
- 1.4 Mineral extraction is of considerable economic importance in Somerset, directly employing over 1000 Full Time Equivalent (FTE) and a minimum of 280 indirect FTE employees across the four sectors of aggregates, quarry products, building stones and stonemasons. Overall annual turnover across these four sectors was approximately £209.2 million in 2013 (£145 million of which came from the aggregates sector).¹

A Local Aggregate Assessment for Somerset and Exmoor National Park

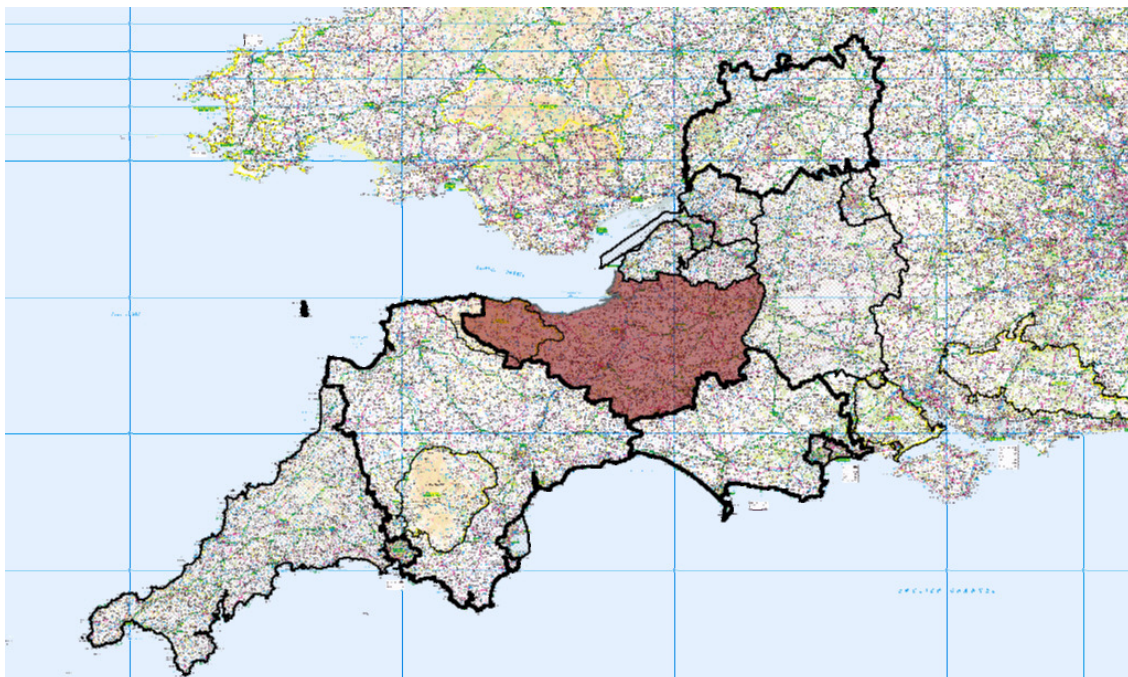
- 1.5 As stated in the National Planning Policy Framework (NPPF),² each Mineral Planning Authority is required to prepare an LAA assessing the demand for and supply of aggregates in their plan area. This is known as the Local Aggregate Assessment (LAA). Somerset County Council is the Mineral Planning Authority for Somerset, excluding Exmoor National Park.
- 1.6 A large proportion of Exmoor National Park lies within the historic boundary of the county of Somerset. The purposes of National Parks are twofold: to conserve and enhance the natural beauty, wildlife and cultural heritage; and promote opportunities for the understanding and enjoyment of the special qualities of National Parks by the public.

¹ Geckoella/RPA, The Benefits of Quarrying and Related Activities to the Somerset Economy – Executive Summary, July 2014

² DCLG. National Planning Policy Framework. March 2012. Paragraph 145.

- 1.7 Exmoor National Park Authority (ENPA) is the Mineral Planning Authority (MPA) for Exmoor National Park; however, the National Park produces no land-won aggregates. Despite a long history of mineral extraction on Exmoor, there are at present no operative mines or quarries in the National Park although stone is always in demand.
- 1.8 Due to the impacts of crushed rock extraction, large scale quarrying would be in conflict with the purposes of National Parks. As a result, ENPA seeks to ensure sufficient levels of permitted reserves are available from outside the National Park.
- 1.9 Traditionally the 'sub-regional' apportionment (the level of provision of aggregates in the sub-region for a given time period) has grouped Exmoor with Somerset.
- 1.10 Given the location of the two authorities, National Park Purposes, and the limited scope for mineral working in Exmoor National Park, it is deemed appropriate by SCC and ENPA to produce a joint LAA, acknowledging also that a proportion of Exmoor lies in Devon and would be covered by Devon County Council's LAA. So, this LAA is prepared by Somerset County Council (SCC) in partnership with Exmoor National Park Authority. For the purpose of this assessment 'Somerset' should be taken to include Somerset MPA area and a large proportion of Exmoor National Park as shown in Figure 1.
- 1.11 The LAA is also informed by cooperation with other Mineral Planning Authorities (in particular Devon County Council) regarding future sand and gravel provision.
- 1.12 The LAA has been informed by consultation with all the MPAs in the South West Aggregate Working Party (SW AWP) and other interested parties as appropriate.

Figure 1: The Location of Somerset and Exmoor National Park within South West England (shaded area refers)



The fundamentals of Local Aggregate Assessments

- 1.13 There are significant geographical imbalances in the occurrence of suitable natural aggregate resources and the areas where they are most needed. Balancing these differences in supply and demand is the underpinning principle behind the Managed Aggregate Supply System (MASS).
- 1.14 Reforms to the planning system in England include reforms to MASS. The Government recognises the need to maintain the fundamental principles behind MASS, but it acknowledges the importance of local factors in determining appropriate levels of aggregate extraction.
- 1.15 The LAA is structured around guidance from the NPPF and planning practice guidance, which incorporates guidance on the Managed Aggregate Supply System.³ Furthermore, SCC has had regard to a guidance document produced by the Mineral Products Association and the Planning Officers Society.⁴
- 1.16 The LAA takes account of feedback from the Aggregate Working Party (AWP), which is an advisory group comprising of Mineral Planning Authorities, central government and representatives from the aggregate industry. The AWP provides advice on the supply and demand for aggregates to central government and Mineral Planning Authorities. The AWP also undertakes annual monitoring of aggregates production, by type, use and the level of permitted reserves allowing for annual consumption to be calculated. Somerset County Council is part of the South West Aggregate Working Party (SW AWP).
- 1.17 The LAA for Somerset will be updated annually and used as a tool to inform the development, review and/or monitoring of the Somerset Minerals Plan and the Exmoor Local Plan. The LAA itself will not set policy or identify locations from which new supply should be achieved; that is done via the Minerals Plan.
- 1.18 The LAA will also provide an annual assessment of the level of provision required to support adequate and steady supply of aggregates, based on the results of a rolling average of 10 year sales and any relevant local information.

³ DCLG: Guidance on the Managed Aggregate Supply System, October 2012 has been incorporated into web-based guidance on national planning policy launched in March 2014.

⁴ www.mineralproducts.org/documents/LAA_Guidance.pdf

Geology of Somerset

- 1.19 Somerset has a diverse geology⁵, resulting in a rich supply of mineral resources – from Carboniferous limestone and igneous rock (Andesite / Tuff) in the north east (in particular in the Mendip Hills), to Devonian and Carboniferous sandstones in Exmoor National Park and West Somerset. Budleigh Salterton Pebble Beds and limited quantities of river terrace deposits form the main sand and gravel resources in the county.
- 1.20 Somerset is a nationally important source of crushed rock aggregates, predominantly from the Lower Carboniferous limestone of the Mendip Hills, as shown in Figure 2 (a) and (b). Large scale extraction is mainly limited to limestone of a Carboniferous age; however, Jurassic age limestones are still worked on a smaller scale for building stone.
- 1.21 Carboniferous limestone, such as Gully Oolite, Birnbeck Limestone, Vallis Limestone, Clifton Down Limestone and Hotwells Limestone form the broad ridge of the Mendip Hills which extends from Frome westwards to Weston-super-Mare. The Mendip sequence comprises a thick series of shelf type limestones that are divided into a number of formations, but there is little variation in the aggregate properties of limestone. All formations of limestone with the exception of Lower Limestone Shale form resources of road stone, railway ballast, construction fill and concreting aggregate.
- 1.22 Igneous Silurian rocks in the form of Andesite and Tuff can also be found centrally in the Mendip Hills. The Andesite is a good material for road surfacing since, below the zone of weathering, it is strong, durable and resistant to polishing with a high polished stone value (PSV).
- 1.23 The sand and gravel resources are limited and occur largely in river terrace deposits, sub-alluvial gravel deposits and bedrock deposits. However, the river terrace deposits and sub-alluvial gravel deposits are of limited thickness across the county and are not currently worked.
- 1.24 In Somerset the Budleigh Salterton Pebble Beds form the sand and gravel bedrock. Currently these are worked at Whiteball on the Devon / Somerset border; material is extracted on the Devon side for processing across the border in Somerset.
- 1.25 There are several crushed rock aggregate workings across the county, varying in size and resource. Table 1 shows the active permitted aggregate quarries and the mineral extracted across Somerset and Exmoor (excluding inactive and dormant sites).

⁵ All geological information presented here is referenced from: British Geological Survey, Mineral Resource Information in support of National, Regional and Local Planning: Somerset (2005).

Figure 2 (a): Crushed Rock Aggregate Workings in Sedgemoor

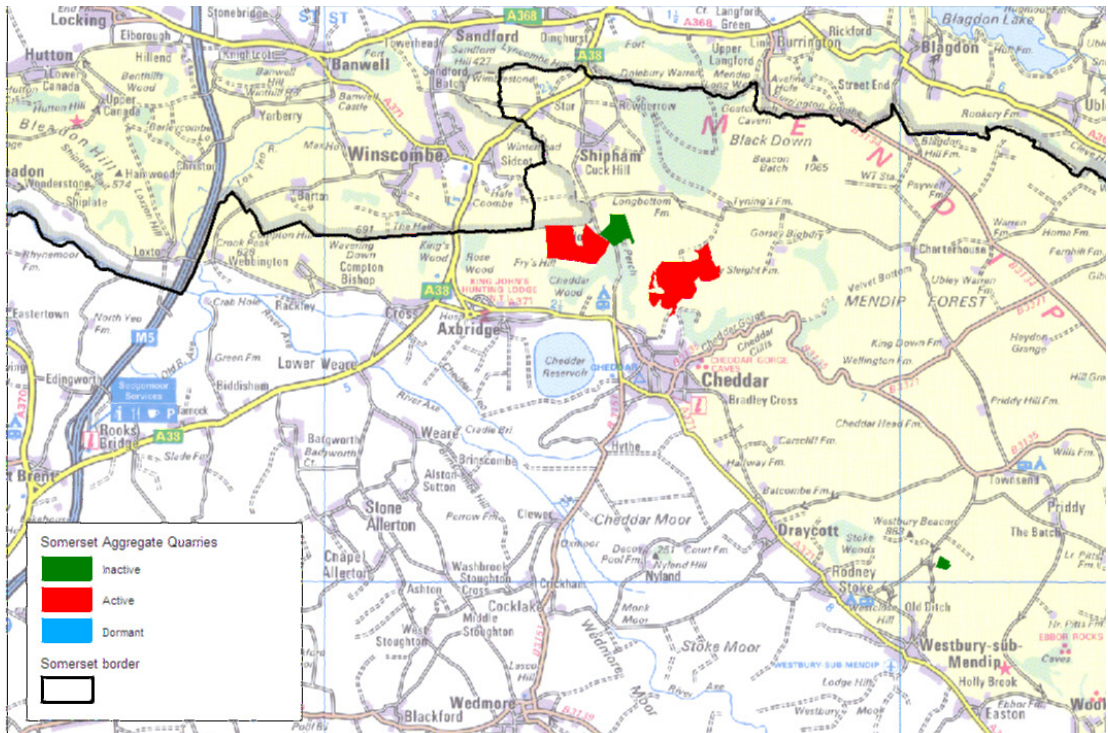


Figure 2 (b): Crushed Rock Aggregate Workings in East Mendip

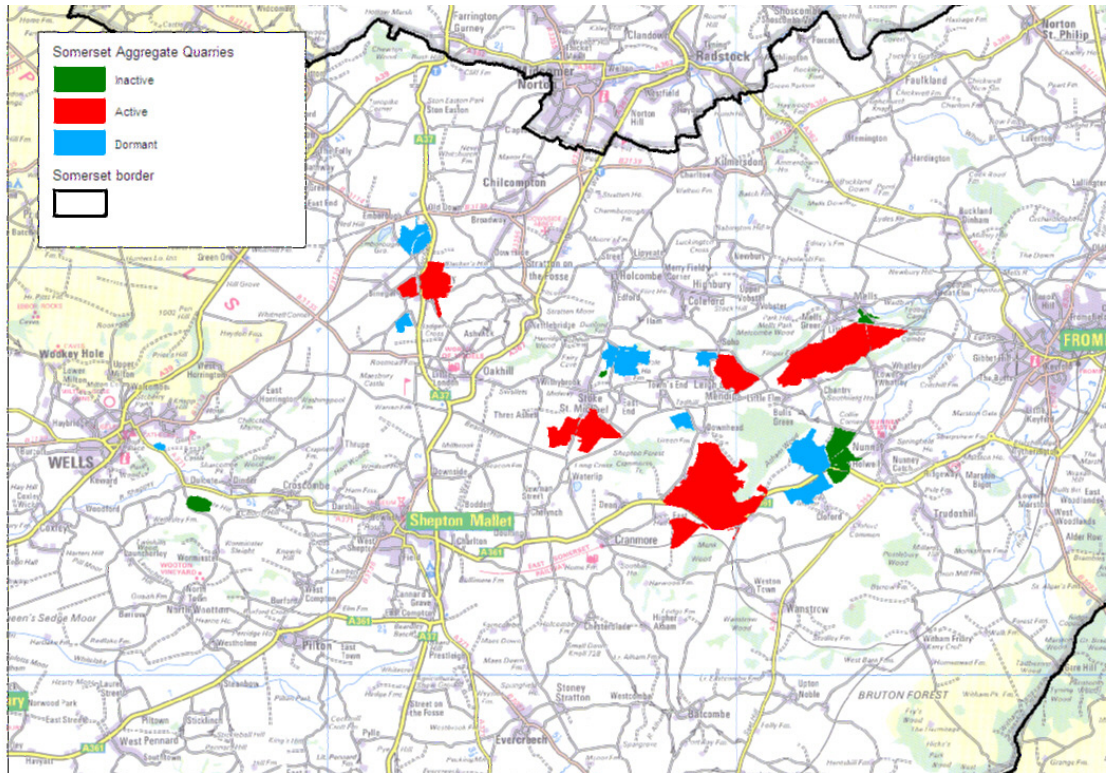


Table 1: Active Permitted Aggregate Quarries in Somerset and Exmoor

Quarry	Operator	Mineral	Permitted Annual Output (tonnes)	Grid Reference
Battscombe	Hanson Quarry Products Europe Ltd.	Carboniferous Limestone	1.3 million	ST 459 544
Callow Rock	Aggregate Industries UK Ltd.	Carboniferous Limestone	1.3 million	ST 447 560
Cannington Park	Castle Hill Quarry company Ltd.	Carboniferous Limestone	190,000 combined output	ST 251 403
Castle Hill				
Gurney Slade	Morris and Perry Ltd.	Carboniferous Limestone	2.0 million	ST 625 493
Halecombe	Lafarge Tarmac Ltd.	Carboniferous Limestone	1.0 million	ST 701 474
Moons Hill	John Wainwright and Company Ltd.	Igneous Silurian andesite	Unlimited	ST 662 460
Torr Works	Aggregate Industries UK Ltd.	Carboniferous Limestone	8.0 million	ST 693 463
Whatley	Hanson Quarry Products Europe Ltd.	Carboniferous Limestone	8.0 million	ST 732 480

- 1.26 It is noted that there are several quarries in Somerset with a large permitted output in excess of 1 million tonnes per year. The Somerset Minerals Plan will need to ensure that large landbanks bound up in a few sites do not stifle competition. The production of the LAA each year will help to provide a mechanism for monitoring any potential issues in minerals supply.
- 1.27 It is noted that a number of the county's building stone quarries have previously sold stone as aggregate and may have the potential to do so in the future; however, the permitted output of those quarries is very small when compared with the operations listed in Table 1.

2. Land-Won Aggregates

Crushed Rock sales

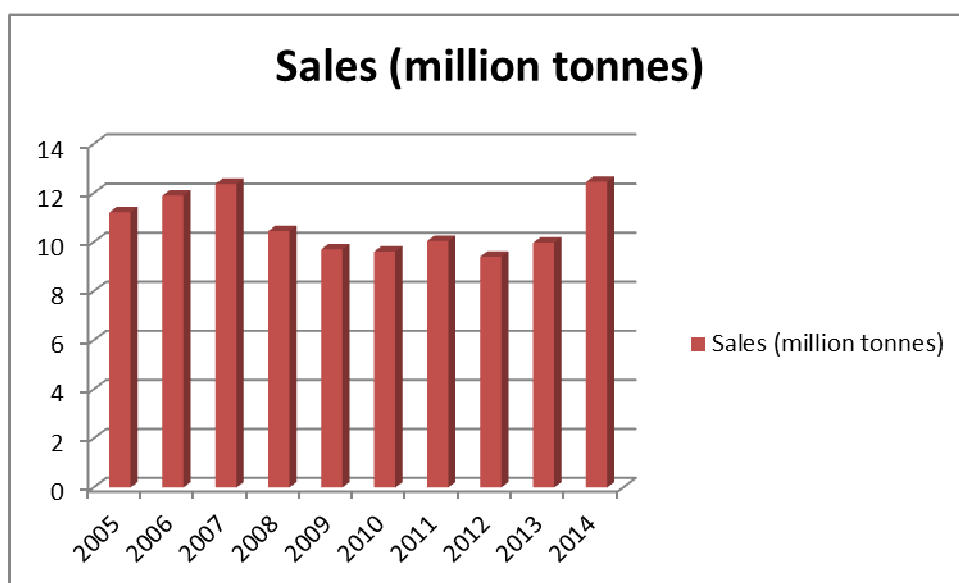
- 2.1 Aggregate data are collected on an annual basis by the Mineral Planning Authorities and Aggregate Working Parties. The data collected by each MPA in the South West have historically been presented in the South West Aggregate Working Party (SW AWP - formerly South West Regional Aggregate Working Party) annual report. The report provides an annual update of the area's output and reserves and reflects the regional position of the aggregate supply system.
- 2.2 A four-yearly aggregate mineral survey is conducted nationally, which in addition to sales and reserves information collects data on imports and exports, and which sites work aggregate within or adjacent to environmental and/or landscape designations. The most recent survey completed was undertaken in 2009.⁶
- 2.3 An updated survey was undertaken in the second half of 2015, focusing on data for 2014, and the results of this "AM2014" survey have yet to be formally published. Rather than wait until Spring 2016 for government publication of the AM2014 survey, SCC has updated its LAA with sales data it collated and contributed to the AM2014 survey.
- 2.4 Sales of crushed rock in Somerset for a ten year period between 2005 and 2014 are shown in Table 2 and Figure 3 below.

Table 2: Crushed Rock sales in Somerset 2005-2014

Year	Sales (million tonnes)
2005	11.22
2006	11.9
2007	12.38
2008	10.46
2009	9.71
2010	9.62
2011	10.05
2012	9.41
2013	9.98
2014	12.46
Average	10.72

⁶ DCLG : Aggregate Mineral Survey 2009 available at:
<https://www.gov.uk/government/publications/aggregate-minerals-survey-for-england-and-wales-2009-results>

Figure 3: Sales of Crushed Rock in Somerset 2005-2014 (million tonnes)



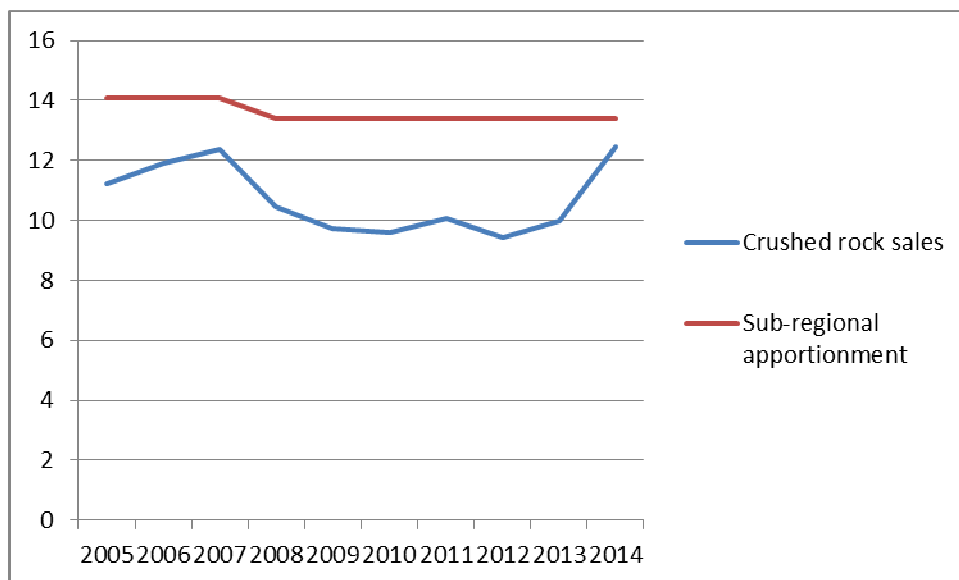
- 2.5 Although Somerset's sales figures remain significantly higher than the national average the recent figures are considerably lower than the sales of Somerset crushed rock in the early 1990s and 2000s.
- 2.6 The ten year sales pattern shown above shows a period with prosperity with higher economic growth and development between 2005 and 2007; a period of austerity with economic decline and minimal development begun in 2008; and an upward trend begun in 2013. This is in line with national trends.
- 2.7 Somerset supplied some of the crushed rock needed for the infrastructure behind the London 2012 Olympic Games. The increased sales production occurred over a period of national economic austerity. If Somerset had not contributed aggregates to Olympic infrastructure the economic effects could have had a significant impact on sales.
- 2.8 It is noted that there was a slight increase in sales in 2013 when compared to the previous year, and a more significant increase in 2014 (approximately 20% increase in crushed rock sales in 2014 compared with 2013).
- 2.9 Looking at the national picture overall, according to the Mineral Products Association, there was 11% growth in aggregates sales in 2014 (made up of crushed rock (+ 13.5%), sand and gravel (+7.2%) and asphalt (+8.6%))⁷.

⁷ <http://www.mineralproducts.org/15-release02.htm>

Comparison of Past Sales with the Sub-Regional Apportionments

- 2.10 Prior to publication of the NPPF and guidance on the Managed Aggregate Supply System, government-led apportionments have been used to set the quantity (tonnes) of land-won aggregate that a Mineral Planning Authority should commit to provide. The most recent guideline apportionment figures were published in 2009⁸ setting the expected annual level of aggregate production for each region until 2020. The regional apportionment is then divided into an apportionment for each Mineral Planning Authority, known as the sub-regional apportionment.
- 2.11 In the past it was the role of the South West Councils (as regional planning body) to apportion the Regional Guidelines for the south west to the sub-regional level in collaboration with the MPAs and advice from the RAWP. However, since the Localism Act 2011 regional planning has ceased to exist (including the dissolution of South West Councils) and the RAWPs have evolved into AWP.
- 2.12 Figure 4 provides a comparison of Somerset's crushed rock sales as shown in Table 2 against the sub-regional apportionments. It shows that throughout the 10 year period, total crushed rock sales do not meet the level of apportionment afforded to the county. The data suggest that national and regional guidelines over-estimate the demand for crushed rock and a more flexible localised approach may be more appropriate.

Figure 4: Comparison of Crushed Rock Sales and Sub-Regional Apportionment (million tonnes)



⁸ DCLG: National and Regional Guidelines for Aggregates Provision in England 2005- 2020 available at:
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/7763/aggregate_sprovision2020.pdf

Crushed rock landbank

- 2.13 Aggregate landbanks are principally a monitoring tool to indicate to MPAs early warnings of possible disruption to the provision of an adequate and steady supply of land-won aggregates in their particular area. MPAs should seek to maintain a landbank of at least 7 years for land-won sand and gravel and 10 years of crushed rock.⁹
- 2.14 The crushed rock landbank is the total amount of permitted reserves of crushed rock for which valid permissions are extant, excluding dormant sites, divided by the estimated annual demand.
- 2.15 Historically calculations have been made to estimate the number of years production can continue based upon the permitted reserve being worked at the rate of the annual sub-regional apportionment. The approach has now changed following the introduction of LAAs.
- 2.16 Based on industry data, Somerset had estimated permitted reserves for crushed rock at the end of 2014 of approximately 400 million tonnes.
- 2.17 Total permitted reserves within the county change year on year, impacted by the previous year's sales and any changes to operator estimates of permitted reserves. The figure for permitted reserves in Somerset at the end of 2014 takes account of both factors.
- 2.18 Notable recent increases in permitted reserves have taken place since 2009 (when the 2009 AWP report referred to permitted reserves in Somerset of 335.88 mt):
- Approval of a planning application in January 2012 for the deepening of Torr Works Quarry, releasing a further 115 million tonnes of crushed rock aggregate.
 - In 2013 an extension was approved at Callow Rock quarry, increasing permitted reserves by approximately 530,000 tonnes.
 - Also in 2013 an extension was approved at Moons Hill Quarry, increasing permitted reserves by 220,000 tonnes.
 - In 2014 planning permission was granted for deepening part of Halecombe quarry (Rookery Farm area); however, at the same time there was an equivalent reduction in the site's permitted reserves in the main quarry area due to geotechnical reasons, hence there was no net increase in consented reserves.
- 2.19 Table 3 shows how long Somerset's total crushed rock landbank would last (calculated at the end of 2014) when using sub-regional apportionment figures. The 29.9 year period is significantly greater than the minimum 10 year requirement stated in national policy to ensure a steady and adequate future supply.

⁹ National Planning Policy Framework (NPPF) paragraph 145

- 2.20 Section 6 of this LAA provides information on a locally-derived figure for future aggregate provision.

Table 3: Somerset existing landbank (sub-regional apportionment)

Permitted Reserve	400 Mt
Sub-regional Apportionment	13.4 Mt
Estimated landbank	29.9 years

- 2.21 Based on historic data supplied by the operator in 2014, approximately 8 million tonnes or 2% of the total crushed rock permitted reserves was considered to be high psv Silurian Andesite. However, recent reassessment of the reserve supplied by the operator indicates that this figure could be significantly lower and is more likely to be in the region of 4 million tonnes. The latest average sales data supplied by the operator indicates that this level of reserve could last approximately 10 years. The ongoing reassessment work will be refined by an extensive, deep drilling, geological investigation during 2016 and updates will be reported for analysis in the LAA.

Land-won sand and gravel sales

- 2.22 Sand and gravel resources available in Somerset are limited. The sand and gravel apportionment for the county was previously shared with that of Devon and Cornwall.
- 2.23 The sand and gravel resource at 'Whiteball', extracting from the Budleigh Salterton Pebble Beds formation, straddles the Somerset-Devon border. The Whiteball operations supply aggregates into both counties and have always contributed towards Somerset's shared apportionment with Devon and Cornwall.
- 2.24 In July 2012 a Certificate of Lawfulness for an Existing Use or Development (CLEUD) was permitted for mineral processing, processing plant and ancillary operations and development at the Whiteball operations on the Somerset side of the border (Gipsy Lane).
- 2.25 As previously mentioned one of the requirements of the LAA is to forecast a new figure for provision based on an average 10 years sales and other relevant location information. Somerset has not extracted sand and gravel during the past 10 years, as the production at Whiteball has been supplied by extraction on Devon's side of the border. Therefore Somerset does not have a 10 year average that can inform any potential future supply from Somerset.

- 2.26 Bearing this in mind it is important to have a positive policy on sand and gravel extraction in the Somerset Minerals Plan (adopted 2015) and for Somerset County Council to continue co-operating with Devon County Council in particular, to maintain adequate and steady provision of sand and gravel. More information on future provision is included in section 6.
- 2.27 As noted in Devon's 4th LAA (draft): *"For land-won sand and gravel, the Devon LAA includes sales and reserves within the adjoining counties of Cornwall and Somerset, as the limited levels of production and reserves within those areas prevent their separate reporting for confidentiality reasons."*
- 2.28 Somerset's crushed rock sites also generate sand and gravel products which can be marketed alongside the main crushed rock output.

Sand and gravel landbank

- 2.29 National policy¹⁰ requires mineral planning authorities to make provision for the maintenance of landbanks for a minimum of 7 years' worth of supply for sand and gravel. Given the circumstances surrounding Somerset's sand and gravel reserve as outlined above, Somerset is not in a position to provide a separate sand and gravel landbank.
- 2.30 Somerset County Council signed a Memorandum of Understanding on sand and gravel with a number of neighbouring Mineral Planning Authorities in 2014. Principally this was prepared to ensure clarity on this issue prior to public hearings on the Somerset Minerals Plan.
- 2.31 More recently (at the end of 2015), taking forward the historic relationship that has existed on sand and gravel sub-regional apportionment between Somerset, Devon and Cornwall, the respective Mineral Planning Authorities for Somerset, Devon and Cornwall have signed a new MoU that provides a mechanism for sharing data and maintaining a joint sand and gravel landbank.
- 2.32 Devon's 4th LAA (draft) reports sand and gravel permitted reserves at the end of 2014 of 7.5 million tonnes, with a landbank period of 12.8 years. SCC will work with Devon County Council and Cornwall Council in the monitoring of the sand and gravel landbank in future, as set out in the MoU.

¹⁰ National Planning Policy Framework, paragraph 145

3 Imports and Exports

- 3.1 Information on the aggregates imports and exports for Somerset is available within the 2009 Aggregate Mineral Survey (AMS)¹¹. The AMS identifies Somerset is a net exporter of crushed rock providing markets in the south west and south east. Somerset is, however, a net importer of sand and gravel and is largely reliant on imports from other Mineral Planning Authorities in South West England.
- 3.2 This picture needs to be updated with more recent data, and thus the overall picture presented here should not be seen as definitive.
- 3.3 The AM2014 survey was undertaken in the second half of 2015. The data from this survey, which would update the figures on imports and exports, have yet to be verified and published. On publication they will be used to inform the next Somerset LAA (to 2015).
- 3.4 Table 4 provides details of the crushed rock exports from Somerset based on the 2009 data.
- 3.5 The table shows Somerset is a nationally significant provider of crushed rock, exporting to markets across the south of England. Approximately 40% of Somerset's crushed rock export is exported to South East England, whilst 32% is exported to London and 22% stays within the south west.
- 3.6 London is the single biggest importer of Somerset crushed rock, due mainly to the significant imbalance between aggregate sources and major development schemes, and noting the rail links between Whatley and Torr Works Quarries and the South East. Outside of London, Berkshire, Wiltshire and Hampshire are the largest importing counties of Somerset crushed rock, mainly because of their limited supply and high development demand, and because the counties are also rail-linked with the Whatley and Torr Works quarries.
- 3.7 Imports of crushed rock are limited. Devon and North Somerset provide the largest proportion of imports serving local markets. Small amounts of imports also come from other areas in the south west and South Wales.

¹¹ DCLG, Aggregate Mineral Survey 2009, available at:
<https://www.gov.uk/government/publications/aggregate-minerals-survey-for-england-and-wales-2009-results>

Table 4: Crushed Rock Exports from Somerset (2009)

Region	Destination	Export amount (tonnes)
South West	Gloucestershire	15,773
	Dorset	394,679
	Devon	46,893
	Cornwall	1915
	Avon	108,623
	Wiltshire	687,872
South East	Hampshire	652,836
	West Sussex	299,475
	Surrey	207,890
	Oxfordshire	24,976
	Kent	217,679
	East Sussex	125,554
	Berkshire	726,259
East	Hertfordshire	35,926
	Essex	338,770
	Other	498
London		1,870,517
Wales		382
Total		5,756,517

- 3.8 In contrast to crushed rock, Somerset currently has no land-won sand and gravel workings and is heavily dependent on imports. Table 5 shows the imports of land-won sand and gravel into Somerset.
- 3.9 Table 5 shows the majority of Somerset's sand and gravel imports come from other authorities in the south west supplemented by smaller supplies from the south east. Dorset is the single largest provider of sand and gravel, whilst Devon and Gloucestershire also make a significant contribution.
- 3.10 The Chard Junction Quarry on the Somerset - Dorset border is a large contributor to Dorset's sand and gravel export into Somerset. The site predominantly serves local markets around the Yeovil, Taunton and Tiverton areas and is an important contributor to the local markets. The Quarry has an active permission running until March 2023, by which time it is estimated that reserves would have been worked. Whilst the Chard Junction Quarry is a significant source of sand and gravel import into Somerset, Dorset County Council is working to identify other sites that would ensure a sufficient landbank is maintained to maintain Dorset's supply into the sub-region.

- 3.11 Devon reported a landbank of 13.8 years for sand and gravel based on the 10 years sales data during the period 2004-2013.¹² This was updated¹³ to 12.8 years based on sales during the period 2005-2014. Acknowledging the potential need for other sites during the latter stages of its plan period (to 2031) Devon County Council has identified two potential sites to come forward to ensure for a steady and adequate supply.
- 3.12 Gloucestershire and Wiltshire also supply smaller amounts of sand and gravel to Somerset markets, as do West Sussex, Oxfordshire, Surrey and Hampshire. However, arguably these sources are less significant to Somerset's annual usage and the possibility to increase or rely on these sales – in particular from more distant counties - is constrained by the high transportation costs.

Table 5: Sand and Gravel Imports into Somerset (2009)

Region	Origin	Import amount (tonnes)
South West	Gloucestershire	<10% (<40,000)
	Dorset	65% (290,000)
	Devon	<10% (<40,000)
	Cornwall	0
	Avon	0
	Wiltshire	<5% (<20,000)
South East	Hampshire	<1%
	West Sussex	<5% (<20,000)
	Surrey	<1%
	Oxfordshire	<5% (<20,000)
Other		<1%
Total		378,000

¹² 3rd Devon Local Aggregate Assessment 2004-2013, December 2014

¹³ 4th Devon Local Aggregate Assessment 2005-2014 (Draft), December 2015

4. Capacity of Aggregate Transportation Infrastructure

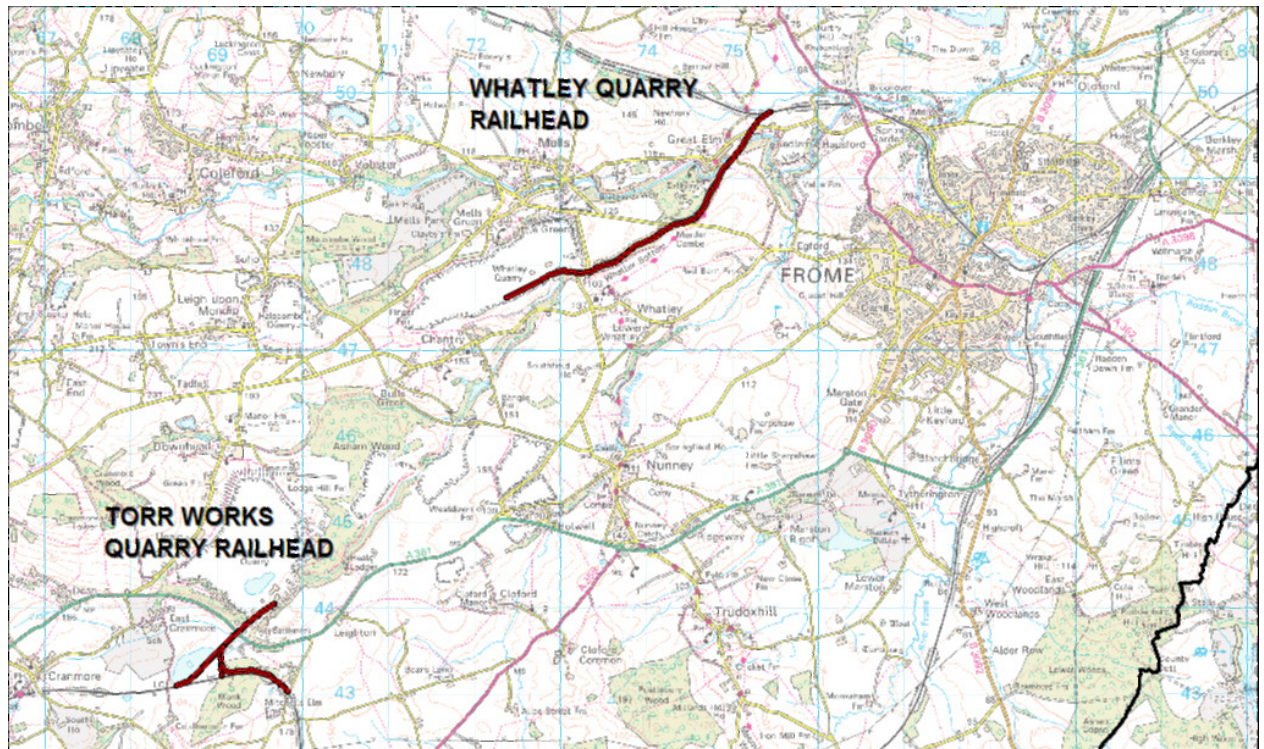
Rail Infrastructure

- 4.1 There are advantages to transporting aggregates by rail instead of by road. It is thought that transporting aggregates can produce up to 40% of the carbon¹⁴ produced by the aggregate production industry as a whole, increasing the rail transportation reduces the number of road trips made and reduces carbon production. There are also several social benefits to limiting the number of vehicles on the road, including traffic congestion, damage to minor roads and exhaust pollution amongst others.
- 4.2 The viability of using rail for the transportation of aggregates is largely dependent on the existing rail infrastructure. Somerset currently has two railheads, one at Whatley Quarry and the other at Torr Works. Approximately 50% of Somerset's crushed rock is transported from these railheads, serving markets in London, the South East and the South West of England.
- 4.3 Mendip Rail Limited (MRL) is a joint venture company between Aggregate Industries UK Limited and Hanson Quarry Products Europe Limited and is responsible for rail logistics from Somerset's rail-linked quarries to market destinations. It operates 24 hours per day, 6.5 days per week. Quarry operators are responsible for loading operations.
- 4.4 Loading operations are adjusted to suit market demands and service requirements, and currently take place 18 hours per day, 240 week days plus Saturdays as required. It is estimated that this provides for a combined capacity for the railheads at Torr Works and Whatley Quarry of approximately 6.5 million tonnes per annum. With extending hours of loading operations, this could be increased to 10 million tonnes per annum. However, in recent years, the actual amount of material moved by rail has been less, indicating there is capacity to increase the amount moved by rail subject to the demands of the market.
- 4.5 Whilst it is reasonable to assume that both Whatley and Torr Works maximise rail usage because rail transport is more sustainable and cost effective, the Somerset Minerals Plan can be used to support the transport of minerals by means other than road.
- 4.6 The majority of aggregates exported by rail serve markets in the south east, whilst aggregates transported by road are often more locally distributed within the south west.

¹⁴ Mankelow, J et al. (2010): Assessing the Carbon Footprint of Transporting Primary Aggregates

- 4.7 The main railheads which have a direct link to the Mendip quarries are located in London, Berkshire, West Sussex and Hampshire. Aggregates transported into these railheads are then either transported to neighbouring MPA areas or consumed within the importing MPA. There are also other smaller rail depots connected to the Mendip Hills which import less significant amounts of crushed rock.

Figure 5: Railheads in Somerset



Wharves

- 4.8 There are currently two wharves in Somerset – Dunball wharf and Combwich wharf – both located to the north of Bridgwater. Combwich wharf does not currently import or export aggregates into the county; however, there is the potential for the wharf to play a role in the Hinkley Point C development.
- 4.9 Dunball wharf is the only active landing bay for marine-dredged sand and gravel in Somerset. It is noted that the River Severn is tidal and the capacity of Dunball wharf is largely dependent on how many landings can take place within the appropriate tidal range. Landings at Dunball wharf make a significant contribution (roughly 10%) to the supply of sand and gravel in to Somerset.
- 4.10 Dunball wharf is located just off junction 23 of the M5 which means it has good access to the strategic road network, thus helping it to serve markets across the county.

Road Network

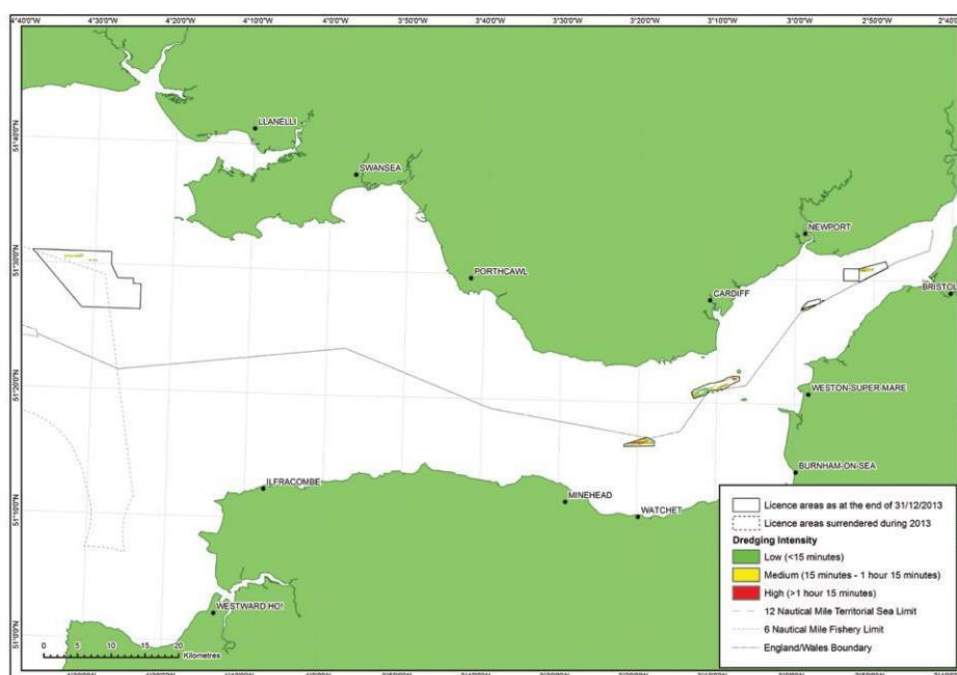
- 4.11 The majority of minerals extracted in Somerset are from the Mendip Hills. The aggregate quarries are well served by the major road network running through Somerset. The major roads provide adequate capacity for mineral transportation. The M5 motorway creates a major transport corridor running north to south and the A303 provides eastward connectivity towards London, the A361 is the main route running through the Mendip Hills and is the main haulage route connecting the large quarries to the A39 and M5 and the A36 to Wiltshire and the south.
- 4.12 Having noted the capacity of the major road network, it is also important to note the constraints associated with the local roads in the eastern area of the county. Appropriate mitigation measures are needed to ensure mineral transport has the least amount of impact on the local area as possible, thus reducing the adverse impact of heavy lorry movements on local communities. The number of public complaints received relating to mineral transport can be used as a relevant indicator, monitored as part of the preparation of the County Council's Monitoring Report which informs the Minerals and Waste Local Development Framework.

5 Alternative Aggregates

Marine Dredged Sand and Gravel

- 5.1 Marine-dredged sand and gravel originating from the Bristol Channel is landed at Dunball Wharf, which is run by a single operator. Approximately 35,000 tonnes of marine-dredged sand and gravel were sold from this wharf in 2014, a small increase on 2013 sales.¹⁵
- 5.2 Dredging for marine aggregates is licensed by the Crown Estate. In 2014 the Crown Estate licensed an area of 101.50km² in the South West region.¹⁶ There is currently a significant difference between the licensed and actual dredging amount. The total area available to be dredged in 2014 was 29.16 km² and the total area actually dredged that year was 5.47km² (which represents 5 per cent of the licensed area). If landings and tide allows there is potential to dredge more material.
- 5.3 The dredging of water courses may help to provide limited quantities of material on a very small scale, in particular linked with identified "pinch points" where the removal of the material would help in local water level management and flood risk mitigation.

Figure 6: Marine dredging license area in South West England



¹⁵ <http://www.thecrownestate.co.uk/media/476134/ei-marine-aggregate-statistics-2014.pdf>

¹⁶ The Crown Estate: Marine Aggregate Extraction: The area involved – 17th annual report

Recycled and Secondary Aggregates

- 5.4 Recycled and secondary aggregates form another potential alternative source of aggregates. In the UK the production of such alternatives has been encouraged by the introduction of the Aggregates Levy, which is applied to primary aggregates unless specifically exempt.
- 5.5 Quoting from a government budget report: *“There was a marked increase in the volume of china clay waste and slate waste sold as aggregate as a result of the economic incentive presented by the aggregates levy exemptions granted to these products. Between 2001 and 2004 china clay waste sold as aggregate in the UK increased by 14 per cent to 2.5 million tonnes.”*¹⁷
- 5.6 Secondary aggregates are usually obtained as a by-product of certain types of quarrying or industrial activities.
- 5.7 The waste arising from construction, demolition and excavation (CD&E) comprises a range of material, of which the ‘hard’ inert elements (such as concrete, bricks, stone, road planings, rail ballasts and glass) can be recycled for use as aggregates.
- 5.8 Table 6 outlines recycled and secondary aggregate sales in Somerset, informed by surveys undertaken by Somerset County Council.

Table 6: Recycled and secondary aggregate sales 2005-2014

Year	Recycled Aggregate Sales from sites with fixed plant (tonnes)	Secondary Aggregate Sales (tonnes)
2005	14,131	40,666
2006	34,015	42,752
2007	21,162	55,474
2008	15,137	56,786
2009	25,045	116,222
2010	26,323	128,699
2011	34,059	27,955
2012	60,934	27,955
2013	105,770	2943
2014	63,170	0

¹⁷ HM Treasury, Budget 2005 – Investing in our Future (HC 372), March 2005

- 5.9 The significant increase in the production of recycled aggregates in 2013 is likely to be explained by a combination of factors, in particular a more complete picture of recycled aggregate production (with more survey returns).
- 5.10 In 2014, the survey returns suggest a decrease in the production of recycled aggregate (even when including assumed figures from operators who did not make a return). Further work will be carried out in evidence gathering on local waste policy, to establish more clearly what is happening in the market for recycled aggregate. SCC is working on an Inert Waste Review that will inform future iterations of the LAA on this issue.
- 5.11 Table 7 lists permitted, fixed aggregate recycling facilities in Somerset. Such facilities tend to be located in former quarries or waste transfer stations. Furthermore, operational quarries and other development sites can also generate recycled aggregate e.g. via the use of on-site crushers.

Table 7: Fixed aggregate recycling plants in Somerset

Location	Application number
O.S. 2000 (pt) Colham Lane, Cricket St Thomas, Chard, TA20 4BX	13/02398/CPO
Emborough Quarry, Emborough, Radstock	106720/008
Rear of Sycamore House, Walrow, Highbridge	1/12/06/006
Dunwear Depot, Rivers Lane, Dunwear, Bridgwater	1/09/97/009
Land off A359/A303 slip road, Sparkford, Yeovil	96/02117/CPO
Southwood Waste Management Facility, Southwood Common, Evercreech, Shepton Mallet, BA4 6LX	054492/028
Colemans Quarry, Holwell	077905/012
Lower Farm, Podimore	02/02128/CPO

- 5.12 It is likely that the falling secondary aggregate sales shown in Table 6 are largely due to issues in data handling i.e. a lack of consistency in where the line is drawn between primary and secondary aggregates. The processes involved in quarrying for Carboniferous Limestone and Silurian Andesite do not tend to generate by-products that meet the standard definition of secondary aggregates. So, even if the product is secondary to the main / premium output of the site, most, if not all, such by-products should be considered as primary aggregates. This issue was identified in previous LAAs and remains an issue that impacts on data returns.
- 5.13 Much depends on the quality and consistency of data provided by industry and there are challenges to collating accurate data. Furthermore, inert waste can be recycled on-site via mobile crushing plant rather than fixed facilities, which makes data collection more difficult. By continued engagement Somerset County Council will continue to improve its records and monitor the impact of its policies in support of recycled and secondary aggregate production.
- 5.14 There are minimal import and export data for recycled and secondary aggregates in Somerset. There is likely to be a limited amount of cross-border transfer of material, but it is considered to be small with the bulk of material supplying local markets.

6 Future Aggregate Supply

- 6.1 Aggregate supply is now informed by locally-derived figures for provision, calculated based on a rolling average of sales over a 10 year period and other relevant local information.
- 6.2 Central government will continue to provide National and Sub-National Guidelines, thereby providing an indication of the total amount of aggregate provision that MPAs collectively within each Aggregate Working Party (AWP) should aim to provide.
- 6.3 One mechanism introduced to allow MPAs to consider more local factors is the scope to look at the average 3 year sales data, which enables MPAs to consider if an upturn in recent sales could indicate a need to plan for increased supply.
- 6.4 Based on the sales presented in Table 2, the average sales of crushed rock in Somerset over the last 10 years are **10.72 million tonnes**.
- 6.5 Also based on the data in Table 2, the average sales of crushed rock in Somerset over the last 3 years are **10.62 million tonnes**.
- 6.6 The average sales from the 10 year period are seen as a more appropriate figure to take because the figure is based on a period of time where both economic prosperity and austerity has occurred.

Factors that may impact on future provision

Anticipated growth

- 6.7 Looking forward, there are a number of published growth projections for Somerset and some are more aspirational than others with GVA ranging from 2.3% (the latest Somerset economic model projection) to 3.06% (projections published in 2014 in the Strategic Economic Plan or “SEP”, developed by the Heart of the South West Local Enterprise Partnership – see www.heartofswlep.co.uk for further detail).
- 6.8 According to the State of the Somerset Economy 2013, analysis of economic growth rates post-2000 reveal three distinct phases: a period of expansion (between 2000 and 2007) when the Somerset economy grew by 24% in real terms; a short period of contraction (between 2007 and 2009); and subsequent recovery (between 2009 and 2011). During three years of the LAA’s 10 year period (i.e. 2005-2007) the GVA exceeded 3%.

Demand from major infrastructure

- 6.9 An additional factor to be considered in projecting future demand is the demand for material linked with major infrastructure investment.
- 6.10 The largest infrastructure project in Somerset is the construction of Hinkley Point C nuclear power plant.
- 6.11 The Freight Management Strategy in EDF Energy's Transport Assessment estimates that 7.1 million tonnes of material will be transported to/from the Hinkley Point C project sites during the construction phase. This total includes construction materials, waste and materials generated by the removal of some of the associated development facilities at the end of the HPC construction phase. The main civil works will require approximately 2.3 million tonnes of materials for on-site concrete production, 80% of which will be supplied by jetty and 20 % by road.¹⁸
- 6.12 Aggregate supply for this project is informed by a large range of factors and is market-driven, governed by EDF Energy's procurement strategy and arrangements agreed when the Development Consent Order was granted. The role of Mendip's crushed rock resource in contributing to this supply will depend on the contracts agreed and related logistics.¹⁹ Transport of materials is a particularly key issue, acknowledging the importance of mitigating impacts on the road network.
- 6.13 There are other nationally significant construction projects that are likely to make use of crushed rock products from Somerset quarries. Drawing from the National Infrastructure Pipeline (July 15 update²⁰), in addition to HPC, projects listed include the Northern Inner Distributor Road (NIDR) in Taunton, M5 Bridgwater Junctions improvement project and A303/A30/A358 corridor bypass and widening projects.
- 6.14 Other major construction projects within Somerset include the Cannington bypass and the phased development of extensions around Taunton, Bridgwater and Yeovil.
- 6.15 In addition there are other major construction projects outside Somerset that are also likely to require crushed rock from Somerset, such as the London Cross Rail project.

¹⁸ EDF Energy, Transport Assessment Appendix 3.7 – Freight Management Strategy October 2011, page 47

¹⁹ Assuming 5 million tonnes of crushed rock is needed for HPC and associated developments, and all of this is supplied from Somerset, when averaged over 10 years would add an additional 500,000 tonnes per year to the demand. Adding this to 10 year average sales gives a revised figure of 11.3 million tonnes. At this slightly elevated rate of depletion, Somerset's current landbank would still have over 35 years remaining and so is able to accommodate this theoretical additional demand

²⁰ <https://www.gov.uk/government/publications/national-infrastructure-pipeline-july-2015>

Outlook on imports / exports

- 6.16 The absence of a verified AM2014 report makes it difficult to comment in any detail on the outlook for imports and exports of aggregate. Publication of the AM2014 report will inform the next Somerset LAA.
- 6.17 Furthermore, review of Local Aggregate Assessments produced by other Mineral Planning Authorities should also inform the picture of what is happening. In this regard, for example, it is noted that the Oxfordshire Local Aggregate Assessment 2014 refers to a reduced reliance on imports from Somerset and Gloucestershire in future years.

Meeting projected demand: crushed rock

- 6.18 Table 8 compares the current average annual production for crushed rock with estimated capacity based on permitted output. The difference between these two figures shows the potential for increased production (in one year) should that be needed to meet increased market demand.

Table 8: Comparison of Average Annual Sales and Capacity

Aggregate Type / Source	Average Annual Sales / Production (tonnes)	Potential Capacity (tonnes)	Balance (tonnes)
Crushed rock	10.72 million	21.79 million	+ 11.07 million

- 6.19 If the active crushed rock sites in Somerset were to extract at their maximum permitted annual output rate, the resulting depletion of resources may result in additional reserves being needed during the second half of the plan period. However, actual annual output is significantly less than maximum permitted figures and current reserves should last well beyond 2030. There are no locally significant reasons why the level of provision based on the average sales of crushed rock in Somerset over the last 10 years cannot be achieved.
- 6.21 Only one planning permission is due to expire within the plan period, Halecombe quarry, which has a permitted output of 1.0 mt per annum; and permission until 2023. There is, however, a possibility to deepen this site and an application may come forward in the near future.
- 6.22 If the sales figures show a continued decline or a rapid increase over a particular period in the future then the sub-regional apportionment and/or the 3 year average sales data may have a more significant weighting to ensure local demand is provided for, but at present there is no reason to not take account of the provision afforded by the average 10 year sales figure.

- 6.23 As previously mentioned the landbank is the permitted reserve, divided by the level of provision giving the number of years production can continue at its current rate. Table 9 shows the existing landbank based upon the sub-regional apportionment and the proposed landbank based on the average sales figures.
- 6.24 The NPPF seeks the maintenance of a landbank for at least 10 years for crushed rock. As Table 9 shows the landbank for all scenarios is significantly above the 10 year requirement.

Table 9: Comparing calculations on provision

Landbank and sub-regional apportionment		Landbank and 10 year average sales		Landbank and 3 year average sales	
Permitted reserve	400 mt	Permitted reserve	400 mt	Permitted reserve	400 mt
Sub-regional apportionment	13.4mt	10 year average sales	10.72 mt	3 year average sales	10.62 mt
Estimated landbank	29.9 years	Estimated landbank	37.3 years	Estimated landbank	37.7 years

Meeting projected demand: sand and gravel

- 6.25 National policy²¹ requires mineral planning authorities to make provision for the maintenance of landbanks for a minimum of 7 years' worth of supply for sand and gravel. Given the circumstances surrounding Somerset's sand and gravel reserve, Somerset is not in a position to provide a separate sand and gravel landbank but through its adopted Somerset Minerals Plan will need to contribute to a joint approach with Devon County Council in particular.
- 6.26 Furthermore, with reference to a signed Memorandum of Understanding, Somerset County Council will work with Devon County Council and Cornwall Council to share data on sand and gravel and maintain a joint approach to sand and gravel sales and reserves.

²¹ National Planning Policy Framework (paragraph 145)

- 6.27 This LAA has already highlighted the importance of a positive policy on sand and gravel extraction in the Somerset Minerals Plan (adopted 2015). The Somerset Mineral Plan has indicated Somerset County Council's policy to maintain the Preferred Area/Area of Search at Whiteball,²² thereby contributing to a sub-regional supply, and use a criteria-based policy considering proposals elsewhere in Somerset. For more information, refer to the Somerset Minerals Plan adopted in 2015 (available for download from www.somerset.gov.uk/mineralsandwaste).
- 6.28 Potentially extraction at Whiteball may be proposed on the Somerset side of the border during the next 10 years or so, moving from extraction on the Devon side of the border. Whilst this is not expected to change Somerset's approach towards sand and gravel policy, it will alter the import / export figures, leading to Somerset exporting to local markets in Devon.
- 6.29 Marine-dredged sand and gravel is a significant contributor to consumption of sand and gravel in Somerset. The comparison of actual and licensed dredging rates would suggest there is scope to increase the level of dredging in the Bristol Channel if necessary. However, indications are that Dunball Wharf is currently working close to its operational maximum capacity, when taking into account weather and tides, thus affecting the potential to increase the county's dependence on marine-dredged aggregates.
- 6.30 National planning policy indicates mineral planning authorities preparing local plans 'should so far as practicable, take account of the contribution that substitute of secondary and recycled materials and minerals waste would make to the supply of materials, before considering extraction of primary materials, whilst aiming to source minerals supplies indigenously'. Taking this forward, the Somerset Minerals Plan has a role to play in supporting the production of recycled and secondary aggregates, in conjunction with the Somerset Waste Core Strategy (adopted 2013).

²² Somerset Mineral Plan, policy SMP4

7 Conclusions

- 7.1 The Somerset Minerals Plan was adopted in early 2015, setting local minerals planning policy and supporting the role of the LAA in identifying any potential issues in minerals supply. The Plan also supports production of recycled and secondary production in conjunction with the adopted Somerset Waste Core Strategy.
- 7.2 From data in this Somerset LAA, it can be seen that Somerset remains a major producer of crushed rock aggregates. In 2014 aggregate sales were 12.46 million tonnes – nearly 25% higher than in 2013.
- 7.3 Somerset has sufficient permitted reserves to maintain a steady and adequate supply of crushed rock, based on the following calculations: .
- The permitted reserves of crushed rock in Somerset at the end of 2014 is approximately 400 million tonnes, compared with the 2013 figure of 425 million tonnes. (Total permitted reserves within the county change year on year, impacted by the previous year's sales and any changes to operator estimates of permitted reserves. The figure for permitted reserves in Somerset at the end of 2014 takes account of both factors.)
 - The annual figure for provision derived from the Somerset LAA based on the 10 year rolling average (covering the period 2005-2014) is 10.72 million tonnes per year. The 10 year sales average is considered to remain the most appropriate figure to use when calculating the level of provision.
 - The landbank derived from this level of provision is approximately 37.3 years. This landbank is well in excess of that needed to comply with national policy and local policy (the latter specifying a 15 year minimum landbank).
- 7.4 In addition to commitments made in the Somerset Minerals Plan on crushed rock generally, the Plan makes a commitment to monitor Silurian Andesite separately and maintain a separate landbank (of at least 15 years) for this type of rock, which has a high polished stone value and a distinct market.
- 7.5 Based on historic data supplied by the operator in 2014, approximately 8 million tonnes or 2% of the total crushed rock permitted reserves was considered to be high psv Silurian Andesite. However, recent reassessment of the reserve supplied by the operator indicates that this figure could be significantly lower and is more likely to be in the region of 4 million tonnes. The latest average sales data supplied by the operator indicates that this level of reserve could last approximately 10 years. The ongoing reassessment work will be refined by an extensive, deep drilling, geological investigation during 2016 and updates will be reported for analysis in the LAA.

- 7.6 Historically Somerset has shared a joint apportionment with Devon and Cornwall. Somerset does not have its own separate landbank for sand and gravel but relies in particular on the working of the Budleigh Salterton Pebble Bed resources that cross the Somerset / Devon border. There has been minimal extraction activity in Somerset during the last 10 years. Sand and gravel have been worked just over the Devon border, with the extracted material processed in Somerset.
- 7.7 Potentially extraction at Whiteball may be proposed on the Somerset side of the border during the next 10 years or so, and the importance of a positive policy on sand and gravel extraction in the adopted Somerset Minerals Plan is noted.
- 7.8 In late 2015 Devon County Council, Cornwall Council and Somerset County Council signed a new Memorandum of Understanding that provides a mechanism to share data and maintain a joint sand and gravel landbank. Devon CC's latest LAA (2005-2014 – still in draft) reports sand and gravel permitted reserves at the end of 2014 of 7.5 million tonnes, with a landbank period of 12.8 years.
- 7.9 Whilst SCC have surveyed operators that generate recycled and / or secondary aggregates for sales in 2014, it is clear that data collection on recycled and secondary aggregates remains an issue. SCC will continue its work to strengthen the data collected, facilitated by further work on waste sites in Somerset, an Inert Waste Review and related capacity analysis.