

West of England Local Aggregates Assessment 2007-2016

Bath & North East
Somerset Council



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COUNCIL

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E1.0 Executive Summary



- E1.1 This document is the Local Aggregates Assessment (LAA) to 2016 for the West of England, which includes data on aggregates for up to the end of that year; (e.g. permitted reserves and production (sales) for crushed rock as at the end of 2016).
- E1.2 The main element of aggregates production in the West of England (WoE) is primary crushed rock from quarries in North Somerset and South Gloucestershire (South Glos), with much smaller contributions from marine dredged sand and gravel from the Bristol Channel, landed at Avonmouth, and from recycled aggregate (estimated). This is shown by Table E1 and the dashboard E2 below. There are no land-won sand and gravel resources in WoE. Production of secondary aggregate in 2016 was limited, mainly comprising aggregate produced from incinerator bottom ash by a firm at Avonmouth.

Table E1

Estimated supply of aggregates in the West of England 2006-2015, (including sales of primary crushed rock, landings of marine sand and gravel at Avonmouth, and estimates for production of recycled aggregate)

Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Ave. 2007-2016
Crushed Rock	4.06	4.32	3.37	3.22	3.1	2.89	2.66	3.20	3.62	3.72	3.41
Marine Sand & Gravel	0.62	0.53	0.34	0.30	0.33	0.35	0.34	0.38	0.39	0.44	0.40
Recycled Aggregates	0.82	0.84	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.71
Total	5.50	5.69	4.39	4.20	4.11	3.92	3.68	4.26	4.69	4.84	4.52

Dashboard E2

	Crushed rock	Marine sand and gravel	Recycled aggregates (estimated)
2016 sales (Mt)	3.72	0.44	0.68
10 year average sales (Mt)	3.41	0.40	0.71
3 year average sales (Mt)	3.51	0.40	0.68
1 year trend			No change in estimated data
LAA rate (Mt)	3.41	N/A	N/A
Permitted reserves remaining at end of 2016 (Mt)	131.70mt	N/A	N/A
Landbank (years)	38.62	N/A	N/A

Note: N/A means not applicable

- E1.3 About 3.72 million tonnes of crushed rock aggregate was produced at quarries in the WoE in 2016, an increase of 0.1mt (2.7%) on the 3.62mt that was produced in 2015. The ten year average crushed rock production (sales) figure for 2007-2016 of 3.41mt is almost the same as that for 2006-2015 (relating to the previous LAA), which was 3.4mt.
- E1.4 The three year (2014-2016) average for crushed rock production (sales) is 3.51mt, so is higher than the 10 year average, reflecting the continuing upturn in production levels in recent years.
- E1.5 Total permitted reserves in WoE at the end of 2016 were 131.70mt giving a landbank of over 38 years based on the average annual production over the 10 year period 2007 – 2016 (3.41mt). However this does not take account of factors which could affect the deliverability of the permitted reserves, for example the fact that a significant proportion of the permitted reserves are at mothballed quarries (Tytherington and Cromhall).
- E1.6 In preparing Local Plans, South Gloucestershire and North Somerset Councils are taking account of such factors and the need for appropriate policies and allocations to help ensure a steady and adequate supply of aggregates, as is required by national planning policy.
- E1.7 Data suggests that the WoE exports a significant proportion of the crushed rock it produces: in 2014 46% (1.47mt) was exported (sold) to destinations outside of the WoE. Most of the

crushed rock consumed in the WoE comes from the WoE, with relatively little imported from elsewhere (less than 20% in 2014).¹

- E1.8 In 2014 about 0.401mt of sand and gravel was consumed in the WoE, with much (60-70%) coming from Bristol (presumably landed at Avonmouth).

¹ Note: 2014 data is referred to on this page for imports and exports because there is no more recent data on this than that from the AM2014 (British Geological Survey Aggregate Minerals survey for 2014)

1.0 Introduction

- 1.1 Aggregates are the most commonly used minerals in the UK and are essential to a modern economy. They provide the critical raw material for built development and other construction, manufacturing and the maintenance of infrastructure, through their use as concrete, mortar, finishes, roadstone, constructional fill and railway ballast.
- 1.2 Aggregates can refer to any granular material formed from a natural rock substance, although principally aggregate minerals are sand and gravel and crushed rock. They come in a variety of forms, each with their own characteristics and properties, which determines their many uses.
- 1.3 There are three sources of supply of aggregates – primary, secondary and recycled. The majority of aggregate demand is met from primary sources. This involves extracting material directly from the ground and dredging from the sea floor. There are significant geographical imbalances in the occurrence of suitable natural aggregate resources and the areas where they are most needed.
- 1.4 The National Planning Policy Framework (NPPF) paragraph 145 requires an annual Local Aggregate Assessment (LAA) to be produced by Mineral Planning Authorities (MPAs) in order to plan for a steady and adequate supply of aggregates.
- 1.5 Like LAAs for previous years, this LAA has been prepared jointly by Bath & North East Somerset Council, Bristol City Council, North Somerset Council and South Gloucestershire Council, the four unitary authorities which together comprise the West of England (WoE) sub region. The LAA is part of the evidence base to inform the Local Plan of each of these four authorities.
- 1.6 It is logical that LAAs has been produced for the WoE area by its constituent authorities. The four authorities have historically worked very successfully together on projects in the WoE, such as preparation of the Joint Waste Core Strategy, the Strategic Housing Market Assessment, the work of the West of England Local Enterprise Partnership (LEP), and the Joint Spatial Plan for West of England. The authorities have continued and built on this close working relationship in preparing the LAA.
- 1.7 Also, the local authorities for the land-won aggregate producing areas in the WoE, (South Gloucestershire and North Somerset), have worked together closely in planning for future aggregate provision, to meet the sub regional apportionments that have historically been set for the former Avon (WoE) area. For confidentiality reasons, owing to the low number of quarry operators in the individual districts, figures for production and permitted reserves have usually been amalgamated for the West of England in the South West Aggregates Working Party (SWAWP) annual reports. This further underlines the logic of producing LAAs for the WoE.

2.0 Aggregates in the West of England

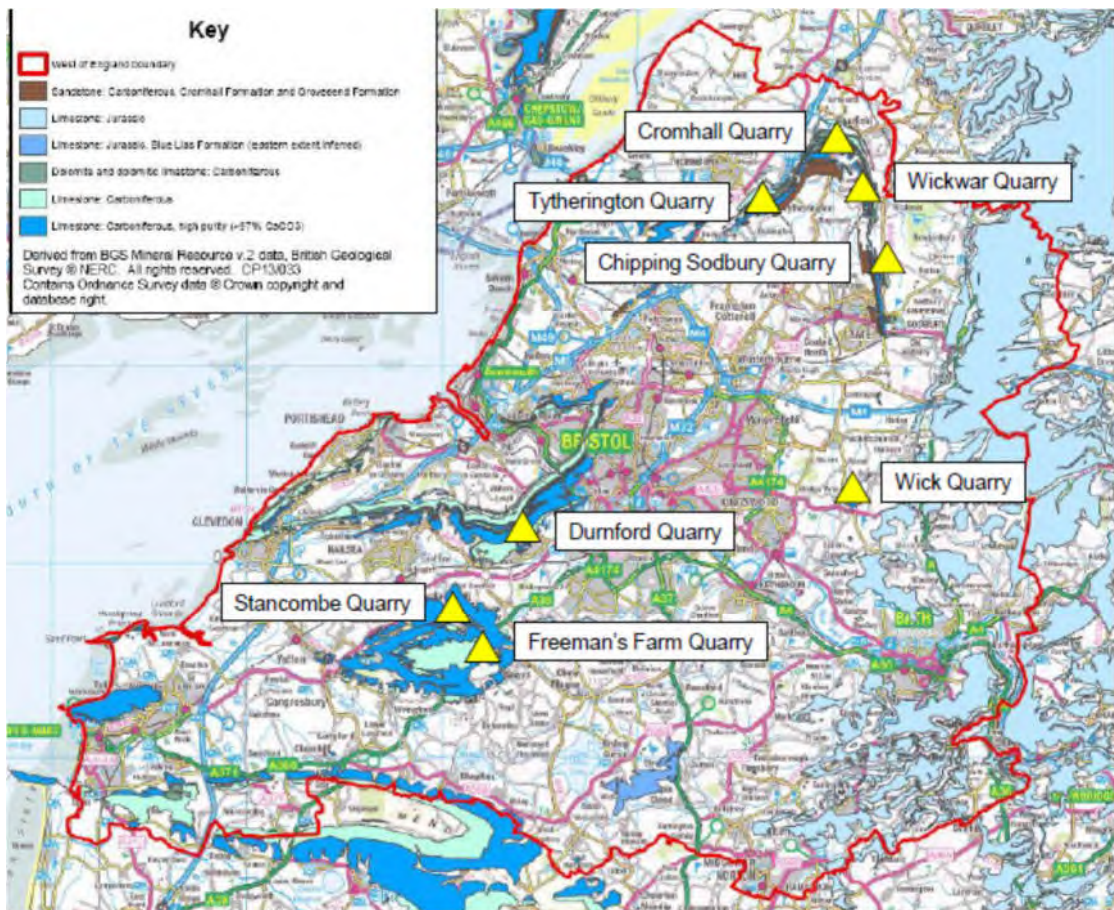
- 2.1 The West of England has a long history of mineral working, not only for use as aggregate, but also for industrial purposes, brick manufacture and building stone. Today's mineral activity is dominated by working of the Carboniferous Limestone for use as a roadstone and construction aggregate. There are no sand and gravel resources of commercial value in the West of England. However 2016 saw the commencement of production of secondary aggregate using incinerator bottom ash from an energy from waste plant at Avonmouth.
- 2.2 Carboniferous Limestone is worked from quarries in South Gloucestershire and North Somerset. The quarries are mostly capital intensive units, producing added value aggregate products (e.g. coated roadstone, concrete blocks), in addition to screened aggregates.
- 2.3 As indicated below, the permitted reserves at limestone quarries in South Gloucestershire and North Somerset amount to a significant total which has been used to calculate a land bank. However it is important to note that many of those reserves are at inactive quarries in South Gloucestershire which are currently mothballed, including Tytherington and Cromhall. Tytherington Quarry has not been worked since 2010 as a result of the downturn in the economy. Cromhall Quarry has had its plant removed, and has been inactive for 20 years. Wick Quarry, also in South Gloucestershire, was sold to a private individual in 2013 and in November 2015 an application was approved for the restoration of the quarry to a nature reserve.
- 2.4 Table 1 below shows the eight quarries with extant planning permissions and/or permitted reserves in the West of England (WoE). It should be read with the above points in mind. The location of these quarries is shown in Figure 1.

Table 1 – Crushed Rock Quarries in the West of England

Site	Geological Formation	Operator
Active Quarries		
Stancombe Quarry, near Backwell, N Somerset	Clifton Down Limestone	Lafarge Tarmac
Freemans Farm, near Barrow Gurney, N Somerset	Clifton Down Limestone	CEMEX
Durnford Quarry, near Long Ashton, N Somerset	Clifton Down Limestone	Lafarge Tarmac
Chipping Sodbury Quarry, S Glos	Black Rock - Clifton Down Limestone	Hanson
Wickwar Quarry, S Glos	Clifton Down Limestone	CEMEX
Inactive Quarries		
Tytherington Quarry, S Glos	Black Rock Limestone – Burrington Oolite	Hanson

Cromhall Quarry, S Glos	Clifton Down Limestone	Hanson
Other Quarries (with reserves but low probability of being worked in short-medium term at least)		
Wick Quarry, S Glos	Gully Oolite - Clifton Down Limestone	Formerly CEMEX

Figure 1. Geological formations and Crushed Rock Quarries



- 2.5 While historically Carboniferous Sandstone has been worked in modest quantities in South Gloucestershire and North Somerset for use as High Specification Aggregate (HSA), such activity has ceased within the WoE. HSA is used in road wearing courses and as road surface chippings where high levels of skidding resistance and aggregate durability are required. A Government sponsored research project by Symonds Travers Morgan in the early 1990s identified the Mangotsfield Formation of the Pennant Sandstone in the West of England, along with the Pennant Sandstone resource in South Wales, as the two most promising potential resources of HSA in the highest Polished Stone Value (68+) category in England and Wales. However, there is no known interest in working the HSA resources in the West of England.
- 2.6 There are no active quarries producing aggregates in the Bristol or Bath and North East Somerset administrative areas.

3.0 Managed Aggregate Supply System

- 3.1 The Government has produced national Planning Practice Guidance on minerals, including a section on the Managed Aggregate Supply System (MASS), which “seeks to ensure a steady and adequate supply of aggregate mineral, to handle the significant geographical imbalances in the occurrence of suitable natural aggregate resources, and the areas where they are most needed”.
- 3.2 Historically mineral planning authorities (MPAs) have planned to make provision for aggregates based on the apportionment of the sub national (aka regional) amounts periodically identified in the Government’s National and Regional Aggregates Guidelines.
- 3.3 The Guidelines published in June 2009² include a requirement for the South West to make provision for 412 million tonnes of crushed rock over the period 2005-2020.
- 3.4 The then South West Regional Aggregates Working Party (SWRAWP) subsequently apportioned the 412 million tonnes between the mineral planning authorities in the region and put this forward to DCLG. For the West of England, the sub-regional apportionment for crushed rock over the period 2005 – 2020 is 79.10 million tonnes, which equates to 4.94 million tonnes (mt) per year.
- 3.5 The 2012 National Planning Policy Framework (NPPF) requires mineral planning authorities to plan for a steady and adequate supply of aggregates by preparing an annual Local Aggregates Assessment (LAA) based on a rolling average of 10 year sales data and other relevant local information, including an assessment of all aggregate supply options. MPAs should make provision for the land-won and other elements of their LAA in their mineral plans.

² DCLG (2009) National and regional guidelines for aggregates provision in England 2005-2020. London: HMSO.

<http://www.communities.gov.uk/publications/planningandbuilding/aggregatesprovision2020>

4.0 Aggregate Supply and Demand

Crushed rock

Sales/ production

- 4.1 The West of England is a significant producer of crushed rock in the South West, being the next highest producer after Somerset. Sales over the 10 year period 2007 – 2016 are shown in Table 2 below. Where published, the breakdown between the unitary authorities of South Gloucestershire and North Somerset is shown.

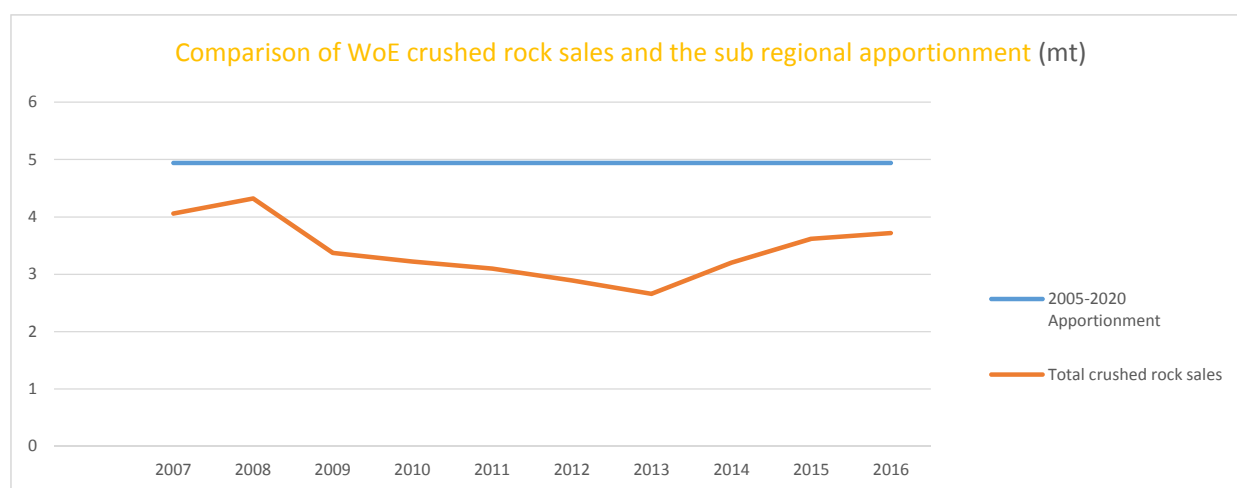
Table 2 – Crushed rock sales in the West of England 2006 – 2017 (million tonnes)

Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	3 yr ave. 2014- 2016	10 yr ave. 2007- 2016.
Sales	4.06	4.32	3.37	3.22	3.1	2.89	2.66	3.20	3.62	3.72	3.51	3.41
<i>South Glos</i>	n/a	n/a	1.75	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
<i>North Som</i>	n/a	n/a	1.62	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Source: SWRAWP Annual Report and 2016 AM Survey

- 4.2 Analysis of this data is summarised in the Executive summary above.
- 4.3 Figure 2 below provides a comparison between the West of England's sales figures over the period 2007 to 2016 and the area's sub regional apportionments during this period. As can be seen, throughout this period, total crushed rock sales do not meet the level of sub regional apportionment given to the West of England in any year.

Figure 2



Imports and exports of crushed rock

Exports

4.4 Table 3 below shows data on crushed rock exports from WoE.

Table 3 – West of England Crushed Rock Exports 2014

Region	Destination	Export amount from WoE (tonnes)
South West	Gloucestershire	572,134
	West of England	1,729,024
	Wiltshire and Swindon	171,387
	Somerset and Exmoor National Park	82,222
	Devon & Dorset	34,237
	Unknown, but somewhere in the South West	394,421
South East	Berkshire	99,581
	Oxfordshire	21,202
	Surrey	35,220
	Buckinghamshire and Milton Keynes	14,473
	Hampshire & Isle of Wight	3,061
	West Sussex	2,426
	Kent and Medway	455
	East Sussex, Brighton and Hove	58
West Midlands	Herefordshire	19,643
	Worcestershire	17,865
London	West London	3,060
East of England	Essex, Southend and Thurrock	184
	Suffolk	59
North East	Northumberland and the National Park	96
South Wales	South East Wales	838
TOTAL		3,201,646

Source: Primarily the AM2014, except that the figures for exports to Gloucestershire and West of England are estimates.

- 4.5 Table 3 shows that in 2014, 54% (about 1.73 million tonnes) of the approximately 3.2 million tonnes of crushed rock aggregate produced at quarries in the WoE was sold within the West of England. The remaining 46% (about 1.47mt) was sold to various destinations outside of the sub region.
- 4.6 AM2014 data suggests that the quarries in North Somerset sold a much higher proportion (77%) of their crushed rock aggregate to buyers in the West of England than the quarries in South Gloucestershire (for whom the proportion was 38%). Thus South Gloucestershire quarries export a much greater percentage of crushed rock aggregate outside of the West of England than the quarries in North Somerset. Better access to the motorway network and closer proximity to the markets of Gloucestershire, Wiltshire and the South East probably account for this.

- 4.7 The cross border movement of aggregates is a feature of the industry, but the degree to which it takes place and the particular areas involved may change because demand and supply are dynamic. It is very difficult to predict how the industry would respond if individual quarries close. The situation would be uncertain and it is unreasonable for quarry operators and Mineral Planning Authorities to speculate. What those authorities can do, however, is show the areas where there are likely to be opportunities for mineral development through allocations in minerals plans, so that the industry is fully aware of these opportunities should it seek to respond. Such allocations are in the Policies, Sites and Places Plan for South Gloucestershire, and the Sites and Policies Local Plan Part 1 for North Somerset. These plans have been prepared in consultation with the industry and operators of existing quarries, helping to ensure that issues such as productive capacity are taken into account.
- 4.8 Although one of the quarries (Tytherington) is rail linked, that quarry is inactive, and in recent years all the crushed rock produced in the West of England has been transported by road.

Imports

- 4.9 The British Geological Survey have produced AM2014 data on the source of crushed rock aggregates by sub-region. From this it is evident that 1.308mt of crushed rock was consumed for aggregate use in the WoE in 2014, the great majority of which (at least 80%) also came from the WoE. (About 70-80 % came from North Somerset, 1-10% from South Gloucestershire, and 10-20% came from Somerset).

Landbank for crushed rock

- 4.10 The total permitted reserves of crushed rock in the WoE as at 31 December 2016, were 131.70 million tonnes, giving a landbank of 38.62 years based on the average annual production over the 10 year period 2007–2016 (3.41 mt). Based on the sub regional apportionment figure of 4.94mt the landbank is 26.65 years. The significance of these figures is considered in paragraphs 5.6-5.9 below.

Sand and Gravel

- 4.11 The West of England does not have any commercially viable land-won sand and gravel resources and therefore relies on marine dredged and imported sand and gravel to meet the demand.

Imports

- 4.12 According to AM2014 data, in 2014, land-won and marine dredged sand and gravel consumed in the WoE totalled 401,000 tonnes. The source of this supply was mostly (60-70%) from Bristol (presumably landed at Avonmouth), with 20-30% from Dorset, 1-10% from Hampshire, 1-10% from Worcestershire, and small amounts (each less than 1%) from Devon, Wiltshire, Central Bedfordshire, Leicestershire and the Solihull area.

Marine dredged sand and gravel

- 4.13 The Government’s UK Marine Policy Statement 2011 (paragraph 3.5.1) states that “marine sand and gravel makes a crucial contribution to meeting the nation’s demand for construction aggregate materials”. The main source of sand and gravel in the West of England is marine-won, although it is predominantly sand as this reflects the market demand. This material is dredged from the Bristol Channel, and landed at Avonmouth. The sand is predominantly used for building and concreting. The small percentage of gravel dredged is mainly used as concreting aggregate, although a small amount is used with sand as fill.
- 4.14 The mineral rights for marine sand and gravel are owned by the Crown Estate, up to the edge of the continental shelf. Avonmouth receives all of its dredged marine aggregate from the Crown Estate’s ‘South West’ region in the Bristol Channel. The dredged aggregate in this ‘region’ is landed at a number of wharves, and while Avonmouth is the port that receives the largest proportion of this aggregate, the wharves in South Wales together land the majority of the aggregate from the ‘region’.
- 4.15 Landings of marine sand and gravel at Avonmouth for 2007-2016 are set out in the following table.

Table 4 - Marine dredged sand and gravel landings at Avonmouth 2007-2016 (mt)

2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Ave.
0.62	0.53	0.34	0.30	0.33	0.35	0.34	0.38	0.39	0.44	0.4

Source: Crown Estate

- 4.16 In 2016 440,376 tonnes of marine dredged primary aggregates (sand and gravel) was landed at Avonmouth, the largest quantity landed at any of the 10 ports within the Crown Estate’s “South West Region” and accounting for 37.1% of the “South West” total of 1.186 mt that was landed in those ports, that year. (Marine Aggregates The Crown Estate Licences Summary of Statistics 2015)
- 4.17 In the period from 1990-2014 inclusive the highest tonnage of aggregate landed at Avonmouth was 618,145 tonnes (in 2007) significantly more than the 2016 figure of 440,376 tonnes. This suggests that there may be significantly more capacity there than that latter (most recent) figure.
- 4.18 Dredging is subject to a system of licensing. The Crown Estate Marine Aggregates: Capability and Portfolio 2015 (the latest which was considered) indicates that the licensed areas in the Crown Estate’s “South West Region” (which is basically the Bristol Channel) had a total annual permitted offtake tonnage of 1.7 million tonnes per annum, although the 3 year average annual offtake was only 1.06 million tonnes. This again suggests that permitted capacity exceeds demand.

Recycled Aggregates

- 4.19 In the West of England recycled aggregate production largely derives from the reprocessing of the ‘hard inert’ elements of construction, demolition and excavation material (CDE waste), such as concrete, bricks, stone, road planings, rail ballast and glass. Recycling of CDE waste in the West of England is undertaken at fixed recycling sites and temporary construction sites. The fixed sites are generally waste transfer stations and quarries which handle and recycle a range of wastes. Aggregates from these sites are sold on the open market and/or used in the production, at the same site, of materials such as concrete. At temporary construction sites, mobile plant is used to process materials arising from demolition on the site, for use either on the same site (e.g. as construction fill or hardcore) or for sale off-site.
- 4.20 Robust data on arisings of CDE waste and the quantities of recycled aggregates derived from it are difficult to obtain, particularly for the sub-regional level. Estimates have therefore been developed from national and regional surveys and assumptions made about the proportions produced in the West of England. This is detailed in Appendix A, while Table 5 below sets out the estimated sales figures for the past ten years. However, the results can only be regarded as very crude estimates, taking account of the assumptions, which are set out in the Appendix. For example they include the assumption that for years when data is not available, the proportion of the CDE waste arising in the South West which is recycled as aggregate is consistent with the proportion for England, and that the proportion of South West recycled aggregate which is processed in the West of England is the same from 2003 onwards (that being the only date for which data is available). Therefore the results should be considered with these points in mind. The West of England authorities will try to establish more relevant and accurate information for the West of England to inform future iterations of the LAA.

Table 5 – Estimated Sales of Recycled Aggregates in the West of England 2005-2015 (mt)

2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Ave.
0.82	0.84	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.71

(For methodology see Appendix A)

Total Aggregates Supply

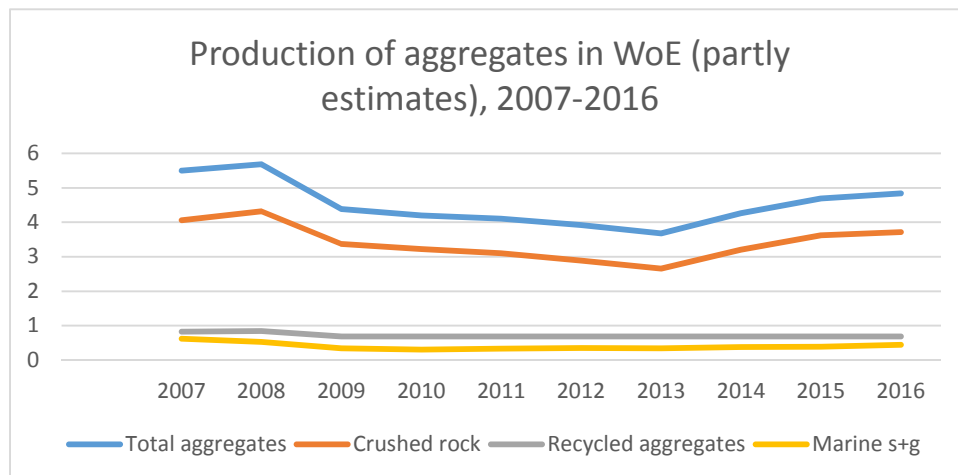
- 4.21 The overall supply of aggregates in the West of England is from a variety of sources – locally land-won crushed rock, recycled aggregates and marine dredged aggregate– as shown in Table 6. This data doesn’t take account of imports and exports. The table refers to “estimated supply” because the recycled aggregates element is estimated, as indicated above.

Table 6 – Estimated supply of Aggregates in the West of England 2006 – 2015, (including sales of crushed rock, landings of marine sand and gravel at Avonmouth, and estimate for production of recycled aggregate)

Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Ave. 2007-2016
Crushed Rock	4.06	4.32	3.37	3.22	3.1	2.89	2.66	3.20	3.62	3.72	3.41
Marine Sand & Gravel	0.62	0.53	0.34	0.30	0.33	0.35	0.34	0.38	0.39	0.44	0.40
Recycled Aggregates	0.82	0.84	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.71
Total	5.50	5.69	4.39	4.20	4.11	3.92	3.68	4.26	4.69	4.84	4.52

4.22 The figures in the table are depicted in the chart in Figure 3 below.

Figure 3
(Figures are in million tonnes)



5.0 Future Aggregates Supply

- 5.1 The National Planning Policy Framework (NPPF) requires that LAAs are “based on a rolling average of 10 years sales data and other relevant local information, and an assessment of all supply options (including marine, secondary and recycled sources)”. It is expected by the NPPF that MPAs will make provision for the land-won and other aggregates sources identified in their LAA in their local/minerals plan. DCLG ‘Guidance on the Managed Aggregate Supply System’ provides further guidance on the content of LAAs. This guidance suggests the use of the National Infrastructure Plan as part of the “relevant local information” used to supplement the 10 year sales data.
- 5.2 The National Infrastructure Plan 2014 lists a number of forthcoming infrastructure projects in the South West to 2020/21, including things like strategic road network projects and schemes to reduce flood and coastal erosion risk to homes. Listed projects within the WoE include planned improvements to Bristol Temple Meads Station. It is possible that aggregates from quarries in the WoE might be needed for this. The planned nuclear power plant at Hinkley Point C is also listed in the National Infrastructure Plan, but is located further from the WoE. The Bristol Airport expansion, currently under construction is also listed. The Temple Meads Station and Hinkley Point C projects are also referred to in the National Infrastructure Delivery Plan 2016-2021. The National Infrastructure Plan will be monitored as an influence on demand for aggregates within the West of England.

Crushed Rock

- 5.3 As indicated in Table 2 above, the 10 year average of crushed rock sales in the West of England between 2007 and 2016 is 3.41 million tonnes.
- 5.4 However both South Gloucestershire and North Somerset Councils in their Core Strategies have identified crushed rock requirements using the WoE sub-regional apportionment figure of 79.10 million tonnes for the period 2005 – 2020, and extrapolating this figure to 2026. As indicated in paragraph 3.4, the annualised sub-regional apportionment is 4.94mt.
- 5.5 The Core Strategy requirements reflect a splitting of the West of England figure 60:40 between South Gloucestershire and North Somerset, to reflect past sales, with South Gloucestershire taking the higher percentage. Historically the other unitary districts in the WoE, Bath and North East Somerset and Bristol City Council, have never made a significant contribution to aggregates supply in the South West, due to the scale and nature of the mineral operations and the geology of those areas. This is likely to continue. South Gloucestershire and North Somerset have extensive permitted reserves of aggregates and together have historically made provision for the sub regional apportionment.
- 5.6 Paragraph 4.10 above shows that the landbank for crushed rock for WoE as at the end of 2016 is over 26 years based on the sub regional apportionment (4.94mt), and over 38 years based on the 10 year sales average of 3.41mt. The latter is the appropriate means of landbank calculation, according to the national Planning Practice Guidance, paragraph 083. By that calculation the landbank is well beyond the life of both the South Gloucestershire and North Somerset Core Strategies, (which go forward to 2027 and 2026 respectively). It

implies that a 10 year landbank for crushed rock could theoretically be maintained in WoE beyond 2044, without additional reserves being permitted.

- 5.7 However this assumes various factors such as that all the permitted reserves are readily deliverable. It does not take account of factors which could affect this, (for example the fact that a significant proportion of the permitted reserves are at mothballed quarries (Tytherington and Cromhall)).
- 5.8 Also the permitted reserves are not evenly distributed between quarries and between North Somerset and South Gloucestershire.
- 5.9 In preparing Local Plans, South Gloucestershire and North Somerset Councils have taken and will continue to take account of such factors and the need for appropriate policies and allocations to help ensure a steady and adequate supply of aggregates. For example, in South Gloucestershire, the Policies, Sites and Places Plan adopted in November 2017 rolled forward two Preferred Areas (previously contained within the Minerals and Waste Local Plan (2002)), and allocated additional land for mineral working at Wickwar Quarry.

Marine Sand and Gravel

- 5.10 As indicated in paragraphs 4.17 and 4.18 above, comparison of actual and licensed rates of dredging within the Bristol Channel suggests that there is likely to be scope for an increase in the volume of marine sand and gravel to be landed in the channel as a whole. Historically Avonmouth has been the port with the highest tonnages landed, and since recent years' landings there have been lower than a peak in 2007, there is likely to be capacity for landings to increase.

Recycled Aggregates

- 5.11 The level of supply of recycled aggregates is influenced by the volume of arisings of CDE waste and the proportion of this waste that is recycled for aggregate use. A potential constraint on increased production is the availability of adequate capacity at recycling facilities located in close proximity to sources of CDE waste, and markets for the recycled aggregates derived from that waste.
- 5.12 Further information will be sought on the distribution and capacity of fixed CDE waste recycling facilities and the level of recycling activity in the West of England.

Transportation Infrastructure

- 5.13 The availability of wharves at Avonmouth docks that handle or could handle aggregates, should be safeguarded through relevant Local Plans. Similarly, railheads that have been or could be used for the transport of aggregates to and from the West of England by rail should be safeguarded to maintain their potential. The only railhead which has been used in fairly recent years for the transport of aggregates is at Tytherington Quarry. This is safeguarded by South Gloucestershire Council.

- 5.14 Bath and North East Somerset Council continue to safeguard a railhead at Westmoreland, Station Road, Bath, as a rail freight facility and interchange through their Placemaking Plan. It has been used previously to transfer and transport compacted waste and may have the potential to be used in the transport of aggregates in the future.
- 5.15 Consideration will be given to the appropriateness of safeguarding other railheads to recognise and maintain their potential for the transporting of aggregates.

Implications for individual Mineral Planning Authorities

- 5.16 Since the distribution of mineral resources and supporting infrastructure across the West of England is uneven, Table 7 provides a summary of the issues identified above and identifies the MPA(s) to which each is relevant.

Table 7 - Implications of the Local Aggregate Assessment for West of England MPAs

	Bath & North East Somerset	Bristol City	North Somerset	South Gloucestershire
Safeguarding/provision of crushed rock reserves and processing capacity			▲	▲
Safeguarding of wharf capacity for marine aggregates		▲	▲	
Maintaining processing capacity for recycled aggregates	▲	▲	▲	▲
Safeguarding of rail infrastructure with possibility of using it in movement of aggregates	▲	▲		▲

Data Methodology for Recycled Aggregates

A.1 Figures for sales of recycled aggregates produced at national and regional levels are heavily qualified as there is no systematic and consistent data collection equivalent to the Annual Minerals Raised Inquiry (AMRI) or Aggregate Minerals surveys. Robust and consistent data on sales of recycled aggregates at the sub-regional level are difficult to obtain due to the diversity of recycling facilities and their frequently temporary nature. However, periodic surveys undertaken on behalf of the Government provide regional data that, combined with assumptions about the proportions accounted for by the West of England, allow estimates to be made.

Table A.1- Summary of the available national, regional and estimated West of England figures for arisings of CDE waste and production of recycled aggregates, 2001-2010.

	2001	2003	2005	2008	2009	2010
a) England CDE waste	88.89	90.93	89.63	94.55	76.97	77.38
b) England Recycled Aggregates	36.47	39.60	42.07	43.52	34.82	34.82
c) England Recycled Aggs as % of CDE waste	41.0%	43.6%	46.9%	46.0%	45.2%	45.0%
d) SW CDE waste	12.62	10.00	9.48	10.02*	8.16*	8.20*
e) SW CDE waste as % of England CDE waste	14.2%	11.0%	10.6%	10.6%*	10.6%*	10.6%*
f) SW Recycled Aggs	2.80	4.47	4.45*	4.61*	3.69*	3.69*
g) WoE Recycled Aggs	n/a	0.82*	0.81*	0.84*	0.68*	0.68*

Note: asterisks indicate estimates

A.2 In estimating figures for the West of England the following assumptions have been made:

- as no relevant regional figures are available after 2005, it is assumed that the South West accounted for the same proportion of England's CDE waste arisings from 2008 onwards as in 2005 (10.6%). Therefore for 2008 onwards, that % has been applied to England CDE waste to give estimated SW CDE waste;
- due to a lack of relevant figures after 2003, it is assumed that from 2005 onwards the proportion of the CDE waste arising in the South West which is recycled as aggregate is consistent with the proportion for England. Therefore for 2005

onwards SW recycled aggregates have been calculated on that basis, using the England figures.

- that recycled aggregates in the West of England represented 18.3% of the total recycled aggregates in the South West for all survey years from and including 2003, that being the one date for which data is available. (2003 figure is calculated from data in DCLG (2007) Survey of Arisings and Use of Alternatives to Primary Aggregates in England, 2005 - Construction, Demolition and Excavation Waste: Final Report, London: HMSO.)

A.3 To provide a ten year average for comparison with other aggregate streams, the figures for recycled aggregates in the West of England in Table A.1 have been adapted by assuming a steady rate of change between years for which figures have been calculated; (e.g. assuming that production of recycled aggregates in the West of England in 2004 was the mean of the figures for 2003 and 2005, (i.e. 0.815 million tonnes, rounded down to 0.81mt), and that the figures for 2006 and 2007 were the mean of the figures for 2005 and 2008, (ie: 0.825mt, rounded down to 0.82mt.) Unfortunately, due to the lack of data, even for England, post 2010, it is very difficult to make estimates for the years from 2011-2016 inclusive, other than simply assuming continuation of the 2010 estimate for recycled aggregate of 0.68mt in those years.

A.4 These assumptions result in the following very crude estimated figures for sales of recycled aggregates in the West of England for 2007-2016:

2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
0.82	0.84	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68

Sources of waste data for Table A.1

- ODPM (2002) Survey of arisings and use of construction and demolition waste in England and Wales in 2001. London: HMSO
(<http://webarchive.nationalarchives.gov.uk/20080206120644/http://www.communities.gov.uk/archived/publications/planningandbuilding/surveyarisings>)
- ODPM (2004) Survey of Arisings and Use of Construction, Demolition and Excavation Waste as Aggregate in England in 2003. London: HMSO.
(<http://webarchive.nationalarchives.gov.uk/20120919132719/www.communities.gov.uk/documents/planningandbuilding/pdf/surveyarisings2003.pdf>)
- DCLG (2007) Survey of Arisings and Use of Alternatives to Primary Aggregates in England, 2005 - Construction, Demolition and Excavation Waste: Final Report. London: HMSO.
(<http://webarchive.nationalarchives.gov.uk/20120919132719/http://www.communities.gov.uk/publications/planningandbuilding/surveyconstruction2005>)

- Defra (undated) Construction and demolition waste, England – Total waste generation 2008-2010. [online] (<http://www.defra.gov.uk/statistics/environment/waste/wrfg09-condem/>)
- WRAP (2010) Construction, demolition and excavation waste arisings, use and disposal for England 2008. (http://aggregain.wrap.org.uk/templates/temp_agg_publication_details.rm?id=2298&publication=9526)
- South West Regional Assembly (2005) Technical and Strategic Assessment of Aggregate Supply Options in the South West Region. (http://www.southwest-ra.gov.uk/nqcontent.cfm?a_id=1215&tt=swra)